



**Generation Interconnection
Feasibility Study Report
for
Queue Project AF1-236
MACKEYS 230 KV
459.8 MW Capacity / 1210 MW Energy**

January, 2020

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1 Introduction

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

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

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in

order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a \$10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

3 General

The Interconnection Customer (IC), has proposed a solar generating facility located in Washington County, North Carolina. The installed facilities will have a total capability of 1210 MW with 459.8 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 09/30/2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AF1-236
Project Name	MACKEYS 230 KV
State	Washington
County	North Carolina
Transmission Owner	Dominion
MFO	1210
MWE	1210
MWC	459.8
Fuel	Solar
Basecase Study Year	2023

3.1 Primary Point of Interconnection

The AF1-236 project will interconnect with the Dominion transmission system. The primary Point of Interconnection (POI) is a direct connection to the existing Mackeys 230 kV substation. 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 substation. 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.

3.2 Secondary Point of Interconnection

The AF1-236 project selected a secondary POI at the existing Sufflok 500 kV substation.

This report does not provide costs for the physical interconnection of the secondary point of interconnection. 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 AF1-236 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 2,100,000
Direct Connection Network Upgrade	\$ 0
Non Direct Connection Network Upgrades	\$ 1,200,000
Total Costs	\$ 3,300,000

In addition, the AF1-236 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$ 962,717,000

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.

4 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AF1-236. The project was evaluated as a 459.80 MW Capacity (1,210 MW Energy) injection at the existing Mackeys 230 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2023 AF1 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 Planning Event 3 and 6 Contingency Conditions (Loss of generator, transmission circuit, transformer, shunt device, or Single Pole of a DC line followed by the loss of a generator, transmission circuit, transformer, shunt device or single pole of a DC line) 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 AF1-236 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

To accommodate the proposed AF1-236 Project, Dominion Energy will install one span of overhead 230 kV line to the point of interconnection ("POI") including 230 kV interconnection metering.

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

Description	Total Cost
Substation (Metering)	\$600,000
Transmission (One-Span)	\$1,500,000
Total Attachment Facility Costs	\$2,100,000

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

None

7 Non-Direct Connection Cost Estimate

To accommodate the proposed AF1-236 Project, Dominion Energy will add one new 230 kV breakers to the existing Mackeys 230 kV substation to allow for the proposed interconnection.

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
Additional Substation Breakers (1) and Associated Equipment	1,200,000
Total Direct Connection Facility Costs	\$1,200,000

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.

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.

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 2023 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system and no further deficiencies were identified.

9.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by Dominion. The connection of AF1-236 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:

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

11.2 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 – Primary Point of Interconnection

The Queue Project AF1-236 was evaluated as a 1210.0 MW (Capacity 459.8 MW) injection at the Mackeys 230 kV substation in the Dominion area. Project AF1-236 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-236 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

12.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
42932665	314574	6EVERETS	230.0	DVP	304451	6GREENVILLE	230.0	CPL	1	DVP_P1-2: LN 2092	single	478.0	97.05	117.51	DC	97.77
42932666	314574	6EVERETS	230.0	DVP	304451	6GREENVILLE	230.0	CPL	1	DVP_P1-2: LN 2131	single	478.0	96.7	117.16	DC	97.79
43196463	314596	3POPLR C	115.0	DVP	314573	3EVERETS	115.0	DVP	1	DVP_P1-2: LN 2034-B	single	224.66	87.28	132.01	DC	100.49
46330019	314596	3POPLR C	115.0	DVP	314573	3EVERETS	115.0	DVP	1	3146206CASHIE 230 933990 AD1-023 TAP 230 1	single	224.66	87.5	132.23	DC	100.49
43196538	314614	3TRWBRDG 2	115.0	DVP	314596	3POPLR C	115.0	DVP	1	DVP_P1-2: LN 2034-B	single	285.76	70.65	105.81	DC	100.49
46330137	314614	3TRWBRDG 2	115.0	DVP	314596	3POPLR C	115.0	DVP	1	3146206CASHIE 230 933990 AD1-023 TAP 230 1	single	285.76	70.79	105.95	DC	100.49

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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
42932732	313845	6HATHAWAY	230.0	DVP	304222	6ROCKYMT30T	230.0	CPL	1	DVP_P1-2: LN 2181	single	478.0	109.07	116.87	DC	37.28
42932528	314574	6EVERETS	230.0	DVP	304451	6GREENVILLE	230.0	CPL	1	DVP_P4-2: 2020T2144	breaker	478.0	139.89	193.78	DC	257.58
42932921	314574	6EVERETS	230.0	DVP	304451	6GREENVILLE	230.0	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	160.42	197.8	DC	178.63
43196894	314576	3FIVE PT	115.0	DVP	314622	3WHARTON	115.0	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	159.57	216.45	DC	114.87

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPAC T
42932727	314591	6NASH	230.0	DVP	304226	6PA-RMOUNT#4	230.0	CPL	1	DVP_P1-2: LN 2058	single	478.0	108.25	116.18	DC	37.91
43196900	314592	3PANTEGO	115.0	DVP	925120	AB2-169 TAP	115.0	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	129.57	186.45	DC	114.87
42932750	314902	8CARSON	500.0	DVP	314914	8MDLTHAN	500.0	DVP	1	DVP_P1-2: LN 557	single	3218.56	121.06	121.45	DC	120.52
42932753	314902	8CARSON	500.0	DVP	314914	8MDLTHAN	500.0	DVP	1	DVP_P1-2: LN 574	single	3218.56	105.94	107.47	DC	108.38
42932683	314903	8CHCKAHM	500.0	DVP	314908	8ELMONT	500.0	DVP	1	DVP_P1-2: LN 563	single	2442.12	165.26	165.94	DC	123.78
42932684	314903	8CHCKAHM	500.0	DVP	314908	8ELMONT	500.0	DVP	1	DVP_P1-2: LN 576	single	2442.12	163.67	164.23	DC	123.87
42932692	314903	8CHCKAHM	500.0	DVP	314908	8ELMONT	500.0	DVP	1	Base Case	single	2442.12	135.5	136.04	DC	97.27
42932742	314905	8CHANCE	500.0	DVP	314900	8BRISTER	500.0	DVP	1	DVP_P1-2: LN 568	single	2442.12	130.92	131.47	DC	73.1
42932745	314905	8CHANCE	500.0	DVP	314900	8BRISTER	500.0	DVP	1	DVP_P1-2: LN 534	single	2442.12	100.86	101.05	DC	61.58
42932843	314908	8ELMONT	500.0	DVP	314911	8LADYSMITH	500.0	DVP	1	DVP_P1-2: LN 576	single	4070.2	116.88	117.17	DC	136.08
42932846	314908	8ELMONT	500.0	DVP	314911	8LADYSMITH	500.0	DVP	1	DVP_P1-2: LN 534	single	4070.2	105.84	106.91	DC	117.88
42932765	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P1-2: LN 581	single	2442.12	130.27	131.6	DC	71.09
42932767	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P1-2: LN 573	single	2442.12	132.22	132.65	DC	70.35
42932783	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P1-2: LN 568	single	2738.22	121.34	121.83	DC	73.77
42932703	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	DVP_P1-2: LN 574	single	2442.12	151.14	151.48	DC	120.32
42932704	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	DVP_P1-2: LN 557	single	2442.12	139.69	140.01	DC	116.39
42932712	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	Base Case	single	2442.12	106.95	108.14	DC	88.81
42932828	314918	8NO ANNA	500.0	DVP	314911	8LADYSMITH	500.0	DVP	1	DVP_P1-2: LN 573	single	3218.56	110.86	111.73	DC	61.44
42932829	314918	8NO ANNA	500.0	DVP	314911	8LADYSMITH	500.0	DVP	1	DVP_P1-2: LN 594	single	3218.56	106.54	107.37	DC	58.22
42932861	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P1-2: LN 575	single	3218.56	113.59	114.04	DC	73.24
42932559	314924	8SURRY	500.0	DVP	314903	8CHCKAHM	500.0	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	110.71	111.75	DC	305.31
42932716	314924	8SURRY	500.0	DVP	314903	8CHCKAHM	500.0	DVP	1	DVP_P1-2: LN 563	single	2442.12	104.23	108.89	DC	113.61
42932793	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P1-2: LN 575	single	3218.56	118.12	118.85	DC	72.23
43196893	925120	AB2-169 TAP	115.0	DVP	314576	3FIVE PT	115.0	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	171.32	228.21	DC	114.87

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.

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPAC T
429327 31	31384 5	6HATHAWAY	230. 0	DVP	30422 2	6ROCKYMT23 OT	230. 0	CPL E	1	DVP_P 1-2: LN 2181	operati on	478.0	137.64	146.95	DC	98.09
463301 61	31452 8	3IVOR106	115. 0	DVP	31387 9	3BELL AVE 2	115. 0	DVP	1	Base Case	operati on	110.92	109.59	110.62	DC	12.97
463300 95	31453 2	3OAKRI23	115. 0	DVP	93259 0	AC2-079 TAP	115. 0	DVP	1	Base Case	operati on	110.92	100.27	101.97	DC	12.97
463300 63	31453 6	3SUFFOLK	115. 0	DVP	31453 2	3OAKRI23	115. 0	DVP	1	Base Case	operati on	110.92	122.09	123.79	DC	12.97
429326 59	31457 4	6EVERETS	230. 0	DVP	30445 1	6GREENVILE T	230. 0	CPL E	1	DVP_P 1-2: LN 2092	operati on	478.0	139.9	193.73	DC	257.29
429326 64	31457 4	6EVERETS	230. 0	DVP	30445 1	6GREENVILE T	230. 0	CPL E	1	Base Case	operati on	478.0	109.41	140.71	DC	149.58
429327 24	31459 1	6NASH	230. 0	DVP	30422 6	6PA-RMOUNT#4	230. 0	CPL E	1	DVP_P 1-2: LN 2058	operati on	478.0	138.14	147.6	DC	99.75
431964 60	31459 6	3POPLR C	115. 0	DVP	31457 3	3EVERETS	115. 0	DVP	1	Base Case	operati on	224.66	79.2	136.29	DC	128.26
463300 13	31459 6	3POPLR C	115. 0	DVP	31457 3	3EVERETS	115. 0	DVP	1	31462 0 6CASHI E 230 93399 0 AD1- 023 TAP 230 1	operati on	224.66	153.5	271.21	DC	264.45
431966 37	31461 3	3TRWBRDG	115. 0	DVP	31462 1	3WEYRHAER	115. 0	DVP	1	DVP_P 1-2: LN 2034-A	operati on	269.78	69.16	154.49	DC	230.19
431965 35	31461 4	3TRWBRDG2	115. 0	DVP	31459 6	3POPLR C	115. 0	DVP	1	Base Case	operati on	284.82	64.47	109.51	DC	128.26
463301 31	31461 4	3TRWBRDG2	115. 0	DVP	31459 6	3POPLR C	115. 0	DVP	1	31462 0 6CASHI E 230 93399 0 AD1- 023 TAP 230 1	operati on	285.76	122.67	215.22	DC	264.45
431965 63	31462 1	3WEYRHAER	115. 0	DVP	31461 4	3TRWBRDG2	115. 0	DVP	1	DVP_P 1-2: LN 2034-A	operati on	269.78	107.93	193.13	DC	229.86
429327 13	31492 4	8SURREY	500. 0	DVP	31490 3	8CHCKAHM	500. 0	DVP	1	DVP_P 1-2: LN 563	operati on	2442.1 2	140.1	141.44	DC	298.97
429327 20	31492 4	8SURREY	500. 0	DVP	31490 3	8CHCKAHM	500. 0	DVP	1	Base Case	operati on	2442.1 2	102.48	103.89	DC	228.09
429327 73	31492 7	8YADKIN	500. 0	DVP	31492 8	8SUFFOLK	500. 0	DVP	1	DVP_P 1-2: LN 579	operati on	2442.1 2	98.21	102.33	DC	223.12
429328 32	31492 7	8YADKIN	500. 0	DVP	31492 3	8SEPTA	500. 0	DVP	1	DVP_P 1-2: LN 531	operati on	2442.1 2	101.97	107.08	DC	297.95
463300 90	93259 0	AC2-079 TAP	115. 0	DVP	31452 8	3IVOR106	115. 0	DVP	1	Base Case	operati on	110.92	119.87	120.9	DC	12.97

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
42932765,42932767	12	8LADYSMITH 500.0 kV - 8POSSUM 500.0 kV Ckt 1	<u>DVP</u> dom-183 : Build new 500 kV Line from Rawlings to Morrisville Substation 110 miles Project Type : CON Cost : \$400,000,000 Time Estimate : 60-72 Months n6063 : Replace Wavetraps at Ladysmith and Possum Pt 500 kV substations. Project Type : FAC Cost : \$300,000 Time Estimate : 16-18 Months	\$400,420,000
42932843,42932846	11	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	n6157 : Relay Change Outs (CT) at Ladysmith and Possum Pt 500 kV substations. Project Type : FAC Cost : \$120,000 Time Estimate : 6-12 Months	
42932861	16	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	<u>DVP</u> n6132 : 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
42932750,42932753	8	8CARSON 500.0 kV - 8MDLTAN 500.0 kV Ckt 1	<u>DVP</u> n6172 : Rebuild 37.41 miles of 500 kV Line 563 from Carson to Midlothian with 3-1351.5 125C ACSR. Project Type : FAC Cost : \$115,971,000 Time Estimate : 48-60 Months	\$115,971,000
42932745,42932742	10	8CHANCE 500.0 kV - 8BRISTER 500.0 kV Ckt 1	<u>DVP</u> b3019 : PJM baseline upgrade b3019: Rebuild 500kV Line #552 Bristers to Chancellor 21.6 miles long. The baseline project has an projected in-service date of 12/31/2023. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
43196538,46330137	3	3TRWBRDG2 115.0 kV - 3POPLR C 115.0 kV Ckt 1	<u>DVP</u> dom-176 : Reconductor 7.4 miles of 115 kV Line 25 from Trowbridge to Poplar Chapel with 768 ACSS. Replace Wavetraps, relay, circuit breaker switch, and circuit breaker lead at Trowbridge. Project Type : FAC Cost : \$4,910,000 Time Estimate : 30-36 Months	\$4,910,000

ID	Index	Facility	Upgrade Description	Cost
42932783	13	8LADYSMITH 500.0 kV - 8CHANCE 500.0 kV Ckt 1	<u>DVP</u> b3021 : PJM baseline upgrade b3021: Rebuild 500kV Line #581 Ladysmith to Chancellor - 15.2 miles long. The baseline project has an projected in-service date of 12/31/2023. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
42932683,42932684, 42932692	9	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	<u>DVP</u> n6207 : Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$85,932,000 Time Estimate : 48-60 Months	\$85,932,000
42932703,42932712, 42932704	14	8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1	<u>DVP</u> n5609 : Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna with 3-1351.5 125C ACSR. Project Type : FAC Cost : \$127,503,000 Time Estimate : 48-60 Months n6055 : Replace Wavetraps at Milothian and North Anna 500kV substations Project Type : FAC Cost : \$300,000 Time Estimate : 16-18 Months	\$127,803,000
43196463,46330019	2	3POPLR C 115.0 kV - 3EVERETS 115.0 kV Ckt 1	<u>DVP</u> dom-175 : Reconductor 13.4 miles of 115 kV Line 25 from Poplar Chapel to Everetts with 2-636 ACSR. Replace Wavetrap, relay, circuit breaker switch, and circuit breaker lead at Everetts. Project Type : FAC Cost : \$8,510,000 Time Estimate : 30-36 Months	\$8,510,000
42932559,42932716	17	8SURRY 500.0 kV - 8CHCKAHM 500.0 kV Ckt 1	<u>DVP</u> dom-040 : Replace Terminal Equipment at Surry and Chickahominy Substations Project Type : FAC Cost : \$4,000,000 Time Estimate : 16-18 Months	\$4,000,000
42932793	18	8SPOTSYL 500.0 kV - 8MORRSVL 500.0 kV Ckt 1	<u>DVP</u> n6160 : Rebuild 18.75 miles of 500 kV Line 594 from Spotsylvania to Morrisville with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$58,125,000 Time Estimate : 48-60 Months	\$58,125,000

ID	Index	Facility	Upgrade Description	Cost
42932921,42932528, 42932665,42932666	1	6EVERETS 230.0 kV - 6GREENVILE T 230.0 kV Ckt 1	<u>DVP</u> dom-173 : Rebuild 20.32 miles of 230 kV Line 218 from Everetts to Greenville with 2-636 ACSR Project Type : FAC Cost : \$30,480,000 Time Estimate : 30-36 Months	\$30,480,000
42932727	6	6NASH 230.0 kV - 6PA- RMOUNT#4 230.0 kV Ckt 1	<u>DVP</u> dom-005 : 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
43196893	19	AB2-169 TAP 115.0 kV - 3FIVE PT 115.0 kV Ckt 1	<u>DVP</u> n6142 : Rebuild 5.14 miles of 115 kV Line 189 from AB2-169 Tap to Five Points DP with 636 ACSR. Project Type : FAC Cost : \$6,682,000 Time Estimate : 30-36 Months	\$6,682,000
43196894	5	3FIVE PT 115.0 kV - 3WHARTON 115.0 kV Ckt 1	<u>DVP</u> n6143 : Rebuild 5.88 miles of 115 kV Line 189 from Five Points DP to Wharton with 636 ACSR. Project Type : FAC Cost : \$7,644,000 Time Estimate : 30-36 Months	\$7,644,000
42932732	4	6HATHAWAY 230.0 kV - 6ROCKYMT230T 230.0 kV Ckt 1	<u>DVP</u> dom-003 : 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
42932828,42932829	15	8NO ANNA 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	<u>DVP</u> dom-044 : Rebuild 14.53 miles of 500 kV Line 575 from North Anna to Ladysmith with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$45,043,000 Time Estimate : 48-60 Months	\$45,043,000
43196900	7	3PANTEGO 115.0 kV - AB2-169 TAP 115.0 kV Ckt 1	<u>DVP</u> dom-147 : Reconnector 8.6 miles of 115 kV Line 1031 from Pantego to AB2-169 Tap with 636 ACSR. Project Type : FAC Cost : \$5,160,000 Time Estimate : 30-36 Months	\$5,160,000

ID	Index	Facility	Upgrade Description	Cost
			TOTAL COST	\$962,717,000

12.6 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, 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_P1-2: LN 568	CONTINGENCY 'DVP_P1-2: LN 568' OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 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_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 BRANCH FROM BUS 313844 TO BUS 313845 CKT 2 /* 3HATHAWAY 115.00 - 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

Contingency Name	Contingency Definition
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 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_P7-1: LN 25-2034-A	CONTINGENCY 'DVP_P7-1: LN 25-2034-A' OPEN BRANCH FROM BUS 314573 TO BUS 314596 CKT 1 /* 3EVERETS 115.00 - 3POPLR C 115.00 OPEN BRANCH FROM BUS 314596 TO BUS 314614 CKT 1 /* 3POPLR C 115.00 - 3TRWBRDG2 115.00 OPEN BUS 314596 /* ISLAND: 3POPLR C 115.00 OPEN BRANCH FROM BUS 314614 TO BUS 314616 CKT 1 /* 3TRWBRDG2 115.00 - 6TRWBRDG 230.00 OPEN BRANCH FROM BUS 314616 TO BUS 933990 CKT 1 /* 6TRWBRDG 230.00 - AD1-023 TAP 230.00 END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 579	CONTINGENCY 'DVP_P1-2: LN 579' OPEN BRANCH FROM BUS 314923 TO BUS 314927 CKT 1 /* 8SEPTA 500.00 - 8YADKIN 500.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 2020T2144	CONTINGENCY 'DVP_P4-2: 2020T2144' /* WINFALL 230 KV 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 OPEN BRANCH FROM BUS 313713 TO BUS 314651 CKT 1 /* 6SWAMP 230.00 - 6WINFALL 230.00 END
DVP_P1-2: LN 575	CONTINGENCY 'DVP_P1-2: LN 575' OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 534	CONTINGENCY 'DVP_P1-2: LN 534' OPEN BRANCH FROM BUS 314907 TO BUS 314910 CKT 1 /* 8DOOMS 500.00 - 8CUNINGHAM 500.00 END
DVP_P1-2: LN 531	CONTINGENCY 'DVP_P1-2: LN 531' OPEN BRANCH FROM BUS 314924 TO BUS 314928 CKT 1 /* 8SURRY 500.00 - 8SUFFOLK 500.00 END
Base Case	
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
314620 6CASHIE 230 933990 AD1-023 TAP 230 1	CONTINGENCY '314620 6CASHIE 230 933990 AD1-023 TAP 230 1' OPEN BRANCH FROM BUS 314620 TO BUS 933990 CKT 1 END
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 OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 2 /* 3HATHAWAY 115.00 - 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 2034-A	CONTINGENCY 'DVP_P1-2: LN 2034-A' OPEN BRANCH FROM BUS 314614 TO BUS 314616 CKT 1 /* 3TRWBRDG2 115.00 - 6TRWBRDG 230.00 OPEN BRANCH FROM BUS 314616 TO BUS 933990 CKT 1 /* 6TRWBRDG 230.00 - AD1-023 TAP 230.00 END
DVP_P1-2: LN 2034-B	CONTINGENCY 'DVP_P1-2: LN 2034-B' OPEN BRANCH FROM BUS 314569 TO BUS 314620 CKT 1 /* 6EARLEYS 230.00 - 6CASHIE 230.00 OPEN BRANCH FROM BUS 933990 TO BUS 314620 CKT 1 /* AD1-023 TAP 230.00 - 6CASHIE 230.00 OPEN BUS 314620 /* ISLAND: 6CASHIE 230.00 END

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
42932921	314574	6EVERETS	DVP	304451	6GREENVILLE	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	160.42	197.8	DC	178.63

Bus #	Bus	MW Impact
314539	3UNCAMP	0.9793
314541	3WATKINS	0.2985
314574	6EVERETS	0.5210
314582	3KELFORD	0.3143
315131	1EDGECSMA (Deactivation : 04/22/19)	9.7533
315132	1EDGECSMB (Deactivation : 04/22/19)	9.7533
315136	1ROSEMG1	1.3746
315137	1ROSEMS1	0.8524
315138	1ROSEMG2	0.6442
315292	1DOMTR78	1.4869
315294	1DOMTR10	13.8056
315601	1CONETOE2SOL	2.0412
315602	1HOLLOMANSOL	1.3620
315614	AA2-178 C	1.1540
900672	V4-068 E	0.1795
901082	W1-029 E	18.8262
907092	X1-038 E	2.4481
913392	Y1-086 E	0.7682
916042	Z1-036 E	23.8252
917122	Z2-027 E	0.3994
917332	Z2-043 E	0.9790
917342	Z2-044 E	0.2240
917512	Z2-088 E OP1	6.2674
918492	AA1-063AE OP	2.0418
918512	AA1-065 E OP	4.3692
918532	AA1-067 E	1.5997
919152	AA1-139 E	1.8026
919692	AA2-053 E OP	2.1016
919702	AA2-057 E OP	1.4608
920042	AA2-088 E OP	5.2463
920592	AA2-165 E	0.2008

Bus #	Bus	MW Impact
920672	AA2-174 E OP	0.2429
920692	AA2-178 E	3.5431
922922	AB1-081 C OP	3.5809
922923	AB1-081 E OP	1.5347
923262	AB1-132 C OP	8.8143
923263	AB1-132 E OP	3.7776
923572	AB1-173 C OP	1.0083
923573	AB1-173 E OP	0.4705
923582	AB1-173AC OP	1.0083
923583	AB1-173AE OP	0.4705
923801	AB2-015 C OP	3.6333
923802	AB2-015 E OP	2.9793
923831	AB2-022 C	0.8053
923832	AB2-022 E	0.4336
923911	AB2-031 C O1	1.0008
923912	AB2-031 E O1	0.4930
923991	AB2-040 C O1	3.2863
923992	AB2-040 E O1	2.6888
924151	AB2-059 C OP	4.2204
924152	AB2-059 E OP	2.1741
924501	AB2-099 C	0.5217
924502	AB2-099 E	0.2236
924511	AB2-100 C	4.9643
924512	AB2-100 E	2.4451
925121	AB2-169 C	10.0823
925122	AB2-169 E	9.0482
925171	AB2-174 C O1	3.0495
925172	AB2-174 E O1	2.7591
925591	AC1-034 C	2.7337
925592	AC1-034 E	2.0622
926071	AC1-086 C	12.9802
926072	AC1-086 E	5.9077
926201	AC1-098 C	3.4082
926202	AC1-098 E	2.0304
926211	AC1-099 C	1.1421
926212	AC1-099 E	0.6708
927021	AC1-189 C	15.5864
927022	AC1-189 E	7.7640
927141	AC1-208 C	4.4128
927142	AC1-208 E	1.9595

Bus #	Bus	MW Impact
932631	AC2-084 C	4.8585
932632	AC2-084 E	2.3930
933991	AD1-023 C	13.5423
933992	AD1-023 E	7.3725
934201	AD1-047 C	3.5851
934202	AD1-047 E	2.3901
934331	AD1-057 C O1	9.0062
934332	AD1-057 E O1	4.8043
934521	AD1-076 C	55.0129
934522	AD1-076 E	28.0125
936401	AD2-051 C O1	9.4535
936402	AD2-051 E O1	4.0592
936701	AD2-089 C (Withdrawn : 12/09/2019)	10.6717
936702	AD2-089 E (Withdrawn : 12/09/2019)	7.1145
936711	AD2-090 C O1	3.3080
936712	AD2-090 E O1	2.2053
937571	AD2-169 C	4.6170
937572	AD2-169 E	3.0780
938171	AE1-026 C O1	33.3977
938172	AE1-026 E O1	8.8111
938221	AE1-035 C	2.4395
938222	AE1-035 E	1.2015
938531	AE1-072 C O1	5.1602
938532	AE1-072 E O1	2.6900
938661	AE1-088	5.1704
938771	AE1-103 C O1	1.4689
938772	AE1-103 E O1	2.0284
940481	AE2-033 C	4.5647
940482	AE2-033 E	3.0773
940491	AE2-034 C	7.2339
940492	AE2-034 E	3.1002
940521	AE2-037 C	9.7374
940522	AE2-037 E	4.7071
940571	AE2-044 C	0.9490
940572	AE2-044 E	0.4067
941101	AE2-104 C O1	1.0246
941102	AE2-104 E O1	1.6280
941501	AE2-147 C	6.4918
941502	AE2-147 E	4.3279
941541	AE2-151 C	1.0325

Bus #	Bus	MW Impact
941542	AE2-151 E	0.5559
942131	AE2-225 C	0.6096
942132	AE2-225 E	0.4064
942171	AE2-229 C	0.6096
942172	AE2-229 E	0.4064
942471	AE2-260 C O1	5.8085
942472	AE2-260 E O1	8.2386
942851	AE2-304 C	0.2944
942852	AE2-304 E	0.1145
943171	AE2-346 C	1.2520
943172	AE2-346 E	0.5366
943451	AF1-016 C O1	0.2128
943452	AF1-016 E O1	0.3385
943611	AF1-032 C	0.2638
943612	AF1-032 E	0.1400
944051	AF1-073 C O1	20.5848
944052	AF1-073 E O1	13.7232
944141	AF1-082	0.6100
944871	AF1-152 C	1.1469
944872	AF1-152 E	0.7646
945711	AF1-236 C O1	67.8803
945712	AF1-236 E O1	110.7520
946011	AF1-266	2.0251
946281	AF1-292 C	0.3166
946282	AF1-292 E	0.2134
DUCKCREEK	DUCKCREEK	1.6639
NEWTON	NEWTON	1.6483
FARMERCITY	FARMERCITY	0.0958
G-007A	G-007A	0.9974
VFT	VFT	2.6445
PRAIRIE	PRAIRIE	4.5099
AC1-131	AC1-131	5.7360
COFFEEN	COFFEEN	0.8171
EDWARDS	EDWARDS	0.4942
CHEOAH	CHEOAH	1.3904
TILTON	TILTON	0.8707
GIBSON	GIBSON	0.7906
CALDERWOOD	CALDERWOOD	1.3553
BLUEG	BLUEG	2.4252
TRIMBLE	TRIMBLE	0.7685

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	1.4627

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
46330019	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	314620 6CASHIE 230 933990 AD1-023 TAP 230 1	single	224.66	87.5	132.23	DC	100.49

Bus #	Bus	MW Impact
314638	6ELIZ CT	0.0700
314639	6TANGLEW	0.1474
315292	1DOMTR78	2.6099
315294	1DOMTR10	24.2326
315605	6W1-029WIND	0.4569
315611	6Z1-036WIND	0.7241
315614	AA2-178 C	1.7083
923831	AB2-022 C	0.8576
925121	AB2-169 C	5.2814
933991	AD1-023 C	20.9192
934521	AD1-076 C	86.3421
938661	AE1-088	2.7084
940491	AE2-034 C	10.7089
941501	AE2-147 C	7.5546
942851	AE2-304 C	0.3946
944051	AF1-073 C O1	32.3076
944871	AF1-152 C	2.5182
945711	AF1-236 C O1	100.4893
DUCKCREEK	DUCKCREEK	0.4214
NEWTON	NEWTON	0.4169
FARMERCITY	FARMERCITY	0.0241
G-007A	G-007A	0.2877
VFT	VFT	0.7675
PRAIRIE	PRAIRIE	1.1365
COFFEEN	COFFEEN	0.2066
EDWARDS	EDWARDS	0.1249
CHEOAH	CHEOAH	0.3493
TILTON	TILTON	0.2205
GIBSON	GIBSON	0.2004

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.3404
BLUEG	BLUEG	0.6163
TRIMBLE	TRIMBLE	0.1953
CATAWBA	CATAWBA	0.3675

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
46330137	314614	3TRWBRDG2	DVP	314596	3POPLR C	DVP	1	314620 6CASHIE 230 933990 AD1-023 TAP 230 1	single	285.76	70.79	105.95	DC	100.49

Bus #	Bus	MW Impact
314638	6ELIZ CT	0.0700
314639	6TANGLEW	0.1474
315292	1DOMTR78	2.6099
315294	1DOMTR10	24.2326
315605	6W1-029WIND	0.4569
315611	6Z1-036WIND	0.7241
315614	AA2-178 C	1.7083
923831	AB2-022 C	0.8576
925121	AB2-169 C	5.2814
933991	AD1-023 C	20.9192
934521	AD1-076 C	86.3421
938661	AE1-088	2.7084
940491	AE2-034 C	10.7089
941501	AE2-147 C	7.5546
942851	AE2-304 C	0.3946
944051	AF1-073 C O1	32.3076
944871	AF1-152 C	2.5182
945711	AF1-236 C O1	100.4893
DUCKCREEK	DUCKCREEK	0.4214
NEWTON	NEWTON	0.4169
FARMERCITY	FARMERCITY	0.0241
G-007A	G-007A	0.2877
VFT	VFT	0.7675
PRAIRIE	PRAIRIE	1.1365
COFFEEN	COFFEEN	0.2066
EDWARDS	EDWARDS	0.1249
CHEOAH	CHEOAH	0.3493
TILTON	TILTON	0.2205
GIBSON	GIBSON	0.2004

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.3404
BLUEG	BLUEG	0.6163
TRIMBLE	TRIMBLE	0.1953
CATAWBA	CATAWBA	0.3675

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
42932732	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	478.0	109.07	116.87	DC	37.28

Bus #	Bus	MW Impact
314435	6SAPONY	0.1427
314572	3EMPORIA	0.0402
314574	6EVERETS	0.1811
314582	3KELFORD	0.3088
314589	3MURPHYS	0.0492
314623	3WITAKRS	0.2540
314704	3LAWRENC	0.1369
315115	1S HAMPT1	0.6342
315126	1ROARAP2	0.9589
315128	1ROARAP4	0.9150
315131	1EDGECEMA (Deactivation : 04/22/19)	25.0572
315132	1EDGECEMB (Deactivation : 04/22/19)	25.0572
315136	1ROSEMG1	2.3478
315137	1ROSEMS1	1.4559
315138	1ROSEMG2	1.1003
315139	1GASTONA	2.9075
315141	1GASTONB	2.9075
315292	1DOMTR78	0.6926
315294	1DOMTR10	6.4308
315601	1CONETOE2SOL	2.1801
315602	1HOLLOMAN SOL	0.8466
315605	6W1-029WIND	0.2837
315606	3AA2-053SOLA	0.9775
315607	3AA1-063SOLA	0.8796
315608	3AA2-088SOLA	0.5384
315611	6Z1-036WIND	0.3395
315612	3AA2-057SOLA	1.2559
315614	AA2-178 C	0.6337
920591	AA2-165 C	0.1489
920671	AA2-174 C OP	0.0448
922922	AB1-081 C OP	15.1676
923262	AB1-132 C OP	15.9062

Bus #	Bus	MW Impact
923263	AB1-132 E OP	6.8170
923572	AB1-173 C OP	1.6592
923582	AB1-173AC OP	1.6592
923801	AB2-015 C OP	4.0535
923911	AB2-031 C O1	1.6469
923991	AB2-040 C O1	5.4076
924151	AB2-059 C OP	17.8761
924501	AB2-099 C	0.4112
924511	AB2-100 C	8.4949
925121	AB2-169 C	4.1734
925171	AB2-174 C O1	5.0379
925591	AC1-034 C	11.5788
925781	AC1-054 C O1	2.9281
926071	AC1-086 C	23.4238
926201	AC1-098 C	6.2957
926211	AC1-099 C	2.1097
927021	AC1-189 C	12.1912
927141	AC1-208 C	9.6989
932631	AC2-084 C	8.9748
933991	AD1-023 C	7.5866
934201	AD1-047 C	5.8992
934331	AD1-057 C O1	20.1168
934521	AD1-076 C	29.5525
936401	AD2-051 C O1	6.0354
936701	AD2-089 C (Withdrawn : 12/09/2019)	14.3289
936711	AD2-090 C O1	3.8426
937571	AD2-169 C	7.5666
938171	AE1-026 C O1	19.1419
938221	AE1-035 C	1.5163
938661	AE1-088	2.1402
938771	AE1-103 C O1	1.6046
940481	AE2-033 C	7.1805
940491	AE2-034 C	3.9724
940521	AE2-037 C	5.5122
940541	AE2-040 O1	1.3064
940571	AE2-044 C	7.5838
941501	AE2-147 C	4.6899
941541	AE2-151 C	0.7816
942471	AE2-260 C O1	9.8388
942851	AE2-304 C	0.2061

Bus #	Bus	MW Impact
943171	AE2-346 C	0.9870
943911	AF1-059	6.8860
944051	AF1-073 C O1	11.0580
944141	AF1-082	4.8753
944871	AF1-152 C	1.5633
945711	AF1-236 C O1	37.2760
946011	AF1-266	6.0107
946281	AF1-292 C	0.9984
DUCKCREEK	DUCKCREEK	1.3668
NEWTON	NEWTON	1.3485
FARMERCITY	FARMERCITY	0.0773
G-007A	G-007A	0.7576
VFT	VFT	2.0124
PRAIRIE	PRAIRIE	3.6420
COFFEEN	COFFEEN	0.6675
EDWARDS	EDWARDS	0.4067
CHEOAH	CHEOAH	1.1016
TILTON	TILTON	0.7195
GIBSON	GIBSON	0.6514
CALDERWOOD	CALDERWOOD	1.0740
BLUEG	BLUEG	2.0120
TRIMBLE	TRIMBLE	0.6383
CATAWBA	CATAWBA	1.1606

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
43196894	314576	3FIVE PT	DVP	314622	3WHARTON	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	159.57	216.45	DC	114.87

Bus #	Bus	MW Impact
315292	1DOMTR78	1.4430
315294	1DOMTR10	13.3980
916042	Z1-036 E	12.8332
920692	AA2-178 E	1.9366
925121	AB2-169 C	19.8416
925122	AB2-169 E	17.8066
934521	AD1-076 C	37.5059
934522	AD1-076 E	19.0979
938661	AE1-088	10.1752
940491	AE2-034 C	2.0955
940492	AE2-034 E	0.8981
944051	AF1-073 C O1	14.0340
944052	AF1-073 E O1	9.3560
945711	AF1-236 C O1	19.6638
945712	AF1-236 E O1	32.0830
DUCKCREEK	DUCKCREEK	0.1842
NEWTON	NEWTON	0.1816
FARMERCITY	FARMERCITY	0.0105
G-007A	G-007A	0.1223
VFT	VFT	0.3289
PRAIRIE	PRAIRIE	0.4959
COFFEEN	COFFEEN	0.0904
EDWARDS	EDWARDS	0.0546
CHEOAH	CHEOAH	0.1522
TILTON	TILTON	0.0964
GIBSON	GIBSON	0.0874
CALDERWOOD	CALDERWOOD	0.1486
BLUEG	BLUEG	0.2691
TRIMBLE	TRIMBLE	0.0857
CATAWBA	CATAWBA	0.1599

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
42932727	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	single	478.0	108.25	116.18	DC	37.91

Bus #	Bus	MW Impact
314435	6SAPONY	0.1449
314572	3EMPORIA	0.0400
314574	6EVERETS	0.1885
314582	3KELFORD	0.2792
314589	3MURPHYS	0.0480
314623	3WITAKRS	0.1790
314704	3LAWRENC	0.1363
315115	1S HAMPT1	0.6209
315126	1ROARAP2	0.9268
315128	1ROARAP4	0.8844
315131	1EDGECEMA (Deactivation : 04/22/19)	26.1916
315132	1EDGECEMB (Deactivation : 04/22/19)	26.1916
315136	1ROSEMG1	2.4140
315137	1ROSEMS1	1.4969
315138	1ROSEMG2	1.1313
315139	1GASTONA	2.9735
315141	1GASTONB	2.9735
315292	1DOMTR78	0.7093
315294	1DOMTR10	6.5856
315601	1CONETOE2SOL	2.2766
315602	1HOLLOMANSOL	0.8563
315605	6W1-029WIND	0.2875
315606	3AA2-053SOLA	0.9462
315607	3AA1-063SOLA	0.8523
315608	3AA2-088SOLA	0.5247
315611	6Z1-036WIND	0.3446
315612	3AA2-057SOLA	0.9239
315614	AA2-178 C	0.6444
920591	AA2-165 C	0.1095
920671	AA2-174 C OP	0.0433
922922	AB1-081 C OP	10.5437
923262	AB1-132 C OP	16.2674

Bus #	Bus	MW Impact
923263	AB1-132 E OP	6.9718
923572	AB1-173 C OP	1.6316
923582	AB1-173AC OP	1.6316
923801	AB2-015 C OP	3.9745
923911	AB2-031 C O1	1.6195
923991	AB2-040 C O1	5.3178
924151	AB2-059 C OP	12.4265
924501	AB2-099 C	0.4009
924511	AB2-100 C	8.6450
925121	AB2-169 C	4.2994
925171	AB2-174 C O1	4.9753
925591	AC1-034 C	8.0490
925781	AC1-054 C O1	2.8120
926071	AC1-086 C	23.9557
926201	AC1-098 C	5.1350
926211	AC1-099 C	1.7208
927021	AC1-189 C	12.7226
927141	AC1-208 C	7.7881
932631	AC2-084 C	7.3202
933991	AD1-023 C	7.7055
934201	AD1-047 C	5.8013
934331	AD1-057 C O1	20.9131
934521	AD1-076 C	30.0720
936401	AD2-051 C O1	6.1067
936701	AD2-089 C (Withdrawn : 12/09/2019)	14.9679
936711	AD2-090 C O1	3.7548
937571	AD2-169 C	7.4088
938171	AE1-026 C O1	19.4249
938221	AE1-035 C	1.5336
938661	AE1-088	2.2048
938771	AE1-103 C O1	1.5765
940481	AE2-033 C	7.2962
940491	AE2-034 C	4.0396
940521	AE2-037 C	5.5951
940541	AE2-040 O1	1.3272
940571	AE2-044 C	5.2718
941501	AE2-147 C	4.7529
941541	AE2-151 C	0.7619
942471	AE2-260 C O1	10.0026
942851	AE2-304 C	0.2091

Bus #	Bus	MW Impact
943171	AE2-346 C	0.9621
943911	AF1-059	6.8230
944051	AF1-073 C O1	11.2524
944141	AF1-082	3.3890
944871	AF1-152 C	1.5843
945711	AF1-236 C O1	37.9059
946011	AF1-266	6.1075
946281	AF1-292 C	0.9980
DUCKCREEK	DUCKCREEK	1.3783
NEWTON	NEWTON	1.3603
FARMERCITY	FARMERCITY	0.0781
G-007A	G-007A	0.7696
VFT	VFT	2.0446
PRAIRIE	PRAIRIE	3.6730
COFFEEN	COFFEEN	0.6733
EDWARDS	EDWARDS	0.4102
CHEOAH	CHEOAH	1.1116
TILTON	TILTON	0.7258
GIBSON	GIBSON	0.6574
CALDERWOOD	CALDERWOOD	1.0840
BLUEG	BLUEG	2.0294
TRIMBLE	TRIMBLE	0.6439
CATAWBA	CATAWBA	1.1715

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
43196900	314592	3PANTEGO	DVP	925120	AB2-169 TAP	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	129.57	186.45	DC	114.87

Bus #	Bus	MW Impact
315292	1DOMTR78	1.4430
315294	1DOMTR10	13.3980
916042	Z1-036 E	12.8332
920692	AA2-178 E	1.9366
934521	AD1-076 C	37.5059
934522	AD1-076 E	19.0979
938662	AE1-088 BAT	9.8248
940491	AE2-034 C	2.0955
940492	AE2-034 E	0.8981
944051	AF1-073 C O1	14.0340
944052	AF1-073 E O1	9.3560
945711	AF1-236 C O1	19.6638
945712	AF1-236 E O1	32.0830
DUCKCREEK	DUCKCREEK	0.1842
NEWTON	NEWTON	0.1816
FARMERCITY	FARMERCITY	0.0105
G-007A	G-007A	0.1223
VFT	VFT	0.3289
PRAIRIE	PRAIRIE	0.4959
COFFEEN	COFFEEN	0.0904
EDWARDS	EDWARDS	0.0546
CHEOAH	CHEOAH	0.1522
TILTON	TILTON	0.0964
GIBSON	GIBSON	0.0874
CALDERWOOD	CALDERWOOD	0.1486
BLUEG	BLUEG	0.2691
TRIMBLE	TRIMBLE	0.0857
CATAWBA	CATAWBA	0.1599

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
42932750	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	121.06	121.45	DC	120.52

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0599
314491	3PENDLTN	0.4472
314643	3O INLET	0.5955
314947	8GREENSVILLE	79.5572
315090	1YORKTN1 (Deactivation : 09/09/18)	20.0676
315091	1YORKTN2 (Deactivation : 09/09/18)	20.8249
315099	1CHESPKB (Deactivation : 05/31/19)	4.5038
315102	1BRUNSWICKG1	13.0197
315103	1BRUNSWICKG2	13.0197
315104	1BRUNSWICKG3	13.0197
315105	1BRUNSWICKS1	27.0483
315108	1ELIZAR1	4.3626
315109	1ELIZAR2	4.2868
315110	1ELIZAR3	4.4184
315233	1SURRY 2	34.5162
315294	1DOMTR10	13.8163
315603	6AA1-139SOLA	3.3481
923262	AB1-132 C OP	16.6933
923263	AB1-132 E OP	7.1543
923801	AB2-015 C OP	10.8562
923831	AB2-022 C	3.1065
924241	AB2-068 OP	310.6012
924501	AB2-099 C	0.7281
924511	AB2-100 C	13.4345
925061	AB2-161 C O1	3.7736
925121	AB2-169 C	8.1128
926071	AC1-086 C	24.5829
926201	AC1-098 C	7.3860
926211	AC1-099 C	2.4751
926291	AC1-107 O1	468.8320
926661	AC1-147 C	3.0437
926751	AC1-161 C O1	52.0629

Bus #	Bus	MW Impact
932041	AC2-012 C	13.7690
932591	AC2-079 C O1	6.8459
932631	AC2-084 C	10.5289
933291	AC2-141 C	52.0629
933731	AC2-196 C	2.8836
933991	AD1-023 C	16.7926
934061	AD1-033 C	12.0989
934521	AD1-076 C	69.8961
934571	AD1-082 C	8.5999
934611	AD1-087 C O1	10.1500
935111	AD1-144 C	2.2048
935171	AD1-152 C O1	10.0870
936401	AD2-051 C O1	11.0366
936661	AD2-085 C	4.0955
936711	AD2-090 C O1	8.9668
937221	AD2-160 C O1	9.3926
937251	AD2-164	5.2902
937481	AD2-202 C O1	2.6899
937541	AD2-215 C	2.2275
938171	AE1-026 C O1	40.8412
938181	AE1-027 C	3.7681
938191	AE1-028 C	2.1861
938221	AE1-035 C	2.8269
938491	AE1-068 C O1	113.9686
938501	AE1-069 C O1	88.9910
938531	AE1-072 C O1	28.0724
938661	AE1-088	4.1604
938771	AE1-103 C O1	4.5935
939311	AE1-162 C	2.5027
939411	AE1-173 C	166.5312
940061	AE2-000BC O1	17.8750
940251	AE2-007 O1	276.2498
940471	AE2-031 C	62.1441
940481	AE2-033 C	18.1590
940491	AE2-034 C	5.7859
940521	AE2-037 C	10.0905
940541	AE2-040 O1	1.9129
940641	AE2-051 C O1	32.9391
941031	AE2-094 C	74.9277
941101	AE2-104 C O1	4.5191

Bus #	Bus	MW Impact
941281	AE2-122 C O1	45.5169
941291	AE2-123 C O1	46.7773
941301	AE2-124 C O1	42.5705
941501	AE2-147 C	21.1691
941541	AE2-151 C	1.3508
941591	AE2-156 O1	28.4750
942131	AE2-225 C	2.8590
942171	AE2-229 C	2.8590
942341	AE2-247 C	0.9397
942401	AE2-253 C	9.8794
942471	AE2-260 C O1	16.6016
942851	AE2-304 C	0.8395
942931	AE2-313 C	67.2871
943171	AE2-346 C	0.9261
943451	AF1-016 C O1	0.9386
943461	AF1-017 C	0.8502
943611	AF1-032 C	1.2375
944011	AF1-069 C	24.4817
944051	AF1-073 C O1	13.8615
944581	AF1-123 C O1	71.8325
944591	AF1-124 C O1	71.8325
944601	AF1-125 C O1	71.8325
944871	AF1-152 C	3.7399
945711	AF1-236 C O1	54.2934
945811	AF1-246 C O1	12.3463
946011	AF1-266	8.0563
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	13.7483
LGEE	LGEE	1.8958
CPLE	CPLE	12.0393
WEC	WEC	0.9900
CBM-W2	CBM-W2	42.9729
NY	NY	2.1772
CBM-W1	CBM-W1	36.2290
TVA	TVA	9.3254
CBM-S2	CBM-S2	81.6656
CBM-S1	CBM-S1	51.4693
MADISON	MADISON	2.8627
MEC	MEC	6.2384
AA2-074	AA2-074	8.2031

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
42932683	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	165.26	165.94	DC	123.78

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0656
314421	6WINCHST	0.2002
314491	3PENDLTN	0.4894
314507	3THOMPSN	0.4919
315090	1YORKTN1 (Deactivation : 09/09/18)	51.3268
315091	1YORKTN2 (Deactivation : 09/09/18)	53.2636
315092	1YORKTN3	35.6504
315098	1CHESPKA	0.6505
315099	1CHESPKB (Deactivation : 05/31/19)	4.9568
315108	1ELIZAR1	4.7917
315109	1ELIZAR2	4.7085
315110	1ELIZAR3	4.8530
315233	1SURRY 2	43.4137
315260	1GOSPORTA	0.5193
315261	1GOSPORTB	0.6633
315262	1GOSPORTC	0.5629
315294	1DOMTR10	13.7122
315603	6AA1-139SOLA	3.6271
923801	AB2-015 C OP	11.1677
923831	AB2-022 C	3.3405
924241	AB2-068 OP	610.0300
924501	AB2-099 C	0.7110
925061	AB2-161 C O1	4.1633
925121	AB2-169 C	7.8887
925331	AB2-190 C	23.1774
925861	AC1-065 C	4.3075
926291	AC1-107 O1	920.8000
926661	AC1-147 C	3.9410
926751	AC1-161 C O1	57.4840
926781	AC1-164 C	54.7782
927221	AC1-216 C O1	11.5099
932041	AC2-012 C	17.8285

Bus #	Bus	MW Impact
932581	AC2-078 C O1	4.3589
932591	AC2-079 C O1	7.4840
932831	AC2-110 C	1.7230
933261	AC2-137 C	2.2718
933291	AC2-141 C	57.4840
933731	AC2-196 C	3.1380
933991	AD1-023 C	16.8501
934011	AD1-025 C	19.7853
934061	AD1-033 C	13.1754
934141	AD1-041 C	6.8184
934521	AD1-076 C	70.5967
934571	AD1-082 C	9.4880
935111	AD1-144 C	2.4908
935161	AD1-151 C O1	18.6247
936041	AD2-007 C	0.9452
936051	AD2-008 C	3.4446
936151	AD2-021	0.2591
936301	AD2-039 C	1.7230
936401	AD2-051 C O1	10.8437
936591	AD2-074 C	4.5519
936661	AD2-085 C	4.4790
936711	AD2-090 C O1	9.0735
937221	AD2-160 C O1	10.1887
937251	AD2-164	8.5056
937541	AD2-215 C	2.5165
938031	AE1-004 C	1.7230
938171	AE1-026 C O1	40.8251
938181	AE1-027 C	4.0958
938191	AE1-028 C	2.3762
938221	AE1-035 C	2.7820
938491	AE1-068 C O1	70.4586
938501	AE1-069 C O1	55.0720
938531	AE1-072 C O1	30.3688
938631	AE1-085 C O1	9.7610
938661	AE1-088	4.0455
938771	AE1-103 C O1	4.7592
939191	AE1-149 C O1	11.1675
939311	AE1-162 C	2.9813
939411	AE1-173 C	119.7929
939421	AE1-174 C	0.6369

Bus #	Bus	MW Impact
939431	AE1-175 C	4.2354
939611	AE1-191 C	13.6369
940061	AE2-000BC O1	19.7209
940231	AE2-005 C	1.7230
940251	AE2-007 O1	303.5071
940471	AE2-031 C	38.4037
940481	AE2-033 C	16.4675
940491	AE2-034 C	5.9425
940521	AE2-037 C	9.8668
940541	AE2-040 O1	1.7331
940551	AE2-041 O1	9.3996
940641	AE2-051 C O1	21.9165
940651	AE2-052	1.9729
940891	AE2-078 C	3.1998
940901	AE2-079 C	3.1998
940911	AE2-080 C	3.1998
941031	AE2-094 C	46.2403
941101	AE2-104 C O1	4.8887
941281	AE2-122 C O1	49.7643
941291	AE2-123 C O1	51.1423
941301	AE2-124 C O1	46.5117
941501	AE2-147 C	22.6211
941541	AE2-151 C	1.3151
941591	AE2-156 O1	31.3210
941601	AE2-157 C	12.4792
942131	AE2-225 C	3.1017
942171	AE2-229 C	3.1017
942341	AE2-247 C	1.0279
942401	AE2-253 C	10.7167
942551	AE2-270	31.0411
942851	AE2-304 C	0.8909
942931	AE2-313 C	41.5820
943171	AE2-346 C	0.9044
943431	AF1-014 C	0.8651
943451	AF1-016 C O1	1.0154
943461	AF1-017 C	0.9300
943471	AF1-018	4.9818
943611	AF1-032 C	1.3425
943621	AF1-033 C	1.6959
943741	AF1-042 C	1.6671

Bus #	Bus	MW Impact
944011	AF1-069 C	8.0075
944051	AF1-073 C O1	14.0005
944061	AF1-074 C O1	4.4008
944501	AF1-115 C O1	5.1648
944581	AF1-123 C O1	77.8031
944591	AF1-124 C O1	77.8031
944601	AF1-125 C O1	77.8031
944871	AF1-152 C	3.9964
945361	AF1-201 C O1	12.4157
945711	AF1-236 C O1	55.7621
945811	AF1-246 C O1	4.1299
946011	AF1-266	7.3058
LGEE	LGEE	1.0440
CPL	CPL	9.3318
WEC	WEC	0.5399
CBM-W2	CBM-W2	27.6658
NY	NY	1.8183
CBM-W1	CBM-W1	19.1653
TVA	TVA	6.2832
CBM-S2	CBM-S2	61.3085
CBM-S1	CBM-S1	34.0289
MADISON	MADISON	2.2942
MEC	MEC	3.7055
AA2-074	AA2-074	6.3540

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
42932742	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 568	single	2442.12	130.92	131.47	DC	73.1

Bus #	Bus	MW Impact
314229	6MT RD221	0.1109
314236	6NRTHEST	0.1662
314241	6OLDCHRC	0.6810
314250	6ROCKVILLE	0.2895
315037	1LDYSMT1	4.5959
315038	1LDYSMT2	4.5929
315039	1LDYSMT3	4.8606
315040	1LDYSMT4	4.8697
315041	1LDYSMT5	4.8849
315043	1FOUR RIVERA	2.7789
315044	1FOUR RIVERB	2.7789
315045	1FOUR RIVERC	3.4091
315046	1FOUR RIVERD	2.7789
315047	1FOUR RIVERE	2.7789
315048	1FOUR RIVERF	3.4091
315058	1CHESTF3 (Deativation : 12/13/18)	15.8891
315059	1CHESTF4 (Deativation : 12/13/18)	25.7562
315067	1DARBY 1	2.2896
315068	1DARBY 2	2.2923
315069	1DARBY 3	2.3003
315070	1DARBY 4	2.3030
315074	1HOPCGN1 (Deativation : 06/25/19)	7.2228
315075	1HOPCGN2 (Deativation : 06/25/19)	7.1292
315083	1SPRUNCA (Deativation : 01/12/19)	9.0806
315084	1SPRUNCB (Deativation : 01/12/19)	9.0806
315090	1YORKTN1 (Deativation : 09/09/18)	24.3581
315091	1YORKTN2 (Deativation : 09/09/18)	25.2773
315610	6AA1-145GAS	9.7403
923801	AB2-015 C OP	6.8246
923831	AB2-022 C	1.8731
924061	AB2-050	0.5730
924241	AB2-068 OP	214.2154
925051	AB2-160 C O1	4.6476

Bus #	Bus	MW Impact
925061	AB2-161 C O1	2.7944
925331	AB2-190 C	17.2064
925861	AC1-065 C	2.9254
926291	AC1-107 O1	323.3440
926551	AC1-134	1.4324
926661	AC1-147 C	1.8599
926751	AC1-161 C O1	25.0855
926781	AC1-164 C	42.1463
927041	AC1-191 C O1	10.1780
927221	AC1-216 C O1	8.4054
932041	AC2-012 C	8.4138
932501	AC2-070 C	1.8027
932581	AC2-078 C O1	3.4043
932591	AC2-079 C O1	4.7181
932831	AC2-110 C	1.1702
933011	AC2-125	3.2469
933021	AC2-126	3.2687
933261	AC2-137 C	2.1802
933271	AC2-138 C	0.6455
933291	AC2-141 C	25.0855
933731	AC2-196 C	1.4687
934011	AD1-025 C	14.4486
934061	AD1-033 C	6.1704
934141	AD1-041 C	4.5926
934521	AD1-076 C	1.2087
934571	AD1-082 C	6.3684
934781	AD1-105 C	6.3005
935111	AD1-144 C	1.4255
935161	AD1-151 C O1	13.8266
935211	AD1-156 C	1.7727
936041	AD2-007 C	0.6902
936051	AD2-008 C	2.5155
936151	AD2-021	0.2486
936301	AD2-039 C	1.1702
936341	AD2-044 C	0.2017
936591	AD2-074 C	4.6134
936661	AD2-085 C	2.8317
936711	AD2-090 C O1	5.6302
936761	AD2-097 C	1.7222
937221	AD2-160 C O1	4.7923

Bus #	Bus	MW Impact
937251	AD2-164	4.0694
937541	AD2-215 C	1.4402
938031	AE1-004 C	1.1702
938181	AE1-027 C	1.9205
938191	AE1-028 C	1.1142
938491	AE1-068 C O1	42.8775
938531	AE1-072 C O1	14.3432
938551	AE1-074 C	2.0426
938631	AE1-085 C O1	7.4494
938771	AE1-103 C O1	2.8892
939191	AE1-149 C O1	8.9826
939241	AE1-155 C	12.4852
939261	AE1-157 C O1	16.6679
939271	AE1-158 C O1	17.0107
939311	AE1-162 C	1.7988
939411	AE1-173 C	68.3237
939421	AE1-174 C	0.3133
939431	AE1-175 C	2.0836
939611	AE1-191 C	9.1851
939751	AE1-206 C O1	34.9079
940061	AE2-000BC O1	13.2368
940071	AE1-249 C (Withdrawn : 01/10/2020)	6.1305
940231	AE2-005 C	1.1702
940251	AE2-007 O1	142.8202
940431	AE2-027 C O1	11.1776
940471	AE2-031 C	23.3638
940481	AE2-033 C	12.3310
940491	AE2-034 C	3.5096
940541	AE2-040 O1	1.3049
940551	AE2-041 O1	6.1968
940641	AE2-051 C O1	12.6768
940651	AE2-052	1.5869
940891	AE2-078 C	2.0003
940901	AE2-079 C	2.0003
940911	AE2-080 C	2.0003
941031	AE2-094 C	27.9608
941101	AE2-104 C O1	2.8517
941141	AE2-108 C	0.6174
941151	AE2-109 C	0.2161
941281	AE2-122 C O1	12.3934

Bus #	Bus	MW Impact
941291	AE2-123 C O1	12.7366
941301	AE2-124 C O1	11.5783
941501	AE2-147 C	12.8329
941581	AE2-155 C	0.6858
941591	AE2-156 O1	14.7628
941601	AE2-157 C	8.8781
942001	AE2-212 C	1.8354
942131	AE2-225 C	1.7455
942151	AE2-227 C	1.9230
942161	AE2-228 C	1.8617
942171	AE2-229 C	1.7455
942191	AE2-231 C O1	6.3630
942341	AE2-247 C	0.6506
942371	AE2-250 C O1	8.2556
942401	AE2-253 C	5.0407
942471	AE2-260 C O1	10.9660
942551	AE2-270	23.0443
942851	AE2-304 C	0.5085
942931	AE2-313 C	25.2973
943431	AF1-014 C	0.5875
943451	AF1-016 C O1	0.5923
943461	AF1-017 C	0.5887
943471	AF1-018	3.2843
943601	AF1-031 C	5.2482
943611	AF1-032 C	0.7555
943621	AF1-033 C	1.0602
943741	AF1-042 C	1.2794
943991	AF1-067 C	2.2051
944011	AF1-069 C	4.8420
944051	AF1-073 C O1	8.4144
944061	AF1-074 C O1	3.2074
944501	AF1-115 C O1	3.2287
944581	AF1-123 C O1	19.0170
944591	AF1-124 C O1	19.0170
944601	AF1-125 C O1	19.0170
944631	AF1-128 O1	25.9636
944641	AF1-129 O1	48.1371
944871	AF1-152 C	2.2671
945361	AF1-201 C O1	7.2940
945711	AF1-236 C O1	32.9332

Bus #	Bus	MW Impact
945831	AF1-248	0.1497
946001	AF1-265	30.6210
946011	AF1-266	5.4706
946261	AF1-291 C	0.9869
LGEE	LGEE	1.5295
CPL	CPL	6.7949
WEC	WEC	0.7755
CBM-W2	CBM-W2	30.4996
NY	NY	2.5383
CBM-W1	CBM-W1	28.2100
TVA	TVA	6.4484
CBM-S2	CBM-S2	48.4191
CBM-S1	CBM-S1	36.1930
MADISON	MADISON	1.5846
MEC	MEC	4.6669
AA2-074	AA2-074	4.6341

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
42932843	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	4070.2	116.88	117.17	DC	136.08

Bus #	Bus	MW Impact
314229	6MT RD221	0.1930
314236	6NRTHEST	0.2940
314241	6OLDCHRC	1.2143
314309	6IRON208	0.7011
314421	6WINCHST	0.2096
315058	1CHESTF3 (Deativation : 12/13/18)	28.2727
315059	1CHESTF4 (Deativation : 12/13/18)	53.9177
315060	1CHESTF5	15.9520
315061	1CHESTG7	6.1904
315062	1CHESTS7	2.8418
315063	1CHESTG8	6.0909
315064	1CHESTS8	3.1354
315067	1DARBY 1	4.0713
315068	1DARBY 2	4.0760
315069	1DARBY 3	4.0903
315070	1DARBY 4	4.0951
315074	1HOPCGN1 (Deativation : 06/25/19)	13.0619
315075	1HOPCGN2 (Deativation : 06/25/19)	12.8927
315083	1SPRUNCA (Deativation : 01/12/19)	16.1058
315084	1SPRUNCB (Deativation : 01/12/19)	16.1058
315090	1YORKTN1 (Deativation : 09/09/18)	53.1012
315091	1YORKTN2 (Deativation : 09/09/18)	55.1051
315092	1YORKTN3	36.7912
315233	1SURRY 2	40.1029
923801	AB2-015 C OP	12.6565
923831	AB2-022 C	3.4963
924241	AB2-068 OP	429.9996
925051	AB2-160 C O1	8.3605
925061	AB2-161 C O1	5.1414
925331	AB2-190 C	31.4170
925861	AC1-065 C	5.0333
926291	AC1-107 O1	649.0560
926661	AC1-147 C	3.4729

Bus #	Bus	MW Impact
926751	AC1-161 C O1	47.2230
926781	AC1-164 C	77.2469
927041	AC1-191 C O1	14.4508
927221	AC1-216 C O1	15.3630
932041	AC2-012 C	15.7109
932501	AC2-070 C	3.2142
932581	AC2-078 C O1	6.2002
932591	AC2-079 C O1	8.7208
932831	AC2-110 C	2.0133
933061	AC2-130	0.6252
933261	AC2-137 C	3.9506
933291	AC2-141 C	47.2230
933731	AC2-196 C	2.7450
934011	AD1-025 C	26.4087
934061	AD1-033 C	11.5315
934141	AD1-041 C	7.8400
934521	AD1-076 C	78.9163
934571	AD1-082 C	11.7169
935111	AD1-144 C	2.6524
935161	AD1-151 C O1	25.2458
935211	AD1-156 C	3.2067
936041	AD2-007 C	1.2616
936051	AD2-008 C	4.5977
936151	AD2-021	0.4505
936301	AD2-039 C	2.0133
936661	AD2-085 C	5.2330
936711	AD2-090 C O1	10.4323
936761	AD2-097 C	3.0546
937221	AD2-160 C O1	8.9531
937251	AD2-164	7.5393
937541	AD2-215 C	2.6798
938031	AE1-004 C	2.0133
938181	AE1-027 C	3.5887
938191	AE1-028 C	2.0820
938491	AE1-068 C O1	47.5194
938531	AE1-072 C O1	26.7890
938551	AE1-074 C	3.6104
938631	AE1-085 C O1	13.5873
938771	AE1-103 C O1	5.3602
939191	AE1-149 C O1	16.3307

Bus #	Bus	MW Impact
939311	AE1-162 C	3.3330
939411	AE1-173 C	126.8635
939421	AE1-174 C	0.6815
939431	AE1-175 C	4.5317
939611	AE1-191 C	15.6800
940061	AE2-000BC O1	24.3538
940071	AE1-249 C (Withdrawn : 01/10/2020)	11.0282
940231	AE2-005 C	2.0133
940251	AE2-007 O1	266.7649
940431	AE2-027 C O1	20.0191
940471	AE2-031 C	43.0714
940481	AE2-033 C	22.5081
940491	AE2-034 C	6.5332
940541	AE2-040 O1	2.3807
940551	AE2-041 O1	10.7600
940641	AE2-051 C O1	23.4809
940651	AE2-052	2.8851
940891	AE2-078 C	3.6910
940901	AE2-079 C	3.6910
940911	AE2-080 C	3.6910
941031	AE2-094 C	51.5873
941101	AE2-104 C O1	5.3033
941281	AE2-122 C O1	23.1526
941291	AE2-123 C O1	23.7937
941301	AE2-124 C O1	21.6312
941501	AE2-147 C	23.9338
941581	AE2-155 C	1.2228
941591	AE2-156 O1	27.5697
941601	AE2-157 C	16.2680
942001	AE2-212 C	3.2993
942131	AE2-225 C	3.2554
942151	AE2-227 C	4.0452
942161	AE2-228 C	3.3363
942171	AE2-229 C	3.2554
942341	AE2-247 C	1.2022
942371	AE2-250 C O1	14.8509
942401	AE2-253 C	9.4171
942551	AE2-270	42.0763
942851	AE2-304 C	0.9481
942931	AE2-313 C	46.6360

Bus #	Bus	MW Impact
943431	AF1-014 C	1.0109
943451	AF1-016 C O1	1.1015
943461	AF1-017 C	1.0877
943471	AF1-018	5.7028
943611	AF1-032 C	1.4091
943621	AF1-033 C	1.9563
944011	AF1-069 C	8.9334
944051	AF1-073 C O1	15.6504
944061	AF1-074 C O1	5.8676
944501	AF1-115 C O1	5.9577
944581	AF1-123 C O1	35.5900
944591	AF1-124 C O1	35.5900
944601	AF1-125 C O1	35.5900
944631	AF1-128 O1	104.1373
944641	AF1-129 O1	193.0731
944871	AF1-152 C	4.2283
945361	AF1-201 C O1	13.1354
945711	AF1-236 C O1	61.3051
946011	AF1-266	9.9858
946261	AF1-291 C	1.7687
LGEE	LGEE	3.3055
CPL	CPL	12.7173
WEC	WEC	1.7029
CBM-W2	CBM-W2	62.5552
NY	NY	3.9197
CBM-W1	CBM-W1	63.0504
TVA	TVA	12.8758
CBM-S2	CBM-S2	91.7228
CBM-S1	CBM-S1	72.9653
MADISON	MADISON	2.8022
MEC	MEC	9.9249
AA2-074	AA2-074	8.6769

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
42932767	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 573	single	2442.12	132.22	132.65	DC	70.35

Bus #	Bus	MW Impact
314229	6MT RD221	0.0981
314236	6NRTHEST	0.1500
314241	6OLDCHRC	0.6049
314250	6ROCKVILLE	0.2682
314309	6IRON208	0.3576
315043	1FOUR RIVERA	2.3678
315044	1FOUR RIVERB	2.3678
315045	1FOUR RIVERC	2.9048
315046	1FOUR RIVERD	2.3678
315047	1FOUR RIVERE	2.3678
315048	1FOUR RIVERF	2.9048
315058	1CHESTF3 (Deativation : 12/13/18)	14.4899
315059	1CHESTF4 (Deativation : 12/13/18)	23.4882
315060	1CHESTF5	8.0357
315067	1DARBY 1	2.0646
315068	1DARBY 2	2.0671
315069	1DARBY 3	2.0743
315070	1DARBY 4	2.0767
315074	1HOPCGN1 (Deativation : 06/25/19)	6.6636
315075	1HOPCGN2 (Deativation : 06/25/19)	6.5772
315083	1SPRUNCA (Deativation : 01/12/19)	9.9714
315084	1SPRUNCB (Deativation : 01/12/19)	9.9714
315090	1YORKTN1 (Deativation : 09/09/18)	22.5957
315091	1YORKTN2 (Deativation : 09/09/18)	23.4484
315225	1N ANNA1	28.6727
315226	1N ANNA2	28.6848
315610	6AA1-145GAS	8.2995
923801	AB2-015 C OP	6.5607
923831	AB2-022 C	1.7886
924061	AB2-050	0.4882
924241	AB2-068 OP	189.3584
925051	AB2-160 C O1	4.3344
925061	AB2-161 C O1	2.6489

Bus #	Bus	MW Impact
925331	AB2-190 C	15.9946
925861	AC1-065 C	2.6134
926291	AC1-107 O1	285.8240
926551	AC1-134	1.2205
926661	AC1-147 C	1.7693
926751	AC1-161 C O1	23.8731
926781	AC1-164 C	37.8385
927041	AC1-191 C O1	7.5534
927221	AC1-216 C O1	7.8194
932041	AC2-012 C	8.0039
932501	AC2-070 C	1.6013
932581	AC2-078 C O1	3.2101
932591	AC2-079 C O1	4.4831
932831	AC2-110 C	1.0454
933011	AC2-125	2.1417
933021	AC2-126	2.1560
933261	AC2-137 C	1.9606
933291	AC2-141 C	23.8731
933731	AC2-196 C	1.3995
934011	AD1-025 C	13.4414
934061	AD1-033 C	5.8791
934141	AD1-041 C	4.0968
934571	AD1-082 C	6.0368
935111	AD1-144 C	1.3522
935161	AD1-151 C O1	12.8528
935211	AD1-156 C	1.6764
936041	AD2-007 C	0.6421
936051	AD2-008 C	2.3401
936151	AD2-021	0.2236
936301	AD2-039 C	1.0454
936661	AD2-085 C	2.6905
936761	AD2-097 C	1.8911
937221	AD2-160 C O1	4.5687
937251	AD2-164	3.7848
937541	AD2-215 C	1.3661
938031	AE1-004 C	1.0454
938181	AE1-027 C	1.8303
938191	AE1-028 C	1.0618
938491	AE1-068 C O1	42.9979
938501	AE1-069 C O1	33.7316

Bus #	Bus	MW Impact
938531	AE1-072 C O1	13.6811
938551	AE1-074 C	2.2944
938631	AE1-085 C O1	7.0295
938771	AE1-103 C O1	2.7742
939191	AE1-149 C O1	8.4624
939261	AE1-157 C O1	11.2930
939271	AE1-158 C O1	11.5253
939311	AE1-162 C	1.6949
939411	AE1-173 C	67.0834
939421	AE1-174 C	0.2871
939431	AE1-175 C	1.9092
939611	AE1-191 C	8.1937
939751	AE1-206 C O1	29.9900
940061	AE2-000BC O1	12.5475
940071	AE1-249 C (Withdrawn : 01/10/2020)	5.7174
940231	AE2-005 C	1.0454
940251	AE2-007 O1	135.8951
940431	AE2-027 C O1	10.3312
940471	AE2-031 C	23.4244
940481	AE2-033 C	11.9118
940541	AE2-040 O1	1.2597
940551	AE2-041 O1	5.5369
940641	AE2-051 C O1	12.5720
940651	AE2-052	1.4950
940891	AE2-078 C	1.8713
940901	AE2-079 C	1.8713
940911	AE2-080 C	1.8713
941031	AE2-094 C	28.0277
941101	AE2-104 C O1	2.7184
941281	AE2-122 C O1	11.8007
941291	AE2-123 C O1	12.1275
941301	AE2-124 C O1	11.0263
941501	AE2-147 C	12.2668
941581	AE2-155 C	0.6092
941591	AE2-156 O1	14.0446
941601	AE2-157 C	8.3982
942001	AE2-212 C	1.7138
942131	AE2-225 C	1.6641
942151	AE2-227 C	2.0632
942161	AE2-228 C	1.7258

Bus #	Bus	MW Impact
942171	AE2-229 C	1.6641
942191	AE2-231 C O1	5.1525
942341	AE2-247 C	0.6181
942371	AE2-250 C O1	7.6993
942401	AE2-253 C	4.8055
942551	AE2-270	21.4213
942851	AE2-304 C	0.4867
942931	AE2-313 C	25.3630
943431	AF1-014 C	0.5249
943451	AF1-016 C O1	0.5646
943461	AF1-017 C	0.5592
943471	AF1-018	2.9346
943611	AF1-032 C	0.7203
943621	AF1-033 C	0.9918
944011	AF1-069 C	4.8536
944061	AF1-074 C O1	3.0313
944501	AF1-115 C O1	3.0204
944581	AF1-123 C O1	18.1307
944591	AF1-124 C O1	18.1307
944601	AF1-125 C O1	18.1307
944631	AF1-128 O1	23.6325
944641	AF1-129 O1	43.8153
944871	AF1-152 C	2.1671
945361	AF1-201 C O1	6.6765
945711	AF1-236 C O1	17.2156
946001	AF1-265	26.3070
946011	AF1-266	5.2847
946261	AF1-291 C	0.9147
LGEE	LGEE	1.8872
CPLE	CPLE	6.9100
WEC	WEC	0.9756
CBM-W2	CBM-W2	35.1187
NY	NY	2.7125
CBM-W1	CBM-W1	36.1914
TVA	TVA	7.1666
CBM-S2	CBM-S2	50.1126
CBM-S1	CBM-S1	40.7512
MADISON	MADISON	1.4838
MEC	MEC	5.6330
AA2-074	AA2-074	4.7156

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
42932783	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 568	single	2738.22	121.34	121.83	DC	73.77

Bus #	Bus	MW Impact
314229	6MT RD221	0.1127
314236	6NRTHEST	0.1685
314241	6OLDCHRC	0.6915
315037	1LDYSMT1	4.7092
315038	1LDYSMT2	4.7061
315039	1LDYSMT3	4.9804
315040	1LDYSMT4	4.9897
315041	1LDYSMT5	5.0053
315043	1FOUR RIVERA	2.8298
315044	1FOUR RIVERB	2.8298
315045	1FOUR RIVERC	3.4716
315046	1FOUR RIVERD	2.8298
315047	1FOUR RIVERE	2.8298
315048	1FOUR RIVERF	3.4716
315058	1CHESTF3 (Deativation : 12/13/18)	16.0982
315059	1CHESTF4 (Deativation : 12/13/18)	26.0951
315067	1DARBY 1	2.3217
315068	1DARBY 2	2.3244
315069	1DARBY 3	2.3326
315070	1DARBY 4	2.3353
315074	1HOPCGN1 (Deativation : 06/25/19)	7.3122
315075	1HOPCGN2 (Deativation : 06/25/19)	7.2174
315083	1SPRUNCA (Deativation : 01/12/19)	9.1811
315084	1SPRUNCB (Deativation : 01/12/19)	9.1811
315090	1YORKTN1 (Deativation : 09/09/18)	24.6527
315091	1YORKTN2 (Deativation : 09/09/18)	25.5830
315610	6AA1-145GAS	9.9188
923801	AB2-015 C OP	6.8858
923831	AB2-022 C	1.8914
924061	AB2-050	0.5835
924241	AB2-068 OP	217.6392
925051	AB2-160 C O1	4.7011
925061	AB2-161 C O1	2.8233

Bus #	Bus	MW Impact
925331	AB2-190 C	17.4092
925861	AC1-065 C	2.9677
926291	AC1-107 O1	328.5120
926551	AC1-134	1.4586
926661	AC1-147 C	1.8787
926751	AC1-161 C O1	25.3414
926781	AC1-164 C	42.7579
927041	AC1-191 C O1	10.3425
927221	AC1-216 C O1	8.5041
932041	AC2-012 C	8.4991
932501	AC2-070 C	1.8303
932581	AC2-078 C O1	3.4407
932591	AC2-079 C O1	4.7659
932831	AC2-110 C	1.1871
933011	AC2-125	3.3269
933021	AC2-126	3.3492
933261	AC2-137 C	2.2115
933271	AC2-138 C	0.6575
933291	AC2-141 C	25.3414
933731	AC2-196 C	1.4834
934011	AD1-025 C	14.6184
934061	AD1-033 C	6.2321
934141	AD1-041 C	4.6594
934521	AD1-076 C	1.5592
934571	AD1-082 C	6.4343
934781	AD1-105 C	6.4202
935111	AD1-144 C	1.4402
935161	AD1-151 C O1	13.9896
935211	AD1-156 C	1.7912
936041	AD2-007 C	0.6983
936051	AD2-008 C	2.5450
936151	AD2-021	0.2522
936301	AD2-039 C	1.1871
936341	AD2-044 C	0.2055
936591	AD2-074 C	4.6914
936661	AD2-085 C	2.8605
936711	AD2-090 C O1	5.6792
936761	AD2-097 C	1.7413
937221	AD2-160 C O1	4.8400
937251	AD2-164	4.1176

Bus #	Bus	MW Impact
937541	AD2-215 C	1.4550
938031	AE1-004 C	1.1871
938181	AE1-027 C	1.9396
938191	AE1-028 C	1.1253
938491	AE1-068 C O1	43.1239
938531	AE1-072 C O1	14.4849
938551	AE1-074 C	2.0609
938631	AE1-085 C O1	7.5284
938771	AE1-103 C O1	2.9154
939191	AE1-149 C O1	9.0795
939241	AE1-155 C	12.7010
939261	AE1-157 C O1	17.0491
939271	AE1-158 C O1	17.3997
939311	AE1-162 C	1.8184
939411	AE1-173 C	68.8500
939421	AE1-174 C	0.3174
939431	AE1-175 C	2.1108
939611	AE1-191 C	9.3187
939751	AE1-206 C O1	35.5287
940061	AE2-000BC O1	13.3737
940071	AE1-249 C (Withdrawn : 01/10/2020)	6.2011
940231	AE2-005 C	1.1871
940251	AE2-007 O1	144.2677
940431	AE2-027 C O1	11.3134
940471	AE2-031 C	23.4954
940481	AE2-033 C	12.4369
940491	AE2-034 C	3.5414
940541	AE2-040 O1	1.3163
940551	AE2-041 O1	6.2869
940641	AE2-051 C O1	12.7633
940651	AE2-052	1.6041
940891	AE2-078 C	2.0231
940901	AE2-079 C	2.0231
940911	AE2-080 C	2.0231
941031	AE2-094 C	28.1246
941101	AE2-104 C O1	2.8800
941141	AE2-108 C	0.6292
941151	AE2-109 C	0.2202
941281	AE2-122 C O1	12.5180
941291	AE2-123 C O1	12.8646

Bus #	Bus	MW Impact
941301	AE2-124 C O1	11.6947
941501	AE2-147 C	12.9576
941581	AE2-155 C	0.6963
941591	AE2-156 O1	14.9124
941601	AE2-157 C	8.9709
942001	AE2-212 C	1.8563
942131	AE2-225 C	1.7629
942151	AE2-227 C	1.9483
942161	AE2-228 C	1.8839
942171	AE2-229 C	1.7629
942191	AE2-231 C O1	6.5022
942341	AE2-247 C	0.6572
942371	AE2-250 C O1	8.3506
942401	AE2-253 C	5.0908
942471	AE2-260 C O1	11.0546
942551	AE2-270	23.3159
942851	AE2-304 C	0.5134
942931	AE2-313 C	25.4398
943431	AF1-014 C	0.5960
943451	AF1-016 C O1	0.5982
943461	AF1-017 C	0.5946
943471	AF1-018	3.3321
943601	AF1-031 C	5.3479
943611	AF1-032 C	0.7630
943621	AF1-033 C	1.0722
943741	AF1-042 C	1.3011
943991	AF1-067 C	2.2470
944011	AF1-069 C	4.8704
944051	AF1-073 C O1	8.4880
944061	AF1-074 C O1	3.2412
944501	AF1-115 C O1	3.2654
944581	AF1-123 C O1	19.2068
944591	AF1-124 C O1	19.2068
944601	AF1-125 C O1	19.2068
944631	AF1-128 O1	26.3106
944641	AF1-129 O1	48.7805
944871	AF1-152 C	2.2892
945361	AF1-201 C O1	7.3885
945711	AF1-236 C O1	33.2315
945831	AF1-248	0.1525

Bus #	Bus	MW Impact
946001	AF1-265	31.1655
946011	AF1-266	5.5176
946261	AF1-291 C	0.9987
LGEE	LGEE	1.5249
CPL	CPL	6.8234
WEC	WEC	0.7730
CBM-W2	CBM-W2	30.4832
NY	NY	2.5344
CBM-W1	CBM-W1	28.1100
TVA	TVA	6.4498
CBM-S2	CBM-S2	48.5751
CBM-S1	CBM-S1	36.1930
MADISON	MADISON	1.5926
MEC	MEC	4.6574
AA2-074	AA2-074	4.6534

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
42932703	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	151.14	151.48	DC	120.32

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0584
314491	3PENDLTN	0.4363
314507	3THOMPSON	0.4390
314947	8GREENSVILLE	70.1242
315058	1CHESTF3 (Deativation : 12/13/18)	20.5130
315059	1CHESTF4 (Deativation : 12/13/18)	33.2517
315074	1HOPCGN1 (Deativation : 06/25/19)	9.9214
315075	1HOPCGN2 (Deativation : 06/25/19)	9.7928
315083	1SPRUNCA (Deativation : 01/12/19)	13.1478
315084	1SPRUNCB (Deativation : 01/12/19)	13.1478
315090	1YORKTN1 (Deativation : 09/09/18)	34.8809
315091	1YORKTN2 (Deativation : 09/09/18)	36.1971
315098	1CHESPKA	0.5801
315099	1CHESPKB (Deativation : 05/31/19)	4.4206
315102	1BRUNSWICKG1	11.5172
315103	1BRUNSWICKG2	11.5172
315104	1BRUNSWICKG3	11.5172
315105	1BRUNSWICKS1	23.9269
315108	1ELIZAR1	4.2653
315109	1ELIZAR2	4.1912
315110	1ELIZAR3	4.3199
315131	1EDGECEMA (Deativation : 04/22/19)	11.1364
315132	1EDGECEMB (Deativation : 04/22/19)	11.1364
315260	1GOSPORTA	0.4632
315261	1GOSPORTB	0.5917
315262	1GOSPORTC	0.5022
315294	1DOMTR10	13.9077
315603	6AA1-139SOLA	3.2559
923262	AB1-132 C OP	17.8043
923263	AB1-132 E OP	7.6304
923572	AB1-173 C OP	2.8651
923582	AB1-173AC OP	2.8651
923801	AB2-015 C OP	11.1749
923831	AB2-022 C	3.0388

Bus #	Bus	MW Impact
923911	AB2-031 C O1	2.8439
923991	AB2-040 C O1	9.3380
924151	AB2-059 C OP	11.3377
924501	AB2-099 C	0.7489
924511	AB2-100 C	14.8913
925051	AB2-160 C O1	6.7303
925061	AB2-161 C O1	4.3797
925121	AB2-169 C	8.1887
925171	AB2-174 C O1	8.9475
925331	AB2-190 C	24.6359
925591	AC1-034 C	8.2036
925781	AC1-054 C O1	8.6290
926071	AC1-086 C	26.2190
926201	AC1-098 C	7.6634
926211	AC1-099 C	2.5680
926661	AC1-147 C	3.5146
926751	AC1-161 C O1	47.7284
926781	AC1-164 C	42.8999
927021	AC1-189 C	10.5359
927141	AC1-208 C	11.1971
927221	AC1-216 C O1	12.0856
932041	AC2-012 C	15.8996
932581	AC2-078 C O1	5.2024
932591	AC2-079 C O1	7.4798
932631	AC2-084 C	10.9244
933261	AC2-137 C	2.2246
933291	AC2-141 C	47.7284
933501	AC2-165 C	12.0190
933731	AC2-196 C	2.7940
933991	AD1-023 C	16.9247
934011	AD1-025 C	20.7750
934061	AD1-033 C	11.7331
934201	AD1-047 C	10.1869
934331	AD1-057 C O1	12.3025
934521	AD1-076 C	70.1959
934571	AD1-082 C	9.9811
934611	AD1-087 C O1	10.0737
935111	AD1-144 C	2.2527
935161	AD1-151 C O1	19.7967
935171	AD1-152 C O1	10.0111

Bus #	Bus	MW Impact
935211	AD1-156 C	2.7434
936041	AD2-007 C	0.9924
936051	AD2-008 C	3.6169
936151	AD2-021	0.2537
936401	AD2-051 C O1	11.2517
936661	AD2-085 C	4.4869
936701	AD2-089 C (Withdrawn : 12/09/2019)	8.7730
936711	AD2-090 C O1	9.2699
936761	AD2-097 C	2.4936
937221	AD2-160 C O1	9.1243
937251	AD2-164	5.8975
937481	AD2-202 C O1	2.6696
937541	AD2-215 C	2.2759
937571	AD2-169 C	12.6812
938171	AE1-026 C O1	41.2480
938181	AE1-027 C	3.6544
938191	AE1-028 C	2.1201
938221	AE1-035 C	2.8784
938491	AE1-068 C O1	100.1892
938501	AE1-069 C O1	78.4394
938531	AE1-072 C O1	27.3299
938551	AE1-074 C	3.8759
938561	AE1-075 C	2.7287
938631	AE1-085 C O1	11.4253
938661	AE1-088	4.1993
938771	AE1-103 C O1	4.7195
939191	AE1-149 C O1	13.6649
939311	AE1-162 C	2.7609
939411	AE1-173 C	148.7136
939421	AE1-174 C	0.4212
939431	AE1-175 C	2.8008
940061	AE2-000BC O1	20.7460
940071	AE1-249 C (Withdrawn : 01/10/2020)	8.8778
940251	AE2-007 O1	270.2313
940431	AE2-027 C O1	15.4805
940471	AE2-031 C	54.6395
940481	AE2-033 C	20.7349
940491	AE2-034 C	5.7765
940521	AE2-037 C	10.2716
940541	AE2-040 O1	2.1934

Bus #	Bus	MW Impact
940571	AE2-044 C	2.8477
940641	AE2-051 C O1	28.7901
940651	AE2-052	2.4141
940891	AE2-078 C	2.9668
940901	AE2-079 C	2.9668
940911	AE2-080 C	2.9668
941031	AE2-094 C	65.5498
941101	AE2-104 C O1	4.5891
941281	AE2-122 C O1	44.3569
941291	AE2-123 C O1	45.5852
941301	AE2-124 C O1	41.4567
941501	AE2-147 C	20.8501
941541	AE2-151 C	1.3864
941591	AE2-156 O1	27.9100
941601	AE2-157 C	13.7751
942001	AE2-212 C	2.6685
942131	AE2-225 C	2.8190
942151	AE2-227 C	2.4775
942161	AE2-228 C	2.6082
942171	AE2-229 C	2.8190
942341	AE2-247 C	1.0306
942371	AE2-250 C O1	11.9551
942401	AE2-253 C	9.5972
942471	AE2-260 C O1	18.4876
942551	AE2-270	32.9945
942851	AE2-304 C	0.8282
942931	AE2-313 C	59.1614
943171	AE2-346 C	0.9526
943451	AF1-016 C O1	0.9531
943461	AF1-017 C	0.9325
943611	AF1-032 C	1.2201
943621	AF1-033 C	1.5724
943911	AF1-059	10.6093
944011	AF1-069 C	21.4176
944051	AF1-073 C O1	13.9210
944061	AF1-074 C O1	4.9563
944141	AF1-082	1.8307
944501	AF1-115 C O1	4.7887
944581	AF1-123 C O1	68.5550
944591	AF1-124 C O1	68.5550

Bus #	Bus	MW Impact
944601	AF1-125 C O1	68.5550
944631	AF1-128 O1	33.2912
944641	AF1-129 O1	61.7228
944871	AF1-152 C	3.6835
945361	AF1-201 C O1	9.8585
945711	AF1-236 C O1	54.2044
945811	AF1-246 C O1	11.6432
946011	AF1-266	9.1991
946261	AF1-291 C	1.3819
946281	AF1-292 C	1.0149
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	13.4668
LGEE	LGEE	2.5741
CPL	CPL	12.1544
WEC	WEC	1.3312
CBM-W2	CBM-W2	52.1048
NY	NY	3.0255
CBM-W1	CBM-W1	49.0517
TVA	TVA	10.9606
CBM-S2	CBM-S2	85.2839
CBM-S1	CBM-S1	61.4462
MADISON	MADISON	2.7821
MEC	MEC	7.9863
AA2-074	AA2-074	8.2876

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
42932828	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	single	3218.56	110.86	111.73	DC	61.44

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0288
314333	6POWHATN	0.3398
314435	6SAPONY	0.2829
314947	8GREENSVILLE	43.3131
315102	1BRUNSWICKG1	7.1073
315103	1BRUNSWICKG2	7.1073
315104	1BRUNSWICKG3	7.1073
315105	1BRUNSWICKS1	14.7654
315131	1EDGECSMA (Deactivation : 04/22/19)	6.1260
315132	1EDGECSMB (Deactivation : 04/22/19)	6.1260
315153	1CLOVER1	10.0481
315154	1CLOVER2	9.9480
315172	1LOISA A	2.4389
315173	1LOISA B	2.4515
315174	1LOISA C	2.4515
315175	1LOISA D	2.4515
315176	1LOISA E	4.9979
315177	1S ANNAG1	1.7863
315178	1S ANNAS1	0.9180
315179	1S ANNAG2	1.7863
315180	1S ANNAS2	0.9180
315225	1N ANNA1	91.4291
315226	1N ANNA2	91.4675
315294	1DOMTR10	7.2270
315603	6AA1-139SOLA	1.6132
922922	AB1-081 C OP	5.9157
923262	AB1-132 C OP	9.5583
923263	AB1-132 E OP	4.0964
923572	AB1-173 C OP	1.5552
923582	AB1-173AC OP	1.5552
923801	AB2-015 C OP	5.7044
923831	AB2-022 C	1.5122

Bus #	Bus	MW Impact
923911	AB2-031 C O1	1.5437
923991	AB2-040 C O1	5.0688
924021	AB2-043 C O1	2.1240
924151	AB2-059 C OP	6.9721
924161	AB2-060 C OP	6.1199
924301	AB2-077 C O1	1.3464
924311	AB2-078 C O1	1.3464
924321	AB2-079 C O1	1.3464
924501	AB2-099 C	0.3930
924511	AB2-100 C	9.3880
925021	AB2-158 C	24.8965
925061	AB2-161 C O1	2.1136
925121	AB2-169 C	4.2972
925171	AB2-174 C O1	4.8598
925591	AC1-034 C	4.5160
925611	AC1-036 C	0.6519
925781	AC1-054 C O1	4.9120
926071	AC1-086 C	14.0758
926201	AC1-098 C	4.1289
926211	AC1-099 C	1.3836
926271	AC1-105 C O1	3.7753
926661	AC1-147 C	1.4645
926751	AC1-161 C O1	23.3949
927021	AC1-189 C	5.6996
927141	AC1-208 C	6.0727
927261	AC1-222 C	2.4104
932041	AC2-012 C	6.6251
932511	AC2-071 C	1.5504
932581	AC2-078 C O1	2.4496
932591	AC2-079 C O1	3.6482
932631	AC2-084 C	5.8859
933291	AC2-141 C	23.3949
933501	AC2-165 C	9.6131
933731	AC2-196 C	1.3806
933991	AD1-023 C	8.7483
934061	AD1-033 C	5.7952
934201	AD1-047 C	5.5296
934311	AD1-055 C	1.6736
934331	AD1-057 C O1	6.6934
934521	AD1-076 C	36.1597

Bus #	Bus	MW Impact
934571	AD1-082 C	4.8167
934611	AD1-087 C O1	7.2788
934621	AD1-088 C	10.6136
935111	AD1-144 C	1.0854
935171	AD1-152 C O1	7.2336
935211	AD1-156 C	1.3235
935221	AD1-157 C	1.0500
935231	AD1-160 C	0.7700
936261	AD2-033 C	8.8928
936331	AD2-043 C (Withdrawn : 12/20/2019)	3.1370
936361	AD2-046 C O1	6.0284
936401	AD2-051 C O1	5.8775
936481	AD2-063 C O1	10.1829
936661	AD2-085 C	2.1874
936701	AD2-089 C (Withdrawn : 12/09/2019)	4.7809
936711	AD2-090 C O1	4.7781
937221	AD2-160 C O1	4.5175
937481	AD2-202 C O1	1.9290
937541	AD2-215 C	1.0966
937571	AD2-169 C	6.8784
938171	AE1-026 C O1	21.3617
938181	AE1-027 C	1.8070
938191	AE1-028 C	1.0483
938221	AE1-035 C	1.5023
938371	AE1-056 C	4.5268
938491	AE1-068 C O1	61.9269
938501	AE1-069 C O1	48.4492
938531	AE1-072 C O1	13.5526
938551	AE1-074 C	2.0377
938561	AE1-075 C	2.1347
938631	AE1-085 C O1	5.3996
938661	AE1-088	2.2037
938771	AE1-103 C O1	2.3989
939181	AE1-148 C O1	5.9468
939191	AE1-149 C O1	6.4051
939231	AE1-154 C	4.0814
939311	AE1-162 C	1.2822
939371	AE1-168 C (Withdrawn : 01/08/2020)	10.3948
939411	AE1-173 C	85.6032
940061	AE2-000BC O1	10.0116
940241	AE2-006	0.3317

Bus #	Bus	MW Impact
940251	AE2-007 O1	112.7510
940471	AE2-031 C	33.8378
940481	AE2-033 C	12.9940
940491	AE2-034 C	2.9496
940521	AE2-037 C	5.3773
940541	AE2-040 O1	2.5910
940571	AE2-044 C	1.5677
940641	AE2-051 C O1	17.2521
940651	AE2-052	1.1316
940661	AE2-053 O1	2.2025
941031	AE2-094 C	40.5698
941101	AE2-104 C O1	2.2691
941281	AE2-122 C O1	21.8472
941291	AE2-123 C O1	22.4521
941301	AE2-124 C O1	20.4277
941501	AE2-147 C	10.4132
941541	AE2-151 C	0.7284
941591	AE2-156 O1	11.6348
941601	AE2-157 C	6.5836
941791	AE2-182 C	2.0216
942131	AE2-225 C	1.3950
942171	AE2-229 C	1.3950
942341	AE2-247 C	0.5024
942401	AE2-253 C	4.7517
942451	AE2-258	1.5845
942461	AE2-259 C O1	8.3514
942471	AE2-260 C O1	11.6533
942851	AE2-304 C	0.4153
942931	AE2-313 C	36.6381
943171	AE2-346 C	0.4999
943451	AF1-016 C O1	0.4713
943461	AF1-017 C	0.4545
943611	AF1-032 C	0.6038
943901	AF1-058 C	0.7027
943911	AF1-059	6.0673
944011	AF1-069 C	13.2557
944051	AF1-073 C O1	7.1711
944061	AF1-074 C O1	2.3595
944111	AF1-079 C	7.7547
944141	AF1-082	1.0078

Bus #	Bus	MW Impact
944581	AF1-123 C O1	34.0072
944591	AF1-124 C O1	34.0072
944601	AF1-125 C O1	34.0072
944871	AF1-152 C	1.8397
945711	AF1-236 C O1	27.6780
945811	AF1-246 C O1	7.2269
946011	AF1-266	10.8770
946281	AF1-292 C	1.2258
946301	AF1-294 C	1.8457
946371	AF1-301 C	36.8780
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	18.5877
LGEE	LGEE	1.0697
CPL	CPL	6.9266
WEC	WEC	0.5405
CBM-W2	CBM-W2	24.7256
NY	NY	2.2220
CBM-W1	CBM-W1	19.2279
TVA	TVA	5.4712
CBM-S2	CBM-S2	47.5174
CBM-S1	CBM-S1	30.0841
MADISON	MADISON	1.7136
MEC	MEC	3.5006
AA2-074	AA2-074	4.7191

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
42932861	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 575	single	3218.56	113.59	114.04	DC	73.24

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0351
314333	6POWHATN	0.3625
314435	6SAPONY	0.3306
314491	3PENDLTN	0.2620
314947	8GREENSVILLE	46.0570
315083	1SPRUNCA (Deactivation : 01/12/19)	7.8091
315084	1SPRUNCB (Deactivation : 01/12/19)	7.8091
315090	1YORKTN1 (Deactivation : 09/09/18)	5.1421
315091	1YORKTN2 (Deactivation : 09/09/18)	5.3361
315102	1BRUNSWICKG1	7.5616
315103	1BRUNSWICKG2	7.5616
315104	1BRUNSWICKG3	7.5616
315105	1BRUNSWICKS1	15.7092
315108	1ELIZAR1	2.5589
315109	1ELIZAR2	2.5144
315110	1ELIZAR3	2.5916
315153	1CLOVER1	10.7445
315154	1CLOVER2	10.6374
315172	1LOISA A	1.9127
315173	1LOISA B	1.9226
315174	1LOISA C	1.9226
315175	1LOISA D	1.9226
315176	1LOISA E	3.9197
315177	1S ANNAG1	1.4148
315178	1S ANNAS1	0.7271
315179	1S ANNAG2	1.4148
315180	1S ANNAS2	0.7271
315225	1N ANNA1	79.5043
315226	1N ANNA2	79.5377
315294	1DOMTR10	8.5176
923262	AB1-132 C OP	11.0720
923263	AB1-132 E OP	4.7451

Bus #	Bus	MW Impact
923572	AB1-173 C OP	1.7943
923582	AB1-173AC OP	1.7943
923801	AB2-015 C OP	6.8136
923831	AB2-022 C	1.8319
923911	AB2-031 C O1	1.7811
923991	AB2-040 C O1	5.8482
924501	AB2-099 C	0.4611
924511	AB2-100 C	9.2743
925021	AB2-158 C	20.9315
925051	AB2-160 C O1	3.9401
925061	AB2-161 C O1	2.6236
925121	AB2-169 C	5.0318
925171	AB2-174 C O1	5.6070
925331	AB2-190 C	14.1800
925611	AC1-036 C	0.7126
926071	AC1-086 C	16.3048
926201	AC1-098 C	4.7643
926211	AC1-099 C	1.5965
926661	AC1-147 C	1.7914
926731	AC1-158 C	-83.6118
926751	AC1-161 C O1	28.5536
927141	AC1-208 C	6.9811
927221	AC1-216 C O1	6.9665
932041	AC2-012 C	8.1037
932581	AC2-078 C O1	3.1000
932591	AC2-079 C O1	4.4908
932631	AC2-084 C	6.7916
933291	AC2-141 C	28.5536
933501	AC2-165 C	10.2309
933731	AC2-196 C	1.6797
933991	AD1-023 C	10.3493
934011	AD1-025 C	11.9753
934061	AD1-033 C	7.0526
934201	AD1-047 C	6.3799
934331	AD1-057 C O1	7.6725
934521	AD1-076 C	42.8656
934571	AD1-082 C	5.9790
934611	AD1-087 C O1	6.6497
934621	AD1-088 C	9.6054
935111	AD1-144 C	1.3439

Bus #	Bus	MW Impact
935161	AD1-151 C O1	11.3947
935171	AD1-152 C O1	6.6084
935211	AD1-156 C	1.6517
935221	AD1-157 C	1.1344
935231	AD1-160 C	0.8319
936041	AD2-007 C	0.5721
936051	AD2-008 C	2.0849
936261	AD2-033 C	9.7381
936401	AD2-051 C O1	6.9099
936661	AD2-085 C	2.6937
936711	AD2-090 C O1	5.6738
936761	AD2-097 C	1.4810
937221	AD2-160 C O1	5.4894
937251	AD2-164	3.3768
937481	AD2-202 C O1	1.7622
937541	AD2-215 C	1.3578
937571	AD2-169 C	7.9371
938171	AE1-026 C O1	25.2421
938181	AE1-027 C	2.1975
938191	AE1-028 C	1.2749
938221	AE1-035 C	1.7672
938371	AE1-056 C	4.8906
938491	AE1-068 C O1	65.8211
938501	AE1-069 C O1	51.5184
938531	AE1-072 C O1	13.9854
938551	AE1-074 C	2.4299
938561	AE1-075 C	2.2771
938631	AE1-085 C O1	6.8136
938661	AE1-088	2.5804
938771	AE1-103 C O1	2.8728
939191	AE1-149 C O1	8.1345
939231	AE1-154 C	3.4314
939311	AE1-162 C	1.6286
939371	AE1-168 C (Withdrawn : 01/08/2020)	11.2968
939411	AE1-173 C	94.8240
940061	AE2-000BC O1	12.4274
940071	AE1-249 C (Withdrawn : 01/10/2020)	5.1973
940241	AE2-006	0.3625
940251	AE2-007 O1	162.1020
940471	AE2-031 C	35.9449

Bus #	Bus	MW Impact
940481	AE2-033 C	15.1736
940491	AE2-034 C	3.5160
940521	AE2-037 C	6.3118
940541	AE2-040 O1	3.0277
940641	AE2-051 C O1	18.6615
940651	AE2-052	1.4371
940891	AE2-078 C	1.7253
940901	AE2-079 C	1.7253
940911	AE2-080 C	1.7253
941031	AE2-094 C	43.0852
941101	AE2-104 C O1	2.7636
941281	AE2-122 C O1	26.6396
941291	AE2-123 C O1	27.3772
941301	AE2-124 C O1	24.9005
941501	AE2-147 C	12.5881
941541	AE2-151 C	0.8537
941591	AE2-156 O1	16.7380
941601	AE2-157 C	8.2340
941791	AE2-182 C	1.8296
942001	AE2-212 C	1.5663
942131	AE2-225 C	1.6966
942161	AE2-228 C	1.5057
942171	AE2-229 C	1.6966
942341	AE2-247 C	0.6187
942371	AE2-250 C O1	6.9988
942401	AE2-253 C	5.7739
942461	AE2-259 C O1	7.6072
942471	AE2-260 C O1	11.5157
942551	AE2-270	18.9911
942851	AE2-304 C	0.5007
942931	AE2-313 C	38.9197
943171	AE2-346 C	0.5865
943451	AF1-016 C O1	0.5740
943461	AF1-017 C	0.5598
943611	AF1-032 C	0.7343
943621	AF1-033 C	0.9144
943911	AF1-059	6.8372
944011	AF1-069 C	14.0775
944051	AF1-073 C O1	8.5009
944061	AF1-074 C O1	2.9603

Bus #	Bus	MW Impact
944111	AF1-079 C	6.5197
944501	AF1-115 C O1	2.7848
944581	AF1-123 C O1	41.2562
944591	AF1-124 C O1	41.2562
944601	AF1-125 C O1	41.2562
944871	AF1-152 C	2.2239
945711	AF1-236 C O1	32.9932
945811	AF1-246 C O1	7.7116
946011	AF1-266	12.7015
946261	AF1-291 C	0.7975
946281	AF1-292 C	0.6369
946301	AF1-294 C	1.9999
946371	AF1-301 C	31.0432
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	19.8759
LGEE	LGEE	1.1661
CPL	CPL	7.6383
WEC	WEC	0.5818
CBM-W2	CBM-W2	27.1662
NY	NY	2.4647
CBM-W1	CBM-W1	20.5039
TVA	TVA	6.0578
CBM-S2	CBM-S2	52.4940
CBM-S1	CBM-S1	33.2536
MADISON	MADISON	1.9172
MEC	MEC	3.8088
AA2-074	AA2-074	5.2038

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
42932559	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	110.71	111.75	DC	305.31

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0625
314491	3PENDLTN	0.4661
315090	1YORKTN1 (Deactivation : 09/09/18)	29.1449
315091	1YORKTN2 (Deactivation : 09/09/18)	30.2447
315108	1ELIZAR1	4.5562
315109	1ELIZAR2	4.4771
315110	1ELIZAR3	4.6145
315233	1SURRY 2	45.2810
901082	W1-029 E	61.9627
913392	Y1-086 E	3.0299
916042	Z1-036 E	59.9839
916192	Z1-068 E	3.1343
917122	Z2-027 E	1.4498
919152	AA1-139 E	9.0475
920692	AA2-178 E	5.1473
923831	AB2-022 C	3.1765
923832	AB2-022 E	1.7104
925522	AC1-027 E	1.9082
926661	AC1-147 C	3.1737
926662	AC1-147 E	1.8639
926751	AC1-161 C O1	58.5235
926752	AC1-161 E O1	24.9821
932041	AC2-012 C	14.3572
932042	AC2-012 E	23.4249
933291	AC2-141 C	58.5235
933292	AC2-141 E	24.9821
933731	AC2-196 C	3.0087
933732	AC2-196 E	2.0038
934061	AD1-033 C	12.6223
934062	AD1-033 E	8.4148
935111	AD1-144 C	2.2476
935112	AD1-144 E	1.2281

Bus #	Bus	MW Impact
937221	AD2-160 C O1	9.7472
937222	AD2-160 E O1	5.1113
937251	AD2-164	5.6497
937541	AD2-215 C	2.2708
937542	AD2-215 E	1.2049
938181	AE1-027 C	3.9240
938182	AE1-027 E	2.0668
938191	AE1-028 C	2.2765
938192	AE1-028 E	1.3180
938531	AE1-072 C O1	24.6494
938532	AE1-072 E O1	12.8497
939411	AE1-173 C	116.2270
939412	AE1-173 E	77.4846
940251	AE2-007 O1	288.4609
940471	AE2-031 C	36.8522
940472	AE2-031 E	24.5682
940491	AE2-034 C	5.5698
940492	AE2-034 E	2.3871
940641	AE2-051 C O1	21.3267
940642	AE2-051 E O1	14.2178
941031	AE2-094 C	44.3858
941032	AE2-094 E	19.8793
941101	AE2-104 C O1	4.5057
941102	AE2-104 E O1	7.1589
941281	AE2-122 C O1	47.4539
941282	AE2-122 E O1	191.4880
941291	AE2-123 C O1	48.7679
941292	AE2-123 E O1	190.1740
941301	AE2-124 C O1	44.3807
941302	AE2-124 E O1	194.7372
941501	AE2-147 C	21.3665
941502	AE2-147 E	14.2443
941591	AE2-156 O1	29.7130
942131	AE2-225 C	2.9154
942132	AE2-225 E	1.9436
942171	AE2-229 C	2.9154
942172	AE2-229 E	1.9436
942401	AE2-253 C	10.2524
942402	AE2-253 E	4.6061
942851	AE2-304 C	0.8413

Bus #	Bus	MW Impact
942852	AE2-304 E	0.3272
942931	AE2-313 C	39.9021
942932	AE2-313 E	26.6014
943451	AF1-016 C O1	0.9358
943452	AF1-016 E O1	1.4886
943611	AF1-032 C	1.2619
943612	AF1-032 E	0.6696
944011	AF1-069 C	7.6863
944012	AF1-069 E	2.9860
944581	AF1-123 C O1	75.6579
944582	AF1-123 E O1	197.7669
944591	AF1-124 C O1	75.6579
944592	AF1-124 E O1	197.7669
944601	AF1-125 C O1	75.6579
944602	AF1-125 E O1	197.7669
944871	AF1-152 C	3.7747
944872	AF1-152 E	2.5165
945711	AF1-236 C O1	52.2655
945712	AF1-236 E O1	85.2753
LGEE	LGEE	1.2015
CPL	CPL	8.9071
WEC	WEC	0.6262
CBM-W2	CBM-W2	29.0499
NY	NY	1.6109
CBM-W1	CBM-W1	22.6806
TVA	TVA	6.4246
O-066	O-066	21.7459
CBM-S2	CBM-S2	59.2912
CBM-S1	CBM-S1	35.1706
G-007	G-007	3.3935
MADISON	MADISON	2.1390
MEC	MEC	4.0806
AA2-074	AA2-074	6.0669

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
42932793	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 575	single	3218.56	118.12	118.85	DC	72.23

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0346
314333	6POWHATN	0.3592
314435	6SAPONY	0.3257
314491	3PENDLTN	0.2585
314947	8GREENSVILLE	45.0969
315083	1SPRUNCA (Deactivation : 01/12/19)	7.7411
315084	1SPRUNCB (Deactivation : 01/12/19)	7.7411
315102	1BRUNSWICKG1	7.4054
315103	1BRUNSWICKG2	7.4054
315104	1BRUNSWICKG3	7.4054
315105	1BRUNSWICKS1	15.3846
315108	1ELIZAR1	2.5250
315109	1ELIZAR2	2.4811
315110	1ELIZAR3	2.5573
315153	1CLOVER1	10.5682
315154	1CLOVER2	10.4629
315172	1LOISA A	2.1512
315173	1LOISA B	2.1623
315174	1LOISA C	2.1623
315175	1LOISA D	2.1623
315176	1LOISA E	4.4084
315177	1S ANNAG1	1.5682
315178	1S ANNAS1	0.8059
315179	1S ANNAG2	1.5682
315180	1S ANNAS2	0.8059
315225	1N ANNA1	76.4672
315226	1N ANNA2	76.4993
315294	1DOMTR10	8.3986
923262	AB1-132 C OP	10.9128
923263	AB1-132 E OP	4.6769
923572	AB1-173 C OP	1.7694
923582	AB1-173AC OP	1.7694

Bus #	Bus	MW Impact
923801	AB2-015 C OP	6.7218
923831	AB2-022 C	1.8071
923911	AB2-031 C O1	1.7563
923991	AB2-040 C O1	5.7671
924501	AB2-099 C	0.4547
924511	AB2-100 C	9.1388
925021	AB2-158 C	21.2066
925051	AB2-160 C O1	3.9055
925061	AB2-161 C O1	2.5916
925121	AB2-169 C	4.9609
925171	AB2-174 C O1	5.5289
925331	AB2-190 C	14.0687
926001	AC1-076 C	6.7011
926071	AC1-086 C	16.0704
926201	AC1-098 C	4.6968
926211	AC1-099 C	1.5739
926481	AC1-120 C O1	7.0959
926501	AC1-121 C O1	2.4370
926661	AC1-147 C	1.7677
926731	AC1-158 C	238.5344
926751	AC1-161 C O1	28.1685
927141	AC1-208 C	4.1298
927221	AC1-216 C O1	6.9101
932041	AC2-012 C	7.9967
932581	AC2-078 C O1	3.0651
932591	AC2-079 C O1	4.4340
932631	AC2-084 C	6.6955
932781	AC2-102 C	5.1391
933291	AC2-141 C	28.1685
933501	AC2-165 C	10.1699
933731	AC2-196 C	1.6571
933991	AD1-023 C	10.2053
934011	AD1-025 C	11.8784
934061	AD1-033 C	6.9577
934201	AD1-047 C	6.2914
934521	AD1-076 C	42.2713
934571	AD1-082 C	5.9061
934611	AD1-087 C O1	6.5446
934621	AD1-088 C	9.5532
935111	AD1-144 C	1.3272

Bus #	Bus	MW Impact
935161	AD1-151 C O1	11.3052
935171	AD1-152 C O1	6.5039
935211	AD1-156 C	1.6320
935221	AD1-157 C	1.1298
935231	AD1-160 C	0.8285
936041	AD2-007 C	0.5674
936051	AD2-008 C	2.0680
936401	AD2-051 C O1	6.8133
936661	AD2-085 C	2.6596
936711	AD2-090 C O1	5.5967
936761	AD2-097 C	1.4681
937221	AD2-160 C O1	5.4156
937251	AD2-164	3.3486
937481	AD2-202 C O1	1.7344
937541	AD2-215 C	1.3409
937571	AD2-169 C	7.8270
938171	AE1-026 C O1	24.8918
938181	AE1-027 C	2.1679
938191	AE1-028 C	1.2577
938221	AE1-035 C	1.7424
938371	AE1-056 C	4.8708
938491	AE1-068 C O1	64.4393
938501	AE1-069 C O1	50.4444
938531	AE1-072 C O1	13.7960
938551	AE1-074 C	2.3973
938561	AE1-075 C	2.2562
938631	AE1-085 C O1	6.7358
938661	AE1-088	2.5440
938771	AE1-103 C O1	2.8342
939191	AE1-149 C O1	8.0453
939231	AE1-154 C	3.4765
939311	AE1-162 C	1.6104
939371	AE1-168 C (Withdrawn : 01/08/2020)	11.2310
939411	AE1-173 C	93.0288
940061	AE2-000BC O1	12.2760
940071	AE1-249 C (Withdrawn : 01/10/2020)	5.1516
940251	AE2-007 O1	159.9539
940471	AE2-031 C	35.1915
940481	AE2-033 C	14.9467
940491	AE2-034 C	3.4675

Bus #	Bus	MW Impact
940521	AE2-037 C	6.2233
940541	AE2-040 O1	2.9822
940641	AE2-051 C O1	18.2808
940651	AE2-052	1.4213
940891	AE2-078 C	1.7087
940901	AE2-079 C	1.7087
940911	AE2-080 C	1.7087
941031	AE2-094 C	42.1735
941101	AE2-104 C O1	2.7271
941281	AE2-122 C O1	26.2836
941291	AE2-123 C O1	27.0115
941301	AE2-124 C O1	24.5678
941381	AE2-134	4.6176
941501	AE2-147 C	12.4175
941541	AE2-151 C	0.8418
941591	AE2-156 O1	16.5170
941601	AE2-157 C	8.1371
941791	AE2-182 C	1.8197
941831	AE2-188	6.7620
942001	AE2-212 C	1.5521
942131	AE2-225 C	1.6739
942161	AE2-228 C	1.4951
942171	AE2-229 C	1.6739
942341	AE2-247 C	0.6109
942371	AE2-250 C O1	6.9373
942401	AE2-253 C	5.6963
942461	AE2-259 C O1	7.5944
942471	AE2-260 C O1	11.3477
942551	AE2-270	18.8420
942851	AE2-304 C	0.4939
942931	AE2-313 C	38.1039
943171	AE2-346 C	0.5783
943451	AF1-016 C O1	0.5664
943461	AF1-017 C	0.5527
943611	AF1-032 C	0.7245
943621	AF1-033 C	0.9056
943911	AF1-059	6.7543
944011	AF1-069 C	13.7797
944051	AF1-073 C O1	8.3831
944061	AF1-074 C O1	2.9258

Bus #	Bus	MW Impact
944111	AF1-079 C	6.6053
944501	AF1-115 C O1	2.7580
944581	AF1-123 C O1	40.6913
944591	AF1-124 C O1	40.6913
944601	AF1-125 C O1	40.6913
944871	AF1-152 C	2.1938
945711	AF1-236 C O1	32.5375
945811	AF1-246 C O1	7.5734
946011	AF1-266	12.5115
946261	AF1-291 C	0.7919
946281	AF1-292 C	0.6280
946301	AF1-294 C	1.9901
946371	AF1-301 C	31.3912
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	19.5499
LGEE	LGEE	1.1610
CPL	CPL	7.5246
WEC	WEC	0.5787
CBM-W2	CBM-W2	26.9369
NY	NY	2.4514
CBM-W1	CBM-W1	20.3788
TVA	TVA	6.0046
CBM-S2	CBM-S2	51.7946
CBM-S1	CBM-S1	32.9724
MADISON	MADISON	1.8910
MEC	MEC	3.7834
AA2-074	AA2-074	5.1264

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
43196893	925120	AB2-169 TAP	DVP	314576	3FIVE PT	DVP	1	DVP_P7-1: LN 25-2034-A	tower	91.0	171.32	228.21	DC	114.87

Bus #	Bus	MW Impact
315292	1DOMTR78	1.4430
315294	1DOMTR10	13.3980
916042	Z1-036 E	12.8332
920692	AA2-178 E	1.9366
925121	AB2-169 C	19.8416
925122	AB2-169 E	17.8066
934521	AD1-076 C	37.5059
934522	AD1-076 E	19.0979
938661	AE1-088	10.1752
940491	AE2-034 C	2.0955
940492	AE2-034 E	0.8981
944051	AF1-073 C O1	14.0340
944052	AF1-073 E O1	9.3560
945711	AF1-236 C O1	19.6638
945712	AF1-236 E O1	32.0830
DUCKCREEK	DUCKCREEK	0.1842
NEWTON	NEWTON	0.1816
FARMERCITY	FARMERCITY	0.0105
G-007A	G-007A	0.1223
VFT	VFT	0.3289
PRAIRIE	PRAIRIE	0.4959
COFFEEN	COFFEEN	0.0904
EDWARDS	EDWARDS	0.0546
CHEOAH	CHEOAH	0.1522
TILTON	TILTON	0.0964
GIBSON	GIBSON	0.0874
CALDERWOOD	CALDERWOOD	0.1486
BLUEG	BLUEG	0.2691
TRIMBLE	TRIMBLE	0.0857
CATAWBA	CATAWBA	0.1599

Short Circuit

12.7 Short Circuit

The following Breakers are overdutied

None

13 Network Impacts – Secondary Point of Interconnection

The Queue Project AF1-236 was evaluated as a 1210.0 MW (Capacity 459.8 MW) injection at the Suffolk 500 kV substation in the Dominion area. Project AF1-236 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-236 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

13.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
4293277 2	31491 1	8LADYSMIT H	500. 0	DVP	31492 2	8POSSU M	500. 0	DVP	1	Base Case	single	2442.1 2	99.15	100.27	DC	59.28

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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
4293259 4	31491 8	8NO ANNA	500. 0	DVP	31491 1	8LADYSMIT H	500. 0	DVP	1	DVP_P4 -2: H1T594	breaker	3938. 0	99.15	100.11	DC	164.57

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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
4293256 3	31490 2	8CARSON	500. 0	DVP	31491 4	8MDLTHAN	500. 0	DVP	1	DVP_P4 -2: 557T57 4	breaker	3938.0	126.21	132.96	DC	386.47
4293256 4	31490 2	8CARSON	500. 0	DVP	31491 4	8MDLTHAN	500. 0	DVP	1	DVP_P4 -2: H2T557	breaker	3938.0	119.7	126.26	DC	375.46
4293275 0	31490 2	8CARSON	500. 0	DVP	31491 4	8MDLTHAN	500. 0	DVP	1	DVP_P1 -2: LN 557	single	3218.5 6	120.99	121.97	DC	139.27
4293275 3	31490 2	8CARSON	500. 0	DVP	31491 4	8MDLTHAN	500. 0	DVP	1	DVP_P1 -2: LN 574	single	3218.5 6	105.78	109.55	DC	121.0
4293255 3	31490 3	8CHCKAHM	500. 0	DVP	31490 8	8ELMONT	500. 0	DVP	1	DVP_P4 -2: 56372	breaker	3144.0	139.0	140.88	DC	401.97
4293255 4	31490 3	8CHCKAHM	500. 0	DVP	31490 8	8ELMONT	500. 0	DVP	1	DVP_P4 -2: 563T57 6	breaker	3144.0	138.77	140.74	DC	405.17
4293268 3	31490 3	8CHCKAHM	500. 0	DVP	31490 8	8ELMONT	500. 0	DVP	1	DVP_P1 -2: LN 563	single	2442.1 2	165.57	167.46	DC	147.49
4293268 4	31490 3	8CHCKAHM	500. 0	DVP	31490 8	8ELMONT	500. 0	DVP	1	DVP_P1 -2: LN 576	single	2442.1 2	163.48	165.23	DC	146.61
4293269 2	31490 3	8CHCKAHM	500. 0	DVP	31490 8	8ELMONT	500. 0	DVP	1	Base Case	single	2442.1 2	134.98	136.67	DC	117.8
4293258 8	31490 5	8CHANCE	500. 0	DVP	31490 0	8BRISTER	500. 0	DVP	1	DVP_P4 -2: H1T594	breaker	3351.0	105.94	106.01	DC	231.94
4293258 9	31490 5	8CHANCE	500. 0	DVP	31490 0	8BRISTER	500. 0	DVP	1	DVP_P4 -2: 573T59 4	breaker	3351.0	105.37	105.44	DC	231.42

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
42932738	314905	8CHANCE	500.0	DVP	314900	8BRISTER	500.0	DVP	1	DVP_P1-2: LN 594	single	2442.12	141.75	141.91	DC	87.97
42932740	314905	8CHANCE	500.0	DVP	314900	8BRISTER	500.0	DVP	1	DVP_P1-2: LN 573	single	2442.12	138.04	138.87	DC	86.39
42932843	314908	8ELMONT	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P1-2: LN 576	single	4070.2	116.54	116.9	DC	148.88
42932846	314908	8ELMONT	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P1-2: LN 534	single	4070.2	103.7	105.19	DC	132.7
42932573	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	110.43	110.5	DC	234.33
42932574	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	106.06	106.13	DC	227.01
42932608	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P4-2: 545T552	breaker	3637.0	101.87	101.94	DC	212.03
42932767	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P1-2: LN 573	single	2442.12	131.97	132.77	DC	76.02
42932768	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.69	132.51	DC	75.81
42932780	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P1-2: LN 573	single	2738.22	127.96	128.11	DC	89.44
42932781	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P1-2: LN 594	single	2738.22	126.83	126.98	DC	86.12
42932703	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	DVP_P1-2: LN 574	single	2442.12	151.32	152.22	DC	130.85
42932704	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	DVP_P1-2: LN 557	single	2442.12	139.7	140.47	DC	130.31
42932712	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	Base Case	single	2442.12	106.2	108.69	DC	96.18
42932882	314916	8MORRSVL	500.0	DVP	314913	8LOUDOUN	500.0	DVP	1	DVP_P1-2: LN 580	single	2738.22	108.16	108.82	DC	57.13
42932593	314918	8NO ANNA	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3938.0	104.54	104.92	DC	173.96
42932614	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P4-2: 57502	breaker	3938.0	101.17	103.99	DC	210.03
42932615	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	100.19	100.61	DC	221.35
42932828	314918	8NO ANNA	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P1-2: LN 573	single	3218.56	110.75	112.81	DC	65.94
42932829	314918	8NO ANNA	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P1-2: LN 594	single	3218.56	106.45	108.39	DC	62.39
42932860	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P1-2: LN 581	single	3218.56	115.42	115.58	DC	97.24

ID	FROM BUS#	FROM BUS	kV	FRO M BUS AREA	TO BUS#	TO BUS	kV	TO BUS ARE A	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC D C	MW IMPAC T
42932861	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P1-2: LN 575	single	3218.56	113.29	114.23	DC	79.19
42932898	314919	8OX	500.0	DVP	314904	8CLIFTON	500.0	DVP	1	DVP_P1-2: LN 569	single	2442.12	103.91	103.98	DC	52.71
42932558	314924	8SURRY	500.0	DVP	314903	8CHCKAHM	500.0	DVP	1	DVP_P4-2: 56372	breake r	3144.0	118.54	121.54	DC	398.24
42932559	314924	8SURRY	500.0	DVP	314903	8CHCKAHM	500.0	DVP	1	DVP_P4-2: 563T576	breake r	3144.0	110.34	113.16	DC	381.09
42932716	314924	8SURRY	500.0	DVP	314903	8CHCKAHM	500.0	DVP	1	DVP_P1-2: LN 563	single	2442.12	103.92	109.76	DC	142.34
42932578	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P4-2: 568T575	breake r	3938.0	109.11	109.43	DC	220.16
42932579	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P4-2: 57502	breake r	3938.0	103.87	104.15	DC	206.89
42932793	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P1-2: LN 575	single	3218.56	117.62	119.16	DC	78.06
42932794	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P1-2: LN 552	single	3218.56	120.11	120.22	DC	96.02
42932695	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON23 OT	230.0	CPL	1	DVP_P1-2: LN 570	single	718.0	129.17	133.33	DC	30.14

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	kV	FRO M BUS AREA	TO BUS#	TO BUS	kV	TO BUS ARE A	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC D C	MW IMPAC T
42932749	314902	8CARSON	500.0	DVP	314914	8MDLTHAN	500.0	DVP	1	DVP_P1-2: LN 557	operatio n	3218.56	144.2	152.19	DC	366.51
42932757	314902	8CARSON	500.0	DVP	314914	8MDLTHAN	500.0	DVP	1	Base Case	operatio n	3218.56	104.19	105.95	DC	262.49
42932681	314903	8CHCKAH M	500.0	DVP	314908	8ELMONT	500.0	DVP	1	DVP_P1-2: LN 563	operatio n	2442.12	172.59	175.17	DC	388.13
42932688	314903	8CHCKAH M	500.0	DVP	314908	8ELMONT	500.0	DVP	1	Base Case	operatio n	2442.12	142.05	144.42	DC	310.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS LOADIN G %	POST PROJECTIONS LOADIN G %	AC DC	MW IMPACT
42932737	314905	8CHANCE	500.0	DVP	314900	8BRISTER	500.0	DVP	1	DVP_P 1-2: LN 594	operation	2442.12	144.54	144.63	DC	231.5
42932842	314908	8ELMONT	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P 1-2: LN 576	operation	4070.2	119.94	120.09	DC	391.8
42932761	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	DVP_P 1-2: LN 581	operation	2442.12	137.92	138.03	DC	202.29
42932771	314911	8LADYSMIT H	500.0	DVP	314922	8POSSUM	500.0	DVP	1	Base Case	operation	2442.12	108.18	108.26	DC	156.01
42932778	314911	8LADYSMIT H	500.0	DVP	314905	8CHANCE	500.0	DVP	1	DVP_P 1-2: LN 594	operation	2738.22	129.17	129.27	DC	226.62
42932701	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	DVP_P 1-2: LN 557	operation	2442.12	165.39	174.62	DC	342.91
42932711	314914	8MDLTHAN	500.0	DVP	314918	8NO ANNA	500.0	DVP	1	Base Case	operation	2442.12	119.54	121.37	DC	253.11
42932881	314916	8MORRSVL	500.0	DVP	314913	8LOUDOUN	500.0	DVP	1	DVP_P 1-2: LN 580	operation	2738.22	110.91	111.01	DC	150.35
42932826	314918	8NO ANNA	500.0	DVP	314911	8LADYSMIT H	500.0	DVP	1	DVP_P 1-2: LN 594	operation	3218.56	121.21	122.14	DC	164.2
42932859	314918	8NO ANNA	500.0	DVP	314934	8SPOTSYL	500.0	DVP	1	DVP_P 1-2: LN 575	operation	3218.56	117.29	117.69	DC	208.39
42932897	314919	8OX	500.0	DVP	314904	8CLIFTON	500.0	DVP	1	DVP_P 1-2: LN 569	operation	2442.12	108.79	108.85	DC	138.71
42932713	314924	8SURREY	500.0	DVP	314903	8CHCKAH M	500.0	DVP	1	DVP_P 1-2: LN 563	operation	2442.12	139.61	143.24	DC	374.59
42932720	314924	8SURREY	500.0	DVP	314903	8CHCKAH M	500.0	DVP	1	Base Case	operation	2442.12	101.81	105.75	DC	295.22
42932832	314927	8YADKIN	500.0	DVP	314923	8SEPTA	500.0	DVP	1	DVP_P 1-2: LN 531	operation	2442.12	97.63	104.64	DC	410.19
42932905	314928	8SUFFOLK	500.0	DVP	314924	8SURREY	500.0	DVP	1	DVP_P 1-2: LN 579	operation	2442.12	88.86	104.59	DC	465.64
42932790	314934	8SPOTSYL	500.0	DVP	314916	8MORRSVL	500.0	DVP	1	DVP_P 1-2: LN 575	operation	3218.56	126.66	127.08	DC	205.41

13.5 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, 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 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_P1-2: LN 569	CONTINGENCY 'DVP_P1-2: LN 569' OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL 500.00 END
DVP_P4-2: 568T575	CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 545T552	CONTINGENCY 'DVP_P4-2: 545T552' /* BRISTERS 500 KV OPEN BRANCH FROM BUS 314900 TO BUS 314916 CKT 1 /* 8BRISTER 500.00 - 8MORRSVL 500.00 OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00 END
DVP_P4-2: 57502	CONTINGENCY 'DVP_P4-2: 57502' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 579	CONTINGENCY 'DVP_P1-2: LN 579' OPEN BRANCH FROM BUS 314923 TO BUS 314927 CKT 1 /* 8SEPTA 500.00 - 8YADKIN 500.00 END
DVP_P1-2: LN 552	CONTINGENCY 'DVP_P1-2: LN 552' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00 END
DVP_P4-2: 573T594	CONTINGENCY 'DVP_P4-2: 573T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 314935 CKT 1 /* 8WAKE 500 TT500.00 - 8HERITAGE 500.00 END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 575	CONTINGENCY 'DVP_P1-2: LN 575' OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 534	CONTINGENCY 'DVP_P1-2: LN 534' OPEN BRANCH FROM BUS 314907 TO BUS 314910 CKT 1 /* 8DOOMS 500.00 - 8CUNINGHAM 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 531	CONTINGENCY 'DVP_P1-2: LN 531' OPEN BRANCH FROM BUS 314924 TO BUS 314928 CKT 1 /* 8SURREY 500.00 - 8SUFFOLK 500.00 END
Base Case	
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 580	CONTINGENCY 'DVP_P1-2: LN 580' OPEN BRANCH FROM BUS 235110 TO BUS 314929 CKT 1 /* 01MDWBRK 500.00 - 8FRONT ROYAL500.00 END
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: H1T594	CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00 OPEN BUS 314897 /* 8MORRS_1 500.00 KV END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 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
42932768	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.69	132.51	DC	75.81

Bus #	Bus	MW Impact
314229	6MT RD221	0.0980
314236	6NRTHEST	0.1497
314241	6OLDCHRC	0.6040
314250	6ROCKVILLE	0.2677
314309	6IRON208	0.3569
315043	1FOUR RIVERA	2.3650
315044	1FOUR RIVERB	2.3650
315045	1FOUR RIVERC	2.9013
315046	1FOUR RIVERD	2.3650
315047	1FOUR RIVERE	2.3650
315048	1FOUR RIVERF	2.9013
315058	1CHESTF3 (Deativation : 12/13/18)	14.4610
315059	1CHESTF4 (Deativation : 12/13/18)	23.4414
315060	1CHESTF5	8.0197
315067	1DARBY 1	2.0608
315068	1DARBY 2	2.0632
315069	1DARBY 3	2.0705
315070	1DARBY 4	2.0729
315074	1HOPCGN1 (Deativation : 06/25/19)	6.6486
315075	1HOPCGN2 (Deativation : 06/25/19)	6.5625
315083	1SPRUNCA (Deativation : 01/12/19)	9.9482
315084	1SPRUNCB (Deativation : 01/12/19)	9.9482
315090	1YORKTN1 (Deativation : 09/09/18)	22.5417
315091	1YORKTN2 (Deativation : 09/09/18)	23.3923
315225	1N ANNA1	28.3828
315226	1N ANNA2	28.3947
315610	6AA1-145GAS	8.2895
923831	AB2-022 C	1.7836
924061	AB2-050	0.4876
924241	AB2-068 OP	189.1040
925051	AB2-160 C O1	4.3241
925061	AB2-161 C O1	2.6420

Bus #	Bus	MW Impact
925331	AB2-190 C	15.9565
925861	AC1-065 C	2.6082
926291	AC1-107 O1	285.4400
926551	AC1-134	1.2190
926661	AC1-147 C	1.7645
926731	AC1-158 C	73.4024
926751	AC1-161 C O1	23.8059
926781	AC1-164 C	37.7700
927041	AC1-191 C O1	7.5420
927221	AC1-216 C O1	7.8012
932041	AC2-012 C	7.9821
932501	AC2-070 C	1.5987
932581	AC2-078 C O1	3.2018
932591	AC2-079 C O1	4.4713
932831	AC2-110 C	1.0433
933011	AC2-125	2.1405
933021	AC2-126	2.1549
933261	AC2-137 C	1.9572
933291	AC2-141 C	23.8059
933731	AC2-196 C	1.3956
934011	AD1-025 C	13.4101
934061	AD1-033 C	5.8627
934141	AD1-041 C	4.0887
934571	AD1-082 C	6.0209
935111	AD1-144 C	1.3486
935161	AD1-151 C O1	12.8222
935211	AD1-156 C	1.6720
936041	AD2-007 C	0.6406
936051	AD2-008 C	2.3347
936151	AD2-021	0.2232
936301	AD2-039 C	1.0433
936661	AD2-085 C	2.6833
936761	AD2-097 C	1.8867
937221	AD2-160 C O1	4.5561
937251	AD2-164	3.7758
937541	AD2-215 C	1.3625
938031	AE1-004 C	1.0433
938181	AE1-027 C	1.8252
938191	AE1-028 C	1.0589
938491	AE1-068 C O1	13.2631

Bus #	Bus	MW Impact
938531	AE1-072 C O1	13.6434
938551	AE1-074 C	2.2884
938631	AE1-085 C O1	7.0116
939191	AE1-149 C O1	8.4410
939261	AE1-157 C O1	13.2766
939271	AE1-158 C O1	13.5496
939311	AE1-162 C	1.6905
939411	AE1-173 C	66.8549
939421	AE1-174 C	0.2865
939431	AE1-175 C	1.9051
939611	AE1-191 C	8.1773
939751	AE1-206 C O1	29.9524
940061	AE2-000BC O1	12.5146
940071	AE1-249 C	5.7038
940231	AE2-005 C	1.0433
940251	AE2-007 O1	135.5250
940431	AE2-027 C O1	10.3079
940471	AE2-031 C	23.3431
940481	AE2-033 C	11.8793
940541	AE2-040 O1	1.2562
940551	AE2-041 O1	5.5264
940641	AE2-051 C O1	12.5276
940651	AE2-052	1.4912
940891	AE2-078 C	1.8667
940901	AE2-079 C	1.8667
940911	AE2-080 C	1.8667
941031	AE2-094 C	27.9273
941101	AE2-104 C O1	2.7110
941281	AE2-122 C O1	11.7685
941291	AE2-123 C O1	12.0944
941301	AE2-124 C O1	10.9956
941501	AE2-147 C	12.2339
941581	AE2-155 C	0.6082
941591	AE2-156 O1	14.0063
941601	AE2-157 C	8.3762
942001	AE2-212 C	1.7096
942131	AE2-225 C	1.6595
942151	AE2-227 C	2.0591
942161	AE2-228 C	1.7219
942171	AE2-229 C	1.6595

Bus #	Bus	MW Impact
942191	AE2-231 C O1	5.1480
942341	AE2-247 C	0.6165
942371	AE2-250 C O1	7.6809
942401	AE2-253 C	4.7923
942551	AE2-270	21.3703
942851	AE2-304 C	0.4853
942931	AE2-313 C	25.2749
943431	AF1-014 C	0.5238
943451	AF1-016 C O2	0.5658
943461	AF1-017 C	0.5578
943471	AF1-018	2.9290
943611	AF1-032 C	0.7183
943621	AF1-033 C	0.9893
944011	AF1-069 C	4.8362
944061	AF1-074 C O2	3.0254
944501	AF1-115 C O2	3.0130
944581	AF1-123 C O2	18.0298
944591	AF1-124 C O2	18.0298
944601	AF1-125 C O2	18.0298
944631	AF1-128 O2	23.5219
944641	AF1-129 O2	43.3795
944871	AF1-152 C	2.1613
945361	AF1-201 C O2	6.7524
945711	AF1-236 C O2	34.1512
946001	AF1-265	26.2740
946011	AF1-266	5.2703
946261	AF1-291 C	0.9127
LGEE	LGEE	1.8878
CPL	CPL	6.8961
WEC	WEC	0.9759
CBM-W2	CBM-W2	35.1105
NY	NY	2.7130
CBM-W1	CBM-W1	36.2039
TVA	TVA	7.1638
CBM-S2	CBM-S2	50.0317
CBM-S1	CBM-S1	40.7341
MADISON	MADISON	1.4818
MEC	MEC	5.6330
AA2-074	AA2-074	4.7061

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
42932828	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	single	3218.56	110.75	112.81	DC	65.94

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0288
314333	6POWHATN	0.3398
314435	6SAPONY	0.2829
314947	8GREENSVILLE	43.3131
315102	1BRUNSWICKG1	7.1073
315103	1BRUNSWICKG2	7.1073
315104	1BRUNSWICKG3	7.1073
315105	1BRUNSWICKS1	14.7654
315131	1EDGECSMA (Deactivation : 04/22/19)	6.1260
315132	1EDGECSMB (Deactivation : 04/22/19)	6.1260
315153	1CLOVER1	10.0481
315154	1CLOVER2	9.9480
315172	1LOISA A	2.4389
315173	1LOISA B	2.4515
315174	1LOISA C	2.4515
315175	1LOISA D	2.4515
315176	1LOISA E	4.9979
315177	1S ANNAG1	1.7863
315178	1S ANNAS1	0.9180
315179	1S ANNAG2	1.7863
315180	1S ANNAS2	0.9180
315225	1N ANNA1	91.4291
315226	1N ANNA2	91.4675
315294	1DOMTR10	7.2270
315603	6AA1-139SOLA	1.6132
922922	AB1-081 C OP	5.9157
923262	AB1-132 C OP	9.5583
923263	AB1-132 E OP	4.0964
923572	AB1-173 C OP	1.5552
923582	AB1-173AC OP	1.5552
923801	AB2-015 C OP	5.7044
923831	AB2-022 C	1.5122

Bus #	Bus	MW Impact
923911	AB2-031 C O1	1.5437
923991	AB2-040 C O1	5.0688
924021	AB2-043 C O1	2.1240
924151	AB2-059 C OP	6.9721
924161	AB2-060 C OP	6.1199
924301	AB2-077 C O1	1.3464
924311	AB2-078 C O1	1.3464
924321	AB2-079 C O1	1.3464
924501	AB2-099 C	0.3930
924511	AB2-100 C	9.3880
925021	AB2-158 C	24.8965
925061	AB2-161 C O1	2.1136
925121	AB2-169 C	4.2972
925171	AB2-174 C O1	4.8598
925591	AC1-034 C	4.5160
925611	AC1-036 C	0.6519
925781	AC1-054 C O1	4.9120
926071	AC1-086 C	14.0758
926201	AC1-098 C	4.1289
926211	AC1-099 C	1.3836
926271	AC1-105 C O1	3.7753
926661	AC1-147 C	1.4645
926751	AC1-161 C O1	23.3949
927021	AC1-189 C	5.6996
927141	AC1-208 C	6.0727
927261	AC1-222 C	2.4104
932041	AC2-012 C	6.6251
932511	AC2-071 C	1.5504
932581	AC2-078 C O1	2.4496
932591	AC2-079 C O1	3.6482
932631	AC2-084 C	5.8859
933291	AC2-141 C	23.3949
933501	AC2-165 C	9.6131
933731	AC2-196 C	1.3806
933991	AD1-023 C	8.7483
934061	AD1-033 C	5.7952
934201	AD1-047 C	5.5296
934311	AD1-055 C	1.6736
934331	AD1-057 C O1	6.6934
934521	AD1-076 C	36.1597

Bus #	Bus	MW Impact
934571	AD1-082 C	4.8167
934611	AD1-087 C O1	7.2788
934621	AD1-088 C	10.6136
935111	AD1-144 C	1.0854
935171	AD1-152 C O1	7.2336
935211	AD1-156 C	1.3235
935221	AD1-157 C	1.0500
935231	AD1-160 C	0.7700
936261	AD2-033 C	8.8928
936331	AD2-043 C (Withdrawn : 12/20/2019)	3.1370
936361	AD2-046 C O1	6.0284
936401	AD2-051 C O1	5.8775
936481	AD2-063 C O1	10.1829
936661	AD2-085 C	2.1874
936701	AD2-089 C (Withdrawn : 12/09/2019)	4.7809
936711	AD2-090 C O1	4.7781
937221	AD2-160 C O1	4.5175
937481	AD2-202 C O1	1.9290
937541	AD2-215 C	1.0966
937571	AD2-169 C	6.8784
938171	AE1-026 C O1	21.3617
938181	AE1-027 C	1.8070
938191	AE1-028 C	1.0483
938221	AE1-035 C	1.5023
938371	AE1-056 C	4.5268
938491	AE1-068 C O1	61.9269
938501	AE1-069 C O1	48.4492
938531	AE1-072 C O1	13.5526
938551	AE1-074 C	2.0377
938561	AE1-075 C	2.1347
938631	AE1-085 C O1	5.3996
938661	AE1-088	2.2037
938771	AE1-103 C O1	2.3989
939181	AE1-148 C O1	5.9468
939191	AE1-149 C O1	6.4051
939231	AE1-154 C	4.0814
939311	AE1-162 C	1.2822
939371	AE1-168 C	10.3948
939411	AE1-173 C	85.6032
940061	AE2-000BC O1	10.0116

Bus #	Bus	MW Impact
940241	AE2-006	0.3317
940251	AE2-007 O1	112.7510
940471	AE2-031 C	33.8378
940481	AE2-033 C	12.9940
940491	AE2-034 C	2.9496
940521	AE2-037 C	5.3773
940541	AE2-040 O1	2.5910
940571	AE2-044 C	1.5677
940641	AE2-051 C O1	17.2521
940651	AE2-052	1.1316
940661	AE2-053 O1	2.2025
941031	AE2-094 C	40.5698
941101	AE2-104 C O1	2.2691
941281	AE2-122 C O1	21.8472
941291	AE2-123 C O1	22.4521
941301	AE2-124 C O1	20.4277
941501	AE2-147 C	10.4132
941541	AE2-151 C	0.7284
941591	AE2-156 O1	11.6348
941601	AE2-157 C	6.5836
941791	AE2-182 C	2.0216
942131	AE2-225 C	1.3950
942171	AE2-229 C	1.3950
942341	AE2-247 C	0.5024
942401	AE2-253 C	4.7517
942451	AE2-258	1.5845
942461	AE2-259 C O1	8.3514
942471	AE2-260 C O1	11.6533
942851	AE2-304 C	0.4153
942931	AE2-313 C	36.6381
943171	AE2-346 C	0.4999
943451	AF1-016 C O2	0.4756
943461	AF1-017 C	0.4545
943611	AF1-032 C	0.6038
943901	AF1-058 C	0.7027
943911	AF1-059	6.0673
944011	AF1-069 C	13.2557
944051	AF1-073 C O2	7.0754
944061	AF1-074 C O2	2.3543
944111	AF1-079 C	7.7547

Bus #	Bus	MW Impact
944141	AF1-082	1.0078
944581	AF1-123 C O2	33.4959
944591	AF1-124 C O2	33.4959
944601	AF1-125 C O2	33.4959
944871	AF1-152 C	1.8397
945711	AF1-236 C O2	65.9399
945811	AF1-246 C O2	6.8481
946011	AF1-266	10.8770
946281	AF1-292 C	1.2258
946301	AF1-294 C	1.8457
946371	AF1-301 C	36.8780
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	18.5877
LGEE	LGEE	1.0697
CPL	CPL	6.9266
WEC	WEC	0.5405
CBM-W2	CBM-W2	24.7256
NY	NY	2.2220
CBM-W1	CBM-W1	19.2279
TVA	TVA	5.4712
CBM-S2	CBM-S2	47.5174
CBM-S1	CBM-S1	30.0841
MADISON	MADISON	1.7136
MEC	MEC	3.5006
AA2-074	AA2-074	4.7191

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
42932563	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	126.21	132.96	DC	386.47

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0636
314491	3PENDLTN	0.4743
314947	8GREENSVILLE	82.4263
315102	1BRUNSWICKG1	13.4963
315103	1BRUNSWICKG2	13.4963
315104	1BRUNSWICKG3	13.4963
315105	1BRUNSWICKS1	28.0385
315108	1ELIZAR1	4.6292
315109	1ELIZAR2	4.5488
315110	1ELIZAR3	4.6885
315233	1SURRY 2	36.5389
916192	Z1-068 E	3.1885
924241	AB2-068 OP	328.7908
925522	AC1-027 E	1.9418
926291	AC1-107 O1	496.2880
926751	AC1-161 C O1	54.8012
926752	AC1-161 E O1	23.3932
933291	AC2-141 C	54.8012
933292	AC2-141 E	23.3932
933731	AC2-196 C	3.0555
933732	AC2-196 E	2.0350
934061	AD1-033 C	12.8218
934062	AD1-033 E	8.5478
937221	AD2-160 C O1	9.9555
937222	AD2-160 E O1	5.2205
938181	AE1-027 C	3.9931
938182	AE1-027 E	2.1033
938191	AE1-028 C	2.3166
938192	AE1-028 E	1.3412
938491	AE1-068 C O1	118.0303
938492	AE1-068 E O1	65.1897

Bus #	Bus	MW Impact
938501	AE1-069 C O1	92.2003
938502	AE1-069 E O1	52.7117
939411	AE1-173 C	173.3760
939412	AE1-173 E	115.5840
940471	AE2-031 C	64.3452
940472	AE2-031 E	42.8968
940641	AE2-051 C O1	34.1370
940642	AE2-051 E O1	22.7580
941031	AE2-094 C	77.5405
941032	AE2-094 E	34.7285
941281	AE2-122 C O1	48.2722
941282	AE2-122 E O1	194.7902
941291	AE2-123 C O1	49.6089
941292	AE2-123 E O1	193.4535
941301	AE2-124 C O1	45.1425
941302	AE2-124 E O1	198.0799
942401	AE2-253 C	10.4714
942402	AE2-253 E	4.7046
942931	AE2-313 C	69.6703
942932	AE2-313 E	46.4469
944011	AF1-069 C	25.3354
944012	AF1-069 E	9.8422
944581	AF1-123 C O2	74.0216
944582	AF1-123 E O2	193.4896
944591	AF1-124 C O2	74.0216
944592	AF1-124 E O2	193.4896
944601	AF1-125 C O2	74.0216
944602	AF1-125 E O2	193.4896
945711	AF1-236 C O2	146.8601
945712	AF1-236 E O2	239.6139
LGEE	LGEE	2.2284
CPL	CPL	12.8232
WEC	WEC	1.1611
CBM-W2	CBM-W2	48.5339
NY	NY	2.5388
CBM-W1	CBM-W1	42.6216
TVA	TVA	10.4146
O-066	O-066	34.9709
CBM-S2	CBM-S2	87.8676
CBM-S1	CBM-S1	57.7912

Bus #	Bus	MW Impact
G-007	G-007	5.4642
MADISON	MADISON	3.0119
MEC	MEC	7.1839
AA2-074	AA2-074	8.7394

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
42932683	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	165.57	167.46	DC	147.49

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0656
314421	6WINCHST	0.2002
314491	3PENDLTN	0.4894
314507	3THOMPSN	0.4919
315090	1YORKTN1 (Deactivation : 09/09/18)	51.3268
315091	1YORKTN2 (Deactivation : 09/09/18)	53.2636
315092	1YORKTN3	35.6504
315098	1CHESPKA	0.6505
315099	1CHESPKB (Deactivation : 05/31/19)	4.9568
315108	1ELIZAR1	4.7917
315109	1ELIZAR2	4.7085
315110	1ELIZAR3	4.8530
315233	1SURRY 2	43.4137
315260	1GOSPORTA	0.5193
315261	1GOSPORTB	0.6633
315262	1GOSPORTC	0.5629
315294	1DOMTR10	13.7122
315603	6AA1-139SOLA	3.6271
923801	AB2-015 C OP	11.1677
923831	AB2-022 C	3.3405
924241	AB2-068 OP	610.0300
924501	AB2-099 C	0.7110
925061	AB2-161 C O1	4.1633
925121	AB2-169 C	7.8887
925331	AB2-190 C	23.1774
925861	AC1-065 C	4.3075
926291	AC1-107 O1	920.8000
926661	AC1-147 C	3.9410
926751	AC1-161 C O1	57.4840
926781	AC1-164 C	54.7782
927221	AC1-216 C O1	11.5099
932041	AC2-012 C	17.8285

Bus #	Bus	MW Impact
932591	AC2-079 C O1	7.4840
932831	AC2-110 C	1.7230
933291	AC2-141 C	57.4840
933731	AC2-196 C	3.1380
933991	AD1-023 C	16.8501
934011	AD1-025 C	19.7853
934061	AD1-033 C	13.1754
934141	AD1-041 C	6.8184
934521	AD1-076 C	70.5967
934571	AD1-082 C	9.4880
935111	AD1-144 C	2.4908
935161	AD1-151 C O1	18.6247
936041	AD2-007 C	0.9452
936051	AD2-008 C	3.4446
936301	AD2-039 C	1.7230
936401	AD2-051 C O1	10.8437
936661	AD2-085 C	4.4790
936711	AD2-090 C O1	9.0735
937221	AD2-160 C O1	10.1887
937251	AD2-164	8.5056
937541	AD2-215 C	2.5165
938031	AE1-004 C	1.7230
938171	AE1-026 C O1	40.8251
938181	AE1-027 C	4.0958
938191	AE1-028 C	2.3762
938221	AE1-035 C	2.7820
938491	AE1-068 C O1	70.4586
938501	AE1-069 C O1	55.0720
938531	AE1-072 C O1	30.3688
938661	AE1-088	4.0455
938771	AE1-103 C O1	4.7592
939311	AE1-162 C	2.9813
939411	AE1-173 C	119.7929
939421	AE1-174 C	0.6369
939431	AE1-175 C	4.2354
939611	AE1-191 C	13.6369
940061	AE2-000BC O1	19.7209
940231	AE2-005 C	1.7230
940251	AE2-007 O1	303.5071
940471	AE2-031 C	38.4037

Bus #	Bus	MW Impact
940491	AE2-034 C	5.9425
940521	AE2-037 C	9.8668
940551	AE2-041 O1	9.3996
940641	AE2-051 C O1	21.9165
940891	AE2-078 C	3.1998
940901	AE2-079 C	3.1998
940911	AE2-080 C	3.1998
941031	AE2-094 C	46.2403
941101	AE2-104 C O1	4.8887
941281	AE2-122 C O1	49.7643
941291	AE2-123 C O1	51.1423
941301	AE2-124 C O1	46.5117
941501	AE2-147 C	22.6211
941541	AE2-151 C	1.3151
941591	AE2-156 O1	31.3210
941601	AE2-157 C	12.4792
942131	AE2-225 C	3.1017
942171	AE2-229 C	3.1017
942341	AE2-247 C	1.0279
942401	AE2-253 C	10.7167
942551	AE2-270	31.0411
942851	AE2-304 C	0.8909
942931	AE2-313 C	41.5820
943171	AE2-346 C	0.9044
943431	AF1-014 C	0.8651
943451	AF1-016 C O2	1.0576
943461	AF1-017 C	0.9300
943471	AF1-018	4.9818
943611	AF1-032 C	1.3425
943621	AF1-033 C	1.6959
944011	AF1-069 C	8.0075
944051	AF1-073 C O2	13.3361
944061	AF1-074 C O2	3.2682
944501	AF1-115 C O2	5.1626
944581	AF1-123 C O2	76.2666
944591	AF1-124 C O2	76.2666
944601	AF1-125 C O2	76.2666
944871	AF1-152 C	3.9964
945361	AF1-201 C O2	28.9629
945711	AF1-236 C O2	147.4900

Bus #	Bus	MW Impact
LGEE	LGEE	1.0440
CPL	CPL	9.3318
WEC	WEC	0.5399
CBM-W2	CBM-W2	27.6658
NY	NY	1.8183
CBM-W1	CBM-W1	19.1653
TVA	TVA	6.2832
CBM-S2	CBM-S2	61.3085
CBM-S1	CBM-S1	34.0289
MADISON	MADISON	2.2942
MEC	MEC	3.7055
AA2-074	AA2-074	6.3540

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
42932738	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	141.75	141.91	DC	87.97

Bus #	Bus	MW Impact
314229	6MT RD221	0.1155
314236	6NRTHEST	0.1759
314241	6OLDCHRC	0.7115
314250	6ROCKVILLE	0.3134
315037	1LDYSMT1	4.5502
315038	1LDYSMT2	4.5472
315039	1LDYSMT3	4.8122
315040	1LDYSMT4	4.8212
315041	1LDYSMT5	4.8362
315043	1FOUR RIVERA	2.8433
315044	1FOUR RIVERB	2.8433
315045	1FOUR RIVERC	3.4882
315046	1FOUR RIVERD	2.8433
315047	1FOUR RIVERE	2.8433
315048	1FOUR RIVERF	3.4882
315058	1CHESTF3 (Deativation : 12/13/18)	16.9907
315059	1CHESTF4 (Deativation : 12/13/18)	27.5418
315067	1DARBY 1	2.4228
315068	1DARBY 2	2.4256
315069	1DARBY 3	2.4341
315070	1DARBY 4	2.4370
315074	1HOPCGN1 (Deativation : 06/25/19)	7.7801
315075	1HOPCGN2 (Deativation : 06/25/19)	7.6793
315083	1SPRUNCA (Deativation : 01/12/19)	9.8906
315084	1SPRUNCB (Deativation : 01/12/19)	9.8906
315090	1YORKTN1 (Deativation : 09/09/18)	26.3583
315091	1YORKTN2 (Deativation : 09/09/18)	27.3530
315225	1N ANNA1	33.4800
315226	1N ANNA2	33.4940
315610	6AA1-145GAS	9.9662
923831	AB2-022 C	2.0652
924061	AB2-050	0.5862
924241	AB2-068 OP	220.6920

Bus #	Bus	MW Impact
925051	AB2-160 C O1	5.0504
925061	AB2-161 C O1	3.0683
925331	AB2-190 C	18.6354
925861	AC1-065 C	3.1213
926001	AC1-076 C	3.8518
926291	AC1-107 O1	333.1200
926551	AC1-134	1.4656
926661	AC1-147 C	2.0487
926731	AC1-158 C	87.8897
926751	AC1-161 C O1	27.6533
926781	AC1-164 C	37.7875
927041	AC1-191 C O1	9.0494
927221	AC1-216 C O1	9.1092
932041	AC2-012 C	9.2680
932501	AC2-070 C	1.8832
932581	AC2-078 C O1	3.7266
932591	AC2-079 C O1	5.1879
932831	AC2-110 C	1.2485
933011	AC2-125	3.2145
933021	AC2-126	3.2361
933261	AC2-137 C	2.3025
933291	AC2-141 C	27.6533
933731	AC2-196 C	1.6195
934011	AD1-025 C	15.6585
934061	AD1-033 C	6.8033
934141	AD1-041 C	4.9044
934571	AD1-082 C	6.9926
935111	AD1-144 C	1.5659
935161	AD1-151 C O1	14.9749
935211	AD1-156 C	1.9463
936041	AD2-007 C	0.7480
936051	AD2-008 C	2.7261
936151	AD2-021	0.2626
936301	AD2-039 C	1.2485
936661	AD2-085 C	3.1136
936761	AD2-097 C	1.8758
937221	AD2-160 C O1	5.2838
937251	AD2-164	4.4117
937541	AD2-215 C	1.5820
938031	AE1-004 C	1.2485

Bus #	Bus	MW Impact
938181	AE1-027 C	2.1175
938191	AE1-028 C	1.2285
938491	AE1-068 C O1	3.1048
938531	AE1-072 C O1	15.8149
938551	AE1-074 C	2.2693
938631	AE1-085 C O1	8.1583
939191	AE1-149 C O1	9.8282
939261	AE1-157 C O1	16.6554
939271	AE1-158 C O1	16.9980
939311	AE1-162 C	1.9677
939411	AE1-173 C	77.3976
939421	AE1-174 C	0.3358
939431	AE1-175 C	2.2331
939611	AE1-191 C	9.8088
939751	AE1-206 C O1	35.8245
940061	AE2-000BC O1	14.5342
940071	AE1-249 C	6.6619
940231	AE2-005 C	1.2485
940251	AE2-007 O1	157.3613
940431	AE2-027 C O1	12.0680
940471	AE2-031 C	26.8498
940481	AE2-033 C	13.7032
940541	AE2-040 O1	1.4506
940551	AE2-041 O1	6.6008
940641	AE2-051 C O1	14.4914
940651	AE2-052	1.7363
940891	AE2-078 C	2.1768
940901	AE2-079 C	2.1768
940911	AE2-080 C	2.1768
941031	AE2-094 C	32.1525
941101	AE2-104 C O1	3.1415
941281	AE2-122 C O1	13.6597
941291	AE2-123 C O1	14.0380
941301	AE2-124 C O1	12.7624
941381	AE2-134	2.6542
941501	AE2-147 C	14.1494
941581	AE2-155 C	0.7164
941591	AE2-156 O1	16.2631
941601	AE2-157 C	9.7364
942001	AE2-212 C	1.9956

Bus #	Bus	MW Impact
942131	AE2-225 C	1.9240
942151	AE2-227 C	2.0543
942161	AE2-228 C	2.0129
942171	AE2-229 C	1.9240
942191	AE2-231 C O1	6.3933
942341	AE2-247 C	0.7153
942371	AE2-250 C O1	8.9712
942401	AE2-253 C	5.5577
942551	AE2-270	24.9581
942851	AE2-304 C	0.5607
942931	AE2-313 C	29.0718
943431	AF1-014 C	0.6269
943451	AF1-016 C O2	0.6560
943461	AF1-017 C	0.6472
943471	AF1-018	3.4984
943611	AF1-032 C	0.8328
943621	AF1-033 C	1.1537
944011	AF1-069 C	5.5679
944061	AF1-074 C O2	3.5184
944501	AF1-115 C O2	3.5134
944581	AF1-123 C O2	20.9268
944591	AF1-124 C O2	20.9268
944601	AF1-125 C O2	20.9268
944631	AF1-128 O2	27.6365
944641	AF1-129 O2	50.7363
944871	AF1-152 C	2.4997
945361	AF1-201 C O2	7.9063
945711	AF1-236 C O2	39.6300
946001	AF1-265	31.4250
946011	AF1-266	6.0795
946261	AF1-291 C	1.0669
LGEE	LGEE	1.2933
CPL	CPL	7.4293
WEC	WEC	0.6398
CBM-W2	CBM-W2	28.5913
NY	NY	2.5703
CBM-W1	CBM-W1	22.5931
TVA	TVA	6.3112
CBM-S2	CBM-S2	51.8235
CBM-S1	CBM-S1	34.8553

Bus #	Bus	MW Impact
MADISON	MADISON	1.8588
MEC	MEC	4.0996
AA2-074	AA2-074	5.0625

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42932843	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	4070.2	116.54	116.9	DC	148.88

Bus #	Bus	MW Impact
314229	6MT RD221	0.1930
314236	6NRTHEST	0.2940
314241	6OLDCHRC	1.2143
314309	6IRON208	0.7011
314421	6WINCHST	0.2096
315058	1CHESTF3 (Deativation : 12/13/18)	33.2620
315059	1CHESTF4 (Deativation : 12/13/18)	53.9177
315060	1CHESTF5	15.9520
315061	1CHESTG7	6.1904
315062	1CHESTS7	2.8418
315063	1CHESTG8	6.0909
315064	1CHESTS8	3.1354
315067	1DARBY 1	4.0713
315068	1DARBY 2	4.0760
315069	1DARBY 3	4.0903
315070	1DARBY 4	4.0951
315074	1HOPCGN1 (Deativation : 06/25/19)	13.0619
315075	1HOPCGN2 (Deativation : 06/25/19)	12.8927
315083	1SPRUNCA (Deativation : 01/12/19)	16.1058
315084	1SPRUNCB (Deativation : 01/12/19)	16.1058
315090	1YORKTN1 (Deativation : 09/09/18)	53.1012
315091	1YORKTN2 (Deativation : 09/09/18)	55.1051
315092	1YORKTN3	36.7912
315233	1SURRY 2	40.1029
923801	AB2-015 C OP	12.6565
923831	AB2-022 C	3.4963
924241	AB2-068 OP	429.9996
925051	AB2-160 C O1	8.3605
925061	AB2-161 C O1	5.1414
925331	AB2-190 C	31.4170
925861	AC1-065 C	5.0333
926291	AC1-107 O1	649.0560
926661	AC1-147 C	3.4729

Bus #	Bus	MW Impact
926751	AC1-161 C O1	47.2230
926781	AC1-164 C	77.2469
927041	AC1-191 C O1	14.4508
927221	AC1-216 C O1	15.3630
932041	AC2-012 C	15.7109
932501	AC2-070 C	3.2142
932581	AC2-078 C O1	6.2002
932591	AC2-079 C O1	8.7208
932831	AC2-110 C	2.0133
933061	AC2-130	0.6252
933261	AC2-137 C	3.9506
933291	AC2-141 C	47.2230
933731	AC2-196 C	2.7450
933991	AD1-023 C	18.9820
934011	AD1-025 C	26.4087
934061	AD1-033 C	11.5315
934141	AD1-041 C	7.8400
934521	AD1-076 C	78.9163
934571	AD1-082 C	11.7169
935111	AD1-144 C	2.6524
935161	AD1-151 C O1	25.2458
935211	AD1-156 C	3.2067
936041	AD2-007 C	1.2616
936051	AD2-008 C	4.5977
936151	AD2-021	0.4505
936301	AD2-039 C	2.0133
936661	AD2-085 C	5.2330
936711	AD2-090 C O1	10.4323
936761	AD2-097 C	3.0546
937221	AD2-160 C O1	8.9531
937251	AD2-164	7.5393
937541	AD2-215 C	2.6798
938031	AE1-004 C	2.0133
938181	AE1-027 C	3.5887
938191	AE1-028 C	2.0820
938491	AE1-068 C O1	79.1047
938501	AE1-069 C O1	36.3983
938531	AE1-072 C O1	26.7890
938551	AE1-074 C	3.6104
938631	AE1-085 C O1	13.5873

Bus #	Bus	MW Impact
938771	AE1-103 C O1	5.3602
939191	AE1-149 C O1	16.3307
939311	AE1-162 C	3.3330
939411	AE1-173 C	126.8635
939421	AE1-174 C	0.6815
939431	AE1-175 C	4.5317
939611	AE1-191 C	15.6800
940061	AE2-000BC O1	24.3538
940071	AE1-249 C	11.0282
940231	AE2-005 C	2.0133
940251	AE2-007 O1	266.7649
940431	AE2-027 C O1	20.0191
940471	AE2-031 C	43.0714
940481	AE2-033 C	22.5081
940491	AE2-034 C	6.5332
940541	AE2-040 O1	2.3807
940551	AE2-041 O1	10.7600
940641	AE2-051 C O1	23.4809
940651	AE2-052	2.8851
940891	AE2-078 C	3.6910
940901	AE2-079 C	3.6910
940911	AE2-080 C	3.6910
941031	AE2-094 C	51.5873
941101	AE2-104 C O1	5.3033
941281	AE2-122 C O1	23.1526
941291	AE2-123 C O1	23.7937
941301	AE2-124 C O1	21.6312
941501	AE2-147 C	23.9338
941581	AE2-155 C	1.2228
941591	AE2-156 O1	27.5697
941601	AE2-157 C	16.2680
942001	AE2-212 C	3.2993
942131	AE2-225 C	3.2554
942151	AE2-227 C	4.0452
942161	AE2-228 C	3.3363
942171	AE2-229 C	3.2554
942341	AE2-247 C	1.2022
942371	AE2-250 C O1	14.8509
942401	AE2-253 C	9.4171
942551	AE2-270	42.0763

Bus #	Bus	MW Impact
942851	AE2-304 C	0.9481
942931	AE2-313 C	46.6360
943431	AF1-014 C	1.0109
943451	AF1-016 C O2	1.1100
943461	AF1-017 C	1.0877
943471	AF1-018	5.7028
943611	AF1-032 C	1.4091
943621	AF1-033 C	1.9563
944011	AF1-069 C	8.9334
944061	AF1-074 C O2	5.8694
944501	AF1-115 C O2	5.9573
944581	AF1-123 C O2	35.4693
944591	AF1-124 C O2	35.4693
944601	AF1-125 C O2	35.4693
944631	AF1-128 O2	102.0811
944641	AF1-129 O2	84.1700
944871	AF1-152 C	4.2283
945361	AF1-201 C O2	29.9691
945711	AF1-236 C O2	67.0719
946011	AF1-266	9.9858
946261	AF1-291 C	1.7687
LGEE	LGEE	3.3055
CPLE	CPLE	12.7173
WEC	WEC	1.7029
CBM-W2	CBM-W2	62.5552
NY	NY	3.9197
CBM-W1	CBM-W1	63.0504
TVA	TVA	12.8758
CBM-S2	CBM-S2	91.7228
CBM-S1	CBM-S1	72.9653
MADISON	MADISON	2.8022
MEC	MEC	9.9249
AA2-074	AA2-074	8.6769

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42932780	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	127.96	128.11	DC	89.44

Bus #	Bus	MW Impact
314229	6MT RD221	0.1177
314236	6NRTHEST	0.1792
314241	6OLDCHRC	0.7252
314250	6ROCKVILLE	0.3187
315037	1LDYSMT1	4.6717
315038	1LDYSMT2	4.6686
315039	1LDYSMT3	4.9407
315040	1LDYSMT4	4.9499
315041	1LDYSMT5	4.9654
315043	1FOUR RIVERA	2.9044
315044	1FOUR RIVERB	2.9044
315045	1FOUR RIVERC	3.5631
315046	1FOUR RIVERD	2.9044
315047	1FOUR RIVERE	2.9044
315048	1FOUR RIVERF	3.5631
315058	1CHESTF3 (Deativation : 12/13/18)	17.2992
315059	1CHESTF4 (Deativation : 12/13/18)	28.0420
315067	1DARBY 1	2.4679
315068	1DARBY 2	2.4708
315069	1DARBY 3	2.4795
315070	1DARBY 4	2.4823
315074	1HOPCGN1 (Deativation : 06/25/19)	7.9182
315075	1HOPCGN2 (Deativation : 06/25/19)	7.8156
315083	1SPRUNCA (Deativation : 01/12/19)	10.0577
315084	1SPRUNCB (Deativation : 01/12/19)	10.0577
315090	1YORKTN1 (Deativation : 09/09/18)	26.8273
315091	1YORKTN2 (Deativation : 09/09/18)	27.8396
315225	1N ANNA1	34.0122
315226	1N ANNA2	34.0265
315610	6AA1-145GAS	10.1803
923831	AB2-022 C	2.0995
924061	AB2-050	0.5988
924241	AB2-068 OP	225.0274

Bus #	Bus	MW Impact
925051	AB2-160 C O1	5.1383
925061	AB2-161 C O1	3.1199
925331	AB2-190 C	18.9629
925861	AC1-065 C	3.1812
926291	AC1-107 O1	339.6640
926551	AC1-134	1.4971
926661	AC1-147 C	2.0833
926731	AC1-158 C	-58.9775
926751	AC1-161 C O1	28.1222
926781	AC1-164 C	45.2971
927041	AC1-191 C O1	9.2305
927221	AC1-216 C O1	9.2690
932041	AC2-012 C	9.4245
932501	AC2-070 C	1.9197
932581	AC2-078 C O1	3.7900
932591	AC2-079 C O1	5.2744
932831	AC2-110 C	1.2725
933011	AC2-125	3.3003
933021	AC2-126	3.3225
933261	AC2-137 C	2.3458
933291	AC2-141 C	28.1222
933731	AC2-196 C	1.6466
934011	AD1-025 C	15.9331
934061	AD1-033 C	6.9176
934141	AD1-041 C	4.9990
934571	AD1-082 C	7.1100
935111	AD1-144 C	1.5924
935161	AD1-151 C O1	15.2380
935211	AD1-156 C	1.9791
936041	AD2-007 C	0.7611
936051	AD2-008 C	2.7739
936151	AD2-021	0.2675
936301	AD2-039 C	1.2725
936661	AD2-085 C	3.1655
936761	AD2-097 C	1.9075
937221	AD2-160 C O1	5.3722
937251	AD2-164	4.4898
937541	AD2-215 C	1.6088
938031	AE1-004 C	1.2725
938181	AE1-027 C	2.1530

Bus #	Bus	MW Impact
938191	AE1-028 C	1.2490
938491	AE1-068 C O1	12.8550
938531	AE1-072 C O1	16.0781
938551	AE1-074 C	2.3046
938631	AE1-085 C O1	8.2964
939191	AE1-149 C O1	9.9950
939261	AE1-157 C O1	17.0748
939271	AE1-158 C O1	17.4259
939311	AE1-162 C	2.0014
939411	AE1-173 C	78.6338
939421	AE1-174 C	0.3419
939431	AE1-175 C	2.2738
939611	AE1-191 C	9.9980
939751	AE1-206 C O1	36.5786
940061	AE2-000BC O1	14.7783
940071	AE1-249 C	6.7778
940231	AE2-005 C	1.2725
940251	AE2-007 O1	160.0096
940431	AE2-027 C O1	12.2816
940471	AE2-031 C	27.2447
940481	AE2-033 C	13.9173
940541	AE2-040 O1	1.4734
940551	AE2-041 O1	6.7276
940641	AE2-051 C O1	14.7194
940651	AE2-052	1.7658
940891	AE2-078 C	2.2146
940901	AE2-079 C	2.2146
940911	AE2-080 C	2.2146
941031	AE2-094 C	32.6350
941101	AE2-104 C O1	3.1936
941281	AE2-122 C O1	13.8888
941291	AE2-123 C O1	14.2734
941301	AE2-124 C O1	12.9764
941501	AE2-147 C	14.3812
941581	AE2-155 C	0.7303
941591	AE2-156 O1	16.5376
941601	AE2-157 C	9.9006
942001	AE2-212 C	2.0301
942131	AE2-225 C	1.9561
942151	AE2-227 C	2.0914

Bus #	Bus	MW Impact
942161	AE2-228 C	2.0482
942171	AE2-229 C	1.9561
942191	AE2-231 C O1	6.5490
942341	AE2-247 C	0.7272
942371	AE2-250 C O1	9.1272
942401	AE2-253 C	5.6506
942551	AE2-270	25.3967
942851	AE2-304 C	0.5699
942931	AE2-313 C	29.4994
943431	AF1-014 C	0.6389
943451	AF1-016 C O2	0.6669
943461	AF1-017 C	0.6580
943471	AF1-018	3.5656
943611	AF1-032 C	0.8466
943621	AF1-033 C	1.1737
944011	AF1-069 C	5.6514
944061	AF1-074 C O2	3.5779
944501	AF1-115 C O2	3.5746
944581	AF1-123 C O2	21.2779
944591	AF1-124 C O2	21.2779
944601	AF1-125 C O2	21.2779
944631	AF1-128 O2	28.1384
944641	AF1-129 O2	51.6309
944871	AF1-152 C	2.5407
945361	AF1-201 C O2	8.0478
945711	AF1-236 C O2	40.2929
946001	AF1-265	32.0865
946011	AF1-266	6.1744
946261	AF1-291 C	1.0857
LGEE	LGEE	1.2853
CPL	CPL	7.5074
WEC	WEC	0.6357
CBM-W2	CBM-W2	28.6077
NY	NY	2.5692
CBM-W1	CBM-W1	22.4179
TVA	TVA	6.3266
CBM-S2	CBM-S2	52.2685
CBM-S1	CBM-S1	34.9150
MADISON	MADISON	1.8809
MEC	MEC	4.0869

Bus #	Bus	MW Impact
AA2-074	AA2-074	5.1156

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42932703	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	151.32	152.22	DC	130.85

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0584
314491	3PENDLTN	0.4363
314507	3THOMPSON	0.4390
314947	8GREENSVILLE	70.1242
315058	1CHESTF3 (Deactivation : 12/13/18)	20.5130
315059	1CHESTF4 (Deactivation : 12/13/18)	33.2517
315074	1HOPCGN1 (Deactivation : 06/25/19)	9.9214
315075	1HOPCGN2 (Deactivation : 06/25/19)	9.7928
315083	1SPRUNCA (Deactivation : 01/12/19)	13.1478
315084	1SPRUNCB (Deactivation : 01/12/19)	13.1478
315090	1YORKTN1 (Deactivation : 09/09/18)	34.8809
315091	1YORKTN2 (Deactivation : 09/09/18)	36.1971
315098	1CHESPKA	0.5801
315099	1CHESPKB (Deactivation : 05/31/19)	4.4206
315102	1BRUNSWICKG1	11.5172
315103	1BRUNSWICKG2	11.5172
315104	1BRUNSWICKG3	11.5172
315105	1BRUNSWICKS1	23.9269
315108	1ELIZAR1	4.2653
315109	1ELIZAR2	4.1912
315110	1ELIZAR3	4.3199
315260	1GOSPORTA	0.4632
315261	1GOSPORTB	0.5917
315262	1GOSPORTC	0.5022
315294	1DOMTR10	13.9077
315603	6AA1-139SOLA	3.2559
923262	AB1-132 C OP	17.8043
923263	AB1-132 E OP	7.6304
923572	AB1-173 C OP	2.8651
923582	AB1-173AC OP	2.8651
923801	AB2-015 C OP	11.1749
923831	AB2-022 C	3.0388
923911	AB2-031 C O1	2.8439

Bus #	Bus	MW Impact
923991	AB2-040 C O1	9.3380
924501	AB2-099 C	0.7489
924511	AB2-100 C	14.8913
925051	AB2-160 C O1	6.7303
925061	AB2-161 C O1	4.3797
925121	AB2-169 C	8.1887
925171	AB2-174 C O1	8.9475
925331	AB2-190 C	24.6359
925781	AC1-054 C O1	3.2222
926071	AC1-086 C	26.2190
926201	AC1-098 C	7.6634
926211	AC1-099 C	2.5680
926661	AC1-147 C	3.5146
926751	AC1-161 C O1	47.7284
926781	AC1-164 C	42.8999
927021	AC1-189 C	10.5359
927141	AC1-208 C	11.1971
927221	AC1-216 C O1	12.0856
932041	AC2-012 C	15.8996
932581	AC2-078 C O1	5.2024
932591	AC2-079 C O1	7.4798
932631	AC2-084 C	10.9244
933261	AC2-137 C	2.2246
933291	AC2-141 C	47.7284
933501	AC2-165 C	12.0190
933731	AC2-196 C	2.7940
933991	AD1-023 C	16.9247
934011	AD1-025 C	20.7750
934061	AD1-033 C	11.7331
934201	AD1-047 C	10.1869
934331	AD1-057 C O1	12.3025
934521	AD1-076 C	70.1959
934571	AD1-082 C	9.9811
934611	AD1-087 C O1	10.0737
935111	AD1-144 C	2.2527
935161	AD1-151 C O1	19.7967
935171	AD1-152 C O1	10.0111
935211	AD1-156 C	2.7434
936041	AD2-007 C	0.9924
936051	AD2-008 C	3.6169

Bus #	Bus	MW Impact
936151	AD2-021	0.2537
936401	AD2-051 C O1	11.2517
936661	AD2-085 C	4.4869
936701	AD2-089 C (Withdrawn : 12/09/2019)	8.7730
936711	AD2-090 C O1	9.2699
936761	AD2-097 C	2.4936
937221	AD2-160 C O1	9.1243
937251	AD2-164	5.8975
937481	AD2-202 C O1	2.6696
937541	AD2-215 C	2.2759
937571	AD2-169 C	12.6812
938171	AE1-026 C O1	41.2480
938181	AE1-027 C	3.6544
938191	AE1-028 C	2.1201
938221	AE1-035 C	2.8784
938491	AE1-068 C O1	100.1892
938501	AE1-069 C O1	78.4394
938531	AE1-072 C O1	27.3299
938551	AE1-074 C	3.8759
938561	AE1-075 C	2.7287
938631	AE1-085 C O1	11.4253
938661	AE1-088	4.1993
938771	AE1-103 C O1	4.7195
939191	AE1-149 C O1	13.6649
939311	AE1-162 C	2.7609
939411	AE1-173 C	148.7136
939421	AE1-174 C	0.4212
939431	AE1-175 C	2.8008
940061	AE2-000BC O1	20.7460
940071	AE1-249 C	8.8778
940251	AE2-007 O1	270.2313
940431	AE2-027 C O1	15.4805
940471	AE2-031 C	54.6395
940481	AE2-033 C	20.7349
940491	AE2-034 C	5.7765
940521	AE2-037 C	10.2716
940541	AE2-040 O1	2.1934
940641	AE2-051 C O1	28.7901
940651	AE2-052	2.4141
940891	AE2-078 C	2.9668

Bus #	Bus	MW Impact
940901	AE2-079 C	2.9668
940911	AE2-080 C	2.9668
941031	AE2-094 C	65.5498
941101	AE2-104 C O1	4.5891
941281	AE2-122 C O1	44.3569
941291	AE2-123 C O1	45.5852
941301	AE2-124 C O1	41.4567
941501	AE2-147 C	20.8501
941541	AE2-151 C	1.3864
941591	AE2-156 O1	27.9100
941601	AE2-157 C	13.7751
942001	AE2-212 C	2.6685
942131	AE2-225 C	2.8190
942151	AE2-227 C	2.4775
942161	AE2-228 C	2.6082
942171	AE2-229 C	2.8190
942341	AE2-247 C	1.0306
942371	AE2-250 C O1	11.9551
942401	AE2-253 C	9.5972
942471	AE2-260 C O1	18.4876
942551	AE2-270	32.9945
942851	AE2-304 C	0.8282
942931	AE2-313 C	59.1614
943171	AE2-346 C	0.9526
943451	AF1-016 C O2	0.9612
943461	AF1-017 C	0.9325
943611	AF1-032 C	1.2201
943621	AF1-033 C	1.5724
943911	AF1-059	10.6093
944011	AF1-069 C	21.4176
944051	AF1-073 C O2	13.5896
944061	AF1-074 C O2	4.9531
944501	AF1-115 C O2	4.7890
944581	AF1-123 C O2	67.9779
944591	AF1-124 C O2	67.9779
944601	AF1-125 C O2	67.9779
944631	AF1-128 O2	33.3659
944641	AF1-129 O2	65.0192
944871	AF1-152 C	3.6835
945361	AF1-201 C O2	10.3665

Bus #	Bus	MW Impact
945711	AF1-236 C O2	130.8453
945811	AF1-246 C O2	4.9615
946011	AF1-266	9.1991
946261	AF1-291 C	1.3819
946281	AF1-292 C	1.0149
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	13.4668
LGEE	LGEE	2.5741
CPL	CPL	12.1544
WEC	WEC	1.3312
CBM-W2	CBM-W2	52.1048
NY	NY	3.0255
CBM-W1	CBM-W1	49.0517
TVA	TVA	10.9606
CBM-S2	CBM-S2	85.2839
CBM-S1	CBM-S1	61.4462
MADISON	MADISON	2.7821
MEC	MEC	7.9863
AA2-074	AA2-074	8.2876

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
42932882	314916	8MORRSVL	DVP	314913	8LOUDOUN	DVP	1	DVP_P1-2: LN 580	single	2738.22	108.16	108.82	DC	57.13

Bus #	Bus	MW Impact
314078	3REMNGTN	0.2348
314250	6ROCKVILLE	0.2012
315021	1REMNGT1	4.7208
315022	1REMNGT2	4.7270
315023	1REMNGT3	4.7458
315024	1REMNGT4	4.7270
315028	1M RUN A	5.2437
315029	1M RUN B	5.2015
315030	1M RUN C	5.2437
315058	1CHESTF3 (Deativation : 12/13/18)	10.7755
315059	1CHESTF4 (Deativation : 12/13/18)	17.4670
315074	1HOPCGN1 (Deativation : 06/25/19)	4.9587
315075	1HOPCGN2 (Deativation : 06/25/19)	4.8945
315083	1SPRUNCA (Deativation : 01/12/19)	6.3814
315084	1SPRUNCB (Deativation : 01/12/19)	7.5075
315090	1YORKTN1 (Deativation : 09/09/18)	16.8451
315091	1YORKTN2 (Deativation : 09/09/18)	17.4808
315172	1LOISA A	1.8114
315173	1LOISA B	1.8208
315174	1LOISA C	1.8208
315175	1LOISA D	1.8208
315176	1LOISA E	3.7122
315177	1S ANNAG1	1.2511
315178	1S ANNAS1	0.6429
315179	1S ANNAG2	1.2511
315180	1S ANNAS2	0.6429
315225	1N ANNA1	25.2463
315226	1N ANNA2	25.2570
315270	1WARREN G1	11.9895
315271	1WARREN G2	11.9895
315272	1WARREN G3	11.9895
315273	1WARREN S1	22.4640
924241	AB2-068 OP	114.5712

Bus #	Bus	MW Impact
925021	AB2-158 C	10.8013
925051	AB2-160 C O1	3.2427
925061	AB2-161 C O1	1.9850
925331	AB2-190 C	11.9248
925671	AC1-043 C	7.9386
925861	AC1-065 C	1.9831
926001	AC1-076 C	4.9633
926291	AC1-107 O1	172.9376
926481	AC1-120 C O1	8.1592
926501	AC1-121 C O1	2.8021
926611	AC1-143 C O1	9.0137
926661	AC1-147 C	1.3269
926731	AC1-158 C	83.7093
926751	AC1-161 C O1	17.9027
926781	AC1-164 C	23.6589
927041	AC1-191 C O1	5.6533
927221	AC1-216 C O1	5.8314
932041	AC2-012 C	6.0025
932501	AC2-070 C	0.9935
932581	AC2-078 C O1	2.4056
932591	AC2-079 C O1	3.3594
932781	AC2-102 C	6.2861
932831	AC2-110 C	0.7932
933011	AC2-125	1.6149
933021	AC2-126	1.6258
933151	AC2-133 1	0.1776
933161	AC2-133 2	0.1776
933171	AC2-133 3	0.1776
933181	AC2-133 4	0.3328
933261	AC2-137 C	1.2269
933291	AC2-141 C	17.9027
933731	AC2-196 C	1.0497
934011	AD1-025 C	10.0240
934061	AD1-033 C	4.4093
934141	AD1-041 C	3.1199
934571	AD1-082 C	4.5237
934861	AD1-115 C	3.9693
935111	AD1-144 C	1.0126
935161	AD1-151 C O1	9.5824
935211	AD1-156 C	1.2594

Bus #	Bus	MW Impact
936041	AD2-007 C	0.4789
936051	AD2-008 C	1.7451
936151	AD2-021	0.1399
936301	AD2-039 C	0.7932
936661	AD2-085 C	2.0160
936761	AD2-097 C	1.2103
937221	AD2-160 C O1	3.4256
937251	AD2-164	2.8235
937541	AD2-215 C	1.0230
938031	AE1-004 C	0.7932
938181	AE1-027 C	1.3726
938191	AE1-028 C	0.7963
938291	AE1-044 C O1	28.3972
938531	AE1-072 C O1	10.2542
938551	AE1-074 C	1.7544
938561	AE1-075 C	1.2531
938631	AE1-085 C O1	5.2679
939191	AE1-149 C O1	6.3419
939221	AE1-153 C O1	17.0352
939231	AE1-154 C	1.7707
939261	AE1-157 C O1	8.4402
939271	AE1-158 C O1	8.6137
939311	AE1-162 C	1.2681
939411	AE1-173 C	51.1469
939421	AE1-174 C	0.2129
939431	AE1-175 C	1.4161
939611	AE1-191 C	6.2399
939751	AE1-206 C O1	18.5975
940061	AE2-000BC O1	9.4026
940071	AE1-249 C	4.2773
940231	AE2-005 C	0.7932
940251	AE2-007 O1	101.9275
940431	AE2-027 C O1	7.7112
940471	AE2-031 C	9.2037
940551	AE2-041 O1	4.1851
940641	AE2-051 C O1	9.6382
940651	AE2-052	1.1204
940891	AE2-078 C	1.3975
940901	AE2-079 C	1.3975
940911	AE2-080 C	1.3975

Bus #	Bus	MW Impact
941031	AE2-094 C	21.5131
941101	AE2-104 C O1	2.0369
941281	AE2-122 C O1	8.8507
941291	AE2-123 C O1	9.0958
941301	AE2-124 C O1	8.2694
941361	AE2-132	3.9513
941381	AE2-134	3.4201
941581	AE2-155 C	0.3780
941591	AE2-156 O1	10.5332
941601	AE2-157 C	6.2929
941831	AE2-188	8.2712
941851	AE2-190 C	5.0044
942001	AE2-212 C	1.2817
942131	AE2-225 C	1.2474
942151	AE2-227 C	1.3017
942161	AE2-228 C	1.2871
942171	AE2-229 C	1.2474
942191	AE2-231 C O1	3.2564
942341	AE2-247 C	0.4632
942371	AE2-250 C O1	5.7600
942401	AE2-253 C	3.6032
942551	AE2-270	15.9706
942931	AE2-313 C	19.4714
943431	AF1-014 C	0.3983
943451	AF1-016 C O2	0.4253
943461	AF1-017 C	0.4191
943471	AF1-018	2.2181
943611	AF1-032 C	0.5399
943621	AF1-033 C	0.7406
944011	AF1-069 C	3.7254
944061	AF1-074 C O2	2.2729
944111	AF1-079 C	3.3643
944501	AF1-115 C O2	2.2556
944581	AF1-123 C O2	13.5596
944591	AF1-124 C O2	13.5596
944601	AF1-125 C O2	13.5596
944631	AF1-128 O2	17.5270
944641	AF1-129 O2	32.3956
945361	AF1-201 C O2	5.0503
945711	AF1-236 C O2	25.7392

Bus #	Bus	MW Impact
946001	AF1-265	8.6462
946261	AF1-291 C	0.6822
946371	AF1-301 C	15.7859
LGEE	LGEE	0.5756
CPL	CPL	4.8534
WEC	WEC	0.2621
CBM-W2	CBM-W2	15.3890
NY	NY	2.1949
CBM-W1	CBM-W1	8.3442
TVA	TVA	3.6554
CBM-S2	CBM-S2	33.2870
CBM-S1	CBM-S1	19.7068
MADISON	MADISON	1.3245
MEC	MEC	1.9481
AA2-074	AA2-074	3.3048

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42932860	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	115.42	115.58	DC	97.24

Bus #	Bus	MW Impact
314236	6NRTHEST	0.1824
314250	6ROCKVILLE	0.3351
314309	6IRON208	0.4399
314314	3LOCKS	0.2938
315058	1CHESTF3 (Deativation : 12/13/18)	17.8602
315059	1CHESTF4 (Deativation : 12/13/18)	28.9514
315065	1CHESTF6	19.9781
315067	1DARBY 1	2.5098
315068	1DARBY 2	2.5127
315069	1DARBY 3	2.5215
315070	1DARBY 4	2.5245
315074	1HOPCGN1 (Deativation : 06/25/19)	8.2748
315075	1HOPCGN2 (Deativation : 06/25/19)	8.1675
315083	1SPRUNCA (Deativation : 01/12/19)	12.5553
315084	1SPRUNCB (Deativation : 01/12/19)	12.5553
315090	1YORKTN1 (Deativation : 09/09/18)	28.2247
315091	1YORKTN2 (Deativation : 09/09/18)	29.2898
315108	1ELIZAR1	3.2126
315109	1ELIZAR2	3.1568
315110	1ELIZAR3	3.2537
315225	1N ANNA1	49.1912
315226	1N ANNA2	49.2119
315233	1SURRY 2	24.8852
924241	AB2-068 OP	187.7414
925051	AB2-160 C O1	6.3995
925061	AB2-161 C O1	3.3581
925331	AB2-190 C	19.9863
926291	AC1-107 O1	283.3832
926661	AC1-147 C	2.2520
926731	AC1-158 C	-133.4652
926751	AC1-161 C O1	35.7913
926781	AC1-164 C	38.9511
927221	AC1-216 C O1	9.7776

Bus #	Bus	MW Impact
932041	AC2-012 C	10.1876
932501	AC2-070 C	1.6271
932581	AC2-078 C O1	4.0586
932591	AC2-079 C O1	5.6900
933261	AC2-137 C	2.0212
933291	AC2-141 C	35.7913
933731	AC2-196 C	1.7828
934011	AD1-025 C	16.8075
934061	AD1-033 C	7.4888
934571	AD1-082 C	7.6529
935111	AD1-144 C	1.7150
935161	AD1-151 C O1	16.0604
935211	AD1-156 C	2.5029
936041	AD2-007 C	0.8029
936051	AD2-008 C	2.9261
936151	AD2-021	0.2305
936661	AD2-085 C	3.4147
936761	AD2-097 C	2.3812
937221	AD2-160 C O1	5.8183
937251	AD2-164	4.7369
937541	AD2-215 C	1.7327
938181	AE1-027 C	2.3312
938191	AE1-028 C	1.3525
938491	AE1-068 C O1	57.1526
938501	AE1-069 C O1	36.0621
938531	AE1-072 C O1	17.4166
938551	AE1-074 C	2.9559
938631	AE1-085 C O1	8.8910
939191	AE1-149 C O1	10.6942
939311	AE1-162 C	2.1413
939411	AE1-173 C	103.7328
939421	AE1-174 C	0.3546
939431	AE1-175 C	2.3578
940061	AE2-000BC O1	15.9066
940071	AE1-249 C	8.4415
940251	AE2-007 O1	203.5540
940431	AE2-027 C O1	15.1452
940471	AE2-031 C	36.6775
940641	AE2-051 C O1	19.6398
940651	AE2-052	1.8893

Bus #	Bus	MW Impact
940891	AE2-078 C	2.3508
940901	AE2-079 C	2.3508
940911	AE2-080 C	2.3508
941031	AE2-094 C	43.9471
941281	AE2-122 C O1	15.0277
941291	AE2-123 C O1	15.4438
941301	AE2-124 C O1	14.0415
941581	AE2-155 C	0.6190
941591	AE2-156 O1	21.0340
941601	AE2-157 C	10.6345
942001	AE2-212 C	2.5310
942131	AE2-225 C	2.1178
942151	AE2-227 C	2.5379
942161	AE2-228 C	2.5324
942171	AE2-229 C	2.1178
942341	AE2-247 C	0.7845
942371	AE2-250 C O1	11.3675
942401	AE2-253 C	6.1198
942551	AE2-270	26.7674
942931	AE2-313 C	39.7128
943451	AF1-016 C O2	0.7221
943461	AF1-017 C	0.7098
943611	AF1-032 C	0.9167
943621	AF1-033 C	1.2459
944011	AF1-069 C	14.3592
944061	AF1-074 C O2	3.8387
944501	AF1-115 C O2	3.7946
944581	AF1-123 C O2	23.0242
944591	AF1-124 C O2	23.0242
944601	AF1-125 C O2	23.0242
944631	AF1-128 O2	29.0509
944641	AF1-129 O2	120.0988
945361	AF1-201 C O2	8.4500
945711	AF1-236 C O2	97.2385
946261	AF1-291 C	2.5324
LGEE	LGEE	1.3236
CPL	CPL	8.3495
WEC	WEC	0.6514
CBM-W2	CBM-W2	30.4422
NY	NY	2.7711

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	22.7932
TVA	TVA	6.8054
CBM-S2	CBM-S2	57.7538
CBM-S1	CBM-S1	37.3943
MADISON	MADISON	2.1188
MEC	MEC	4.2696
AA2-074	AA2-074	5.6884

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
42932898	314919	80X	DVP	314904	8CLIFTON	DVP	1	DVP_P1-2: LN 569	single	2442.12	103.91	103.98	DC	52.71

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.1721
314134	6CRANES	0.0383
315005	1POSSM 3 (Deativation : 12/13/18)	12.7837
315006	1POSSM 4 (Deativation : 12/13/18)	24.5689
315007	1POSSM 5 (Deativation : 05/31/21)	87.0584
315008	1POSSM6A	2.9757
315009	1POSSM6B	2.9757
315010	1POSSM6S	4.6370
315033	1BIRCHWDA	4.5390
315037	1LDYSMT1	3.1029
315038	1LDYSMT2	3.1009
315039	1LDYSMT3	3.2816
315040	1LDYSMT4	3.2877
315041	1LDYSMT5	3.2980
315043	1FOUR RIVERA	1.7818
315044	1FOUR RIVERB	1.7818
315045	1FOUR RIVERC	2.1859
315046	1FOUR RIVERD	1.7818
315047	1FOUR RIVERE	1.7818
315048	1FOUR RIVERF	2.1859
315058	1CHESTF3 (Deativation : 12/13/18)	10.3649
315059	1CHESTF4 (Deativation : 12/13/18)	16.8015
315074	1HOPCGN1 (Deativation : 06/25/19)	4.7155
315075	1HOPCGN2 (Deativation : 06/25/19)	4.6544
315083	1SPRUNCA (Deativation : 01/12/19)	6.0018
315084	1SPRUNCB (Deativation : 01/12/19)	6.0018
315090	1YORKTN1 (Deativation : 09/09/18)	15.9734
315091	1YORKTN2 (Deativation : 09/09/18)	16.5761
315225	1N ANNA1	19.4117
315226	1N ANNA2	19.4199
315610	6AA1-145GAS	6.2455
924061	AB2-050	0.3674
924241	AB2-068 OP	111.6699
925021	AB2-158 C	6.1727

Bus #	Bus	MW Impact
925051	AB2-160 C O1	3.0579
925061	AB2-161 C O1	1.8458
925331	AB2-190 C	11.2698
925861	AC1-065 C	1.9795
926001	AC1-076 C	2.6236
926291	AC1-107 O1	168.5584
926481	AC1-120 C O1	3.8571
926501	AC1-121 C O1	1.3247
926551	AC1-134	0.9185
926661	AC1-147 C	1.2293
926731	AC1-158 C	50.4813
926751	AC1-161 C O1	16.5659
926781	AC1-164 C	23.0546
927041	AC1-191 C O1	5.7346
927221	AC1-216 C O1	5.5072
932041	AC2-012 C	5.5611
932501	AC2-070 C	0.9748
932581	AC2-078 C O1	2.2467
932591	AC2-079 C O1	3.1172
932781	AC2-102 C	2.9331
932831	AC2-110 C	0.7918
933011	AC2-125	2.1921
933021	AC2-126	2.2068
933261	AC2-137 C	1.1929
933271	AC2-138 C	0.5204
933291	AC2-141 C	16.5659
933731	AC2-196 C	0.9712
934011	AD1-025 C	9.4667
934061	AD1-033 C	4.0802
934141	AD1-041 C	3.1263
934191	AD1-046 C	4.0337
934571	AD1-082 C	4.2064
934781	AD1-105 C	4.9741
935111	AD1-144 C	0.9410
935161	AD1-151 C O1	9.0561
935211	AD1-156 C	1.1736
936041	AD2-007 C	0.4522
936051	AD2-008 C	1.6481
936151	AD2-021	0.1360
936301	AD2-039 C	0.7918

Bus #	Bus	MW Impact
936341	AD2-044 C	0.1626
936581	AD2-073 C	1.4600
936591	AD2-074 C	3.4909
936661	AD2-085 C	1.8710
936761	AD2-097 C	1.1383
937221	AD2-160 C O1	3.1683
937251	AD2-164	2.6712
937541	AD2-215 C	0.9507
938031	AE1-004 C	0.7918
938181	AE1-027 C	1.2698
938191	AE1-028 C	0.7367
938551	AE1-074 C	1.3760
938631	AE1-085 C O1	4.9172
938961	AE1-124 C	1.7475
939191	AE1-149 C O1	5.9277
939231	AE1-154 C	1.0119
939241	AE1-155 C	9.5816
939261	AE1-157 C O1	11.0958
939271	AE1-158 C O1	11.3240
939281	AE1-159 C O1 (Withdrawn : 12/20/2019)	10.0237
939311	AE1-162 C	1.1847
939411	AE1-173 C	27.9683
939421	AE1-174 C	0.2040
939431	AE1-175 C	1.3564
939611	AE1-191 C	6.2526
939751	AE1-206 C O1	18.9333
940061	AE2-000BC O1	8.7432
940071	AE1-249 C	4.0336
940231	AE2-005 C	0.7918
940251	AE2-007 O1	94.4102
940431	AE2-027 C O1	7.3287
940551	AE2-041 O1	4.1681
940651	AE2-052	1.0472
940891	AE2-078 C	1.3141
940901	AE2-079 C	1.3141
940911	AE2-080 C	1.3141
941141	AE2-108 C	0.4874
941151	AE2-109 C	0.1706
941281	AE2-122 C O1	8.1936
941291	AE2-123 C O1	8.4204

Bus #	Bus	MW Impact
941301	AE2-124 C O1	7.6553
941381	AE2-134	1.8079
941581	AE2-155 C	0.3709
941591	AE2-156 O1	9.7580
941601	AE2-157 C	5.8619
941831	AE2-188	3.8593
942001	AE2-212 C	1.2066
942151	AE2-227 C	1.2495
942161	AE2-228 C	1.2187
942191	AE2-231 C O1	4.2003
942341	AE2-247 C	0.4298
942371	AE2-250 C O1	5.4318
942401	AE2-253 C	3.3325
942551	AE2-270	15.0935
943431	AF1-014 C	0.3976
943461	AF1-017 C	0.3889
943471	AF1-018	2.2091
943601	AF1-031 C	4.1433
943621	AF1-033 C	0.6965
943741	AF1-042 C	0.9681
943991	AF1-067 C	1.7409
944061	AF1-074 C O2	2.1194
944111	AF1-079 C	1.0190
944491	AF1-114 C	5.5541
944501	AF1-115 C O2	2.1209
944581	AF1-123 C O2	12.5526
944591	AF1-124 C O2	12.5526
944601	AF1-125 C O2	12.5526
944631	AF1-128 O2	16.8592
944641	AF1-129 O2	30.7319
945361	AF1-201 C O2	4.8042
945711	AF1-236 C O2	23.7465
945831	AF1-248	0.1207
946001	AF1-265	8.8023
946261	AF1-291 C	0.6460
946371	AF1-301 C	4.7977
LGEE	LGEE	0.3994
CPL	CPL	4.3044
WEC	WEC	0.1685
CBM-W2	CBM-W2	12.2850

Bus #	Bus	MW Impact
NY	NY	1.9571
CBM-W1	CBM-W1	4.7788
TVA	TVA	3.0436
CBM-S2	CBM-S2	29.2526
CBM-S1	CBM-S1	16.1880
MADISON	MADISON	1.2156
MEC	MEC	1.4269
AA2-074	AA2-074	2.9299

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
42932558	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	118.54	121.54	DC	398.24

Bus #	Bus	MW Impact
314295	6BIRDNECK	0.0645
314491	3PENDLTN	0.4808
315108	1ELIZAR1	4.7011
315109	1ELIZAR2	4.6195
315110	1ELIZAR3	4.7613
315233	1SURREY 2	46.5632
901082	W1-029 E	63.0875
913392	Y1-086 E	3.1027
916192	Z1-068 E	3.2335
917122	Z2-027 E	1.4813
919152	AA1-139 E	9.3146
923831	AB2-022 C	3.2528
923832	AB2-022 E	1.7515
925522	AC1-027 E	1.9683
926661	AC1-147 C	3.2708
926662	AC1-147 E	1.9210
926751	AC1-161 C O1	61.2568
926752	AC1-161 E O1	26.1488
932041	AC2-012 C	14.7966
932042	AC2-012 E	24.1419
933291	AC2-141 C	61.2568
933292	AC2-141 E	26.1488
933731	AC2-196 C	3.1076
933732	AC2-196 E	2.0697
934061	AD1-033 C	13.0347
934062	AD1-033 E	8.6898
937221	AD2-160 C O1	10.0443
937222	AD2-160 E O1	5.2672
938181	AE1-027 C	4.0497
938182	AE1-027 E	2.1331
938191	AE1-028 C	2.3495
938192	AE1-028 E	1.3602

Bus #	Bus	MW Impact
938531	AE1-072 C O1	25.3517
938532	AE1-072 E O1	13.2158
939411	AE1-173 C	150.3024
939412	AE1-173 E	100.2016
940251	AE2-007 O1	297.5854
940471	AE2-031 C	8.2293
940472	AE2-031 E	5.4862
940641	AE2-051 C O1	28.1808
940642	AE2-051 E O1	18.7872
941031	AE2-094 C	50.6750
941032	AE2-094 E	22.6961
941281	AE2-122 C O1	48.9587
941282	AE2-122 E O1	197.5601
941291	AE2-123 C O1	50.3144
941292	AE2-123 E O1	196.2044
941301	AE2-124 C O1	45.7929
941302	AE2-124 E O1	200.9339
941501	AE2-147 C	21.7543
941502	AE2-147 E	14.5029
941591	AE2-156 O1	30.6360
942131	AE2-225 C	2.9813
942132	AE2-225 E	1.9875
942171	AE2-229 C	2.9813
942172	AE2-229 E	1.9875
942401	AE2-253 C	10.5649
942402	AE2-253 E	4.7466
942931	AE2-313 C	45.5118
942932	AE2-313 E	30.3412
943451	AF1-016 C O2	1.0165
943452	AF1-016 E O2	1.6169
943611	AF1-032 C	1.2904
943612	AF1-032 E	0.6847
944011	AF1-069 C	8.7754
944012	AF1-069 E	3.4091
944581	AF1-123 C O2	75.0881
944582	AF1-123 E O2	196.2775
944591	AF1-124 C O2	75.0881
944592	AF1-124 E O2	196.2775
944601	AF1-125 C O2	75.0881
944602	AF1-125 E O2	196.2775

Bus #	Bus	MW Impact
944871	AF1-152 C	3.8433
944872	AF1-152 E	2.5622
945711	AF1-236 C O2	151.3294
945712	AF1-236 E O2	246.9058
LGEE	LGEE	1.2967
CPL	CPL	9.3926
WEC	WEC	0.6779
CBM-W2	CBM-W2	31.1302
NY	NY	1.6502
CBM-W1	CBM-W1	24.6072
TVA	TVA	6.8642
O-066	O-066	22.3171
CBM-S2	CBM-S2	62.9211
CBM-S1	CBM-S1	37.6158
G-007	G-007	3.4830
MADISON	MADISON	2.2660
MEC	MEC	4.3920
AA2-074	AA2-074	6.3976

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
42932794	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	120.11	120.22	DC	96.02

Bus #	Bus	MW Impact
314236	6NRTHEST	0.1802
314250	6ROCKVILLE	0.3313
314309	6IRON208	0.4346
314314	3LOCKS	0.2902
315058	1CHESTF3 (Deativation : 12/13/18)	17.6443
315059	1CHESTF4 (Deativation : 12/13/18)	28.6014
315065	1CHESTF6	19.7367
315067	1DARBY 1	2.4797
315068	1DARBY 2	2.4826
315069	1DARBY 3	2.4913
315070	1DARBY 4	2.4942
315074	1HOPCGN1 (Deativation : 06/25/19)	8.1744
315075	1HOPCGN2 (Deativation : 06/25/19)	8.0685
315079	1HOPHCF3	2.4064
315080	1HOPHCF4	3.6531
315083	1SPRUNCA (Deativation : 01/12/19)	12.4079
315084	1SPRUNCB (Deativation : 01/12/19)	12.4079
315090	1YORKTN1 (Deativation : 09/09/18)	27.8733
315091	1YORKTN2 (Deativation : 09/09/18)	28.9252
315108	1ELIZAR1	3.1724
315109	1ELIZAR2	3.1173
315110	1ELIZAR3	3.2130
315225	1N ANNA1	48.1559
315226	1N ANNA2	48.1762
315233	1SURRY 2	24.5743
924241	AB2-068 OP	185.4979
925021	AB2-158 C	12.8204
925051	AB2-160 C O1	6.3214
925061	AB2-161 C O1	3.3169
925331	AB2-190 C	19.7416
926001	AC1-076 C	6.1102
926291	AC1-107 O1	279.9968
926661	AC1-147 C	2.2238

Bus #	Bus	MW Impact
926731	AC1-158 C	184.7658
926751	AC1-161 C O1	35.3388
926781	AC1-164 C	23.7000
927221	AC1-216 C O1	9.6579
932041	AC2-012 C	10.0602
932501	AC2-070 C	1.6074
932581	AC2-078 C O1	4.0088
933261	AC2-137 C	1.9967
933291	AC2-141 C	35.3388
933731	AC2-196 C	1.7605
934011	AD1-025 C	16.6017
934061	AD1-033 C	7.3953
934571	AD1-082 C	7.5590
935111	AD1-144 C	1.6939
935161	AD1-151 C O1	15.8638
935211	AD1-156 C	2.4722
936041	AD2-007 C	0.7931
936051	AD2-008 C	2.8903
936151	AD2-021	0.2277
936761	AD2-097 C	2.3532
937221	AD2-160 C O1	5.7458
937251	AD2-164	4.6781
937541	AD2-215 C	1.7113
938181	AE1-027 C	2.3022
938191	AE1-028 C	1.3356
938491	AE1-068 C O1	56.4380
938531	AE1-072 C O1	17.2012
938551	AE1-074 C	2.9223
938631	AE1-085 C O1	8.7822
939191	AE1-149 C O1	10.5631
939231	AE1-154 C	2.1017
939311	AE1-162 C	2.1148
939411	AE1-173 C	102.3888
939421	AE1-174 C	0.3502
939431	AE1-175 C	2.3287
940061	AE2-000BC O1	15.7116
940071	AE1-249 C	8.3384
940251	AE2-007 O1	201.0092
940431	AE2-027 C O1	14.9616
940471	AE2-031 C	36.2216

Bus #	Bus	MW Impact
940641	AE2-051 C O1	19.3833
940651	AE2-052	1.8662
940891	AE2-078 C	2.3218
940901	AE2-079 C	2.3218
940911	AE2-080 C	2.3218
941031	AE2-094 C	43.3877
941281	AE2-122 C O1	14.8402
941291	AE2-123 C O1	15.2511
941301	AE2-124 C O1	13.8662
941381	AE2-134	4.2104
941581	AE2-155 C	0.6115
941591	AE2-156 O1	17.6553
941601	AE2-157 C	10.5045
942001	AE2-212 C	2.5002
942131	AE2-225 C	2.0916
942151	AE2-227 C	2.5075
942161	AE2-228 C	2.5016
942171	AE2-229 C	2.0916
942371	AE2-250 C O1	11.2288
942401	AE2-253 C	6.0436
942551	AE2-270	26.4397
942931	AE2-313 C	39.2192
943451	AF1-016 C O2	0.7132
943611	AF1-032 C	0.9053
943621	AF1-033 C	1.2305
944011	AF1-069 C	14.1764
944061	AF1-074 C O2	3.7919
944111	AF1-079 C	3.9932
944501	AF1-115 C O2	3.7477
944581	AF1-123 C O2	22.7368
944591	AF1-124 C O2	22.7368
944601	AF1-125 C O2	22.7368
944631	AF1-128 O2	28.6997
944641	AF1-129 O2	118.6479
945361	AF1-201 C O2	8.3450
945711	AF1-236 C O2	96.0154
946261	AF1-291 C	2.5016
946371	AF1-301 C	19.0060
LGEE	LGEE	1.3327
CPL	CPL	8.2859

Bus #	Bus	MW Impact
WEC	WEC	0.6558
CBM-W2	CBM-W2	30.4750
NY	NY	2.7805
CBM-W1	CBM-W1	22.9684
TVA	TVA	6.8026
CBM-S2	CBM-S2	57.4185
CBM-S1	CBM-S1	37.4028
MADISON	MADISON	2.0987
MEC	MEC	4.2871
AA2-074	AA2-074	5.6453

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
42932695	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPL	1	DVP_P1-2: LN 570	single	718.0	129.17	133.33	DC	30.14

Bus #	Bus	MW Impact
313853	3PONTONDP	0.0570
314295	6BIRDNECK	0.0129
314333	6POWHATN	0.1249
314429	3JTRSVLE	0.2280
314491	3PENDLTN	0.0963
314507	3THOMPSN	0.0977
314677	6BUCKING	0.1929
314704	3LAWRENC	0.1015
314947	8GREENSVILLE	23.0274
315098	1CHESPKA	0.1295
315099	1CHESPKB (Deactivation : 05/31/19)	0.9868
315102	1BRUNSWICKG1	3.9336
315103	1BRUNSWICKG2	3.9336
315104	1BRUNSWICKG3	3.9336
315105	1BRUNSWICKS1	8.1721
315108	1ELIZAR1	0.9552
315109	1ELIZAR2	0.9386
315110	1ELIZAR3	0.9674
315153	1CLOVER1	14.3989
315154	1CLOVER2	14.2554
315191	1BEARGRDN G1	1.5614
315192	1BEARGRDN G2	1.5614
315193	1BEARGRDN S1	3.2135
315233	1SURRY 2	7.6012
315260	1GOSPORTA	0.1032
315261	1GOSPORTB	0.1319
315262	1GOSPORTC	0.1119
315266	1PLYWOOD A	1.7461
920291	AA2-127	0.3244
924021	AB2-043 C O1	2.4166
924161	AB2-060 C OP	6.9588

Bus #	Bus	MW Impact
924301	AB2-077 C O1	1.5570
924311	AB2-078 C O1	1.5570
924321	AB2-079 C O1	1.5570
925611	AC1-036 C	0.7279
925831	AC1-062	0.0338
925991	AC1-075 C	7.3467
926021	AC1-080 C	2.4553
926271	AC1-105 C O1	9.4015
926661	AC1-147 C	0.7846
926751	AC1-161 C O1	11.5301
927251	AC1-221 C	9.8772
927261	AC1-222 C	6.5915
932041	AC2-012 C	3.5494
932511	AC2-071 C	1.3618
932761	AC2-100 C	22.7311
933291	AC2-141 C	11.5301
933501	AC2-165 C	3.7688
934061	AD1-033 C	2.5679
934311	AD1-055 C	4.5767
934341	AD1-058 C	24.7606
934611	AD1-087 C O1	15.4053
934621	AD1-088 C	11.6382
934991	AD1-131 C	8.1182
935171	AD1-152 C O1	15.3096
935221	AD1-157 C	1.1478
935231	AD1-160 C	0.8417
936261	AD2-033 C	9.9676
936331	AD2-043 C (Withdrawn : 12/20/2019)	8.5281
936361	AD2-046 C O1	3.9204
936481	AD2-063 C O1	11.5020
937481	AD2-202 C O1	4.0826
938371	AE1-056 C	4.9482
938491	AE1-068 C O1	31.9201
938501	AE1-069 C O1	25.7579
938561	AE1-075 C	0.7846
939181	AE1-148 C O1	4.0187
939371	AE1-168 C	11.4894
939411	AE1-173 C	37.2816
940241	AE2-006	0.3704
940251	AE2-007 O1	60.4847

Bus #	Bus	MW Impact
940471	AE2-031 C	18.0734
940641	AE2-051 C O1	7.4826
940661	AE2-053 O1	1.4884
941031	AE2-094 C	19.7130
941281	AE2-122 C O1	9.7739
941291	AE2-123 C O1	10.0446
941301	AE2-124 C O1	9.1209
941591	AE2-156 O1	6.2430
941791	AE2-182 C	2.2168
942451	AE2-258	1.8028
942461	AE2-259 C O1	7.6440
942751	AE2-291 C O1	9.2075
942761	AE2-292 C O1	11.4643
942931	AE2-313 C	19.5691
943901	AF1-058 C	3.7769
943911	AF1-059	8.8730
944011	AF1-069 C	6.4410
944581	AF1-123 C O2	14.9558
944591	AF1-124 C O2	14.9558
944601	AF1-125 C O2	14.9558
945711	AF1-236 C O2	30.1353
945811	AF1-246 C O2	9.8133
946291	AF1-293 C O2	6.6818
946301	AF1-294 C	3.8283
946461	AF1-310 C O1 (Withdrawn : 11/05/2019)	26.6361
DUCKCREEK	DUCKCREEK	4.2467
NEWTON	NEWTON	4.2056
FARMERCITY	FARMERCITY	0.2430
G-007A	G-007A	2.7284
VFT	VFT	7.2498
AF1-020	AF1-020	18.1800
PRAIRIE	PRAIRIE	11.4504
AC1-131	AC1-131	10.9538
COFFEEN	COFFEEN	2.0828
EDWARDS	EDWARDS	1.2617
CHEOAH	CHEOAH	3.5636
TILTON	TILTON	2.2283
GIBSON	GIBSON	2.0235
CALDERWOOD	CALDERWOOD	3.4696
BLUEG	BLUEG	6.2288

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	1.9750
CATAWBA	CATAWBA	3.8616

Short Circuit

13.6 Short Circuit

The following Breakers are overdutied:

None

Affected Systems

14 Affected Systems

14.1 Duke Energy Progress

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

Attachment 1

System Configuration