



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE1-024/AE1-025/AE1-026
“CASHIE 230 KV”
189.9 MW Capacity / 240 MW Energy**

April, 2019

Table Of Contents

Introduction	3
Preface	3
General	5
Cost Summary	7
Transmission Owner Scope of Work: Attachment Facilities	9
Direct Connection Cost Estimate	10
Non-Direct Connection Cost Estimate	11
Schedule	13
Interconnection Customer Requirements	14
Revenue Metering and SCADA Requirements	15
Option 1 Analysis : Summer Peak Load Flow	17
Option 1 System Reinforcements Load Flow	24
Option 1 Flow Gate Details	29
Option 1 Contingency Definitions	127
Option 1 Analysis : Short Circuit	135
Option 2 Analysis: Summer Peak Load Flow	137
Option 2 Analysis: Short Circuit	255
Attachment 1: One Line Diagram	257

Introduction

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

Preface

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

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

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

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

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

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

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

General

The IC has proposed solar/storage generating facilities located in Bertie County, North Carolina through three separate queue requests shown below:

Queue Project	MFO (MW)	Solar Capacity (MW)	Storage Capacity (MW)
AE1-024	80	55.3	8
AE1-025	80	55.3	8
AE1-026	80	55.3	8
Total	240	165.9	24

The installed facilities will have a total capability of **240 MW** with **189.9 MW** of this output being recognized by PJM as Capacity (165.9 MW solar Capacity and 24 MW storage Capacity). All three projects will be behind the same Point of Interconnection (POI) and will share the same interconnection facilities. The proposed in-service date for the AE1-024 and AE1-025 projects is **12/15/2021**. The proposed in-service date for the AE1-026 project is 12/15/2022. **This study does not imply an ITO commitment to either in-service date.**

Queue Number	AE1-024 / AE1-025 / AE1-026
Project Name	CASHIE 230 KV
Interconnection Customer	
State	None
County	Bertie
Transmission Owner	Dominion
MFO	240
MWE	240
MWC	189.9
Fuel	Solar; Storage
Basecase Study Year	2022

Point of Interconnection

Primary Point of Interconnection

The AE1-024/AE1-025/AE1-026 projects will interconnect with the ITO transmission system via a direct connection into the Cashie 230 kV Substation. The primary Point of Interconnection (POI) chosen was direct connection into the Cashie 230 kV Substation. See one line in **Attachment 1**.

Secondary Point of Interconnection

The IC requested that a secondary POI be reviewed for network impacts. The secondary interconnection chosen was a tap off of the Cashie-Trowbridge 230 kV line through an interconnection switchyard.

Cost Summary

The AE1-024 / AE1-025 / AE1-026 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 1,800,000
Direct Connection Network Upgrade	\$ 6,500,000
Non Direct Connection Network Upgrades	\$ TBD
Total Costs	\$ 8,300,000 ¹

In addition, the AE1-024 / AE1-025 / AE1-026 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$1,323,190,000

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

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

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

¹ This cost excludes any applicable state or federal taxes. If at a future date Federal CIAC (contribution in aid of construction) taxes are deemed necessary by the IRS for this project, VEPCO shall be reimbursed by the Interconnection Customer for such taxes.

- (a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;
- (b) the time required to complete detailed design and construction of the facilities and upgrades; and
- (c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

Transmission Owner Scope of Work

Attachment Facilities

Generation Substation: Install metering and associated protection equipment. Estimated Cost \$600,000.

Transmission: Construct approximately one span of 230 kV Attachment line between the generation substation and Cashie 230kV substation. The estimated cost for this work is \$1,200,000.

The estimated total cost of the Attachment Facilities is \$1,800,000. 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.

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 Work	\$ 600,000
Transmission Work	\$1,200,000
Total Attachment Facility Costs	\$1,800,000

Direct Connection Cost Estimate

Substation: The proposed interconnection substation will consist of a three 230 kV breakers added to an existing station, which will require a site expansion. The arrangement in the substation will be as shown below on Dominion Attachment One: One-Line Diagram. The estimated cost of this work scope is \$6,500,000.

Transmission: None

The total estimated cost to complete the Direct Connection Network Facilities is \$6,500,000. It is estimated to take 24-36 months to complete this work upon execution of an Interconnection Construction Service Agreement.

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

Description	Total Cost
Substation Work	\$6,500,000
Transmission Work	\$0
Total Direct Connection Facility Costs	\$6,500,000

Non-Direct Connection Cost Estimate

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.

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
Substation Work	\$ TBD in Facilities Study phase
Transmission Work	\$ 0
Total Non-Direct Connection Facility Costs	\$ TBD in Facilities Study phase

Incremental Capacity Transfer Rights (ICTRs)

Will be determined at a later study phase.

Schedule

It is estimated to take 18-24 months to complete the Attachment Facility work and 24-36 months to complete the Direct Connection work. The time required for the Non-Direct Connection work will be determined in the Facilities Study phase. Overall elapsed time for the interconnection work would be **24-36 months** as the work can likely be done concurrently. This assumes that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined work scope, and that PJM will allow all transmission system outages when requested.

The Schedule for the required system reinforcements as a result of the network analysis is outlined in the “System Reinforcements” section of the Network Impacts below. This work will need to be done in addition to the physical interconnection work above in order to accommodate the output from this project onto the system.

Interconnection Customer Requirements

ITO's Facility Connection Requirements as posted on PJM's website

<http://www.pjm.com/~media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx>

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

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

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

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

Revenue Metering and SCADA Requirements

PJM Requirements

The 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.

Dominion Requirements

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

Network Impacts – Option 1

The Queue Project AE1-024 / AE1-025 / AE1-026 was evaluated as a 240 MW (Capacity 189.9 MW) injection at the Cashie 230 kV substation in the VEPCO area. Project AE1-024 / AE1-025 / AE1-026 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-024 / AE1-025 / AE1-026 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow – Option 1

Generation Deliverability

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40190	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	90.86	92.03	DC	11.45
40284	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2092	single	598.78	99.07	104.0	DC	29.52
40232	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2092	single	449.32	97.96	107.18	DC	41.39
40233	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2131	single	449.32	97.66	106.87	DC	41.4
40185	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	single	346.86	99.14	105.03	DC	20.43
40144	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	single	571.52	72.13	100.19	DC	160.39
40273	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	90.25	90.94	DC	48.44
40203	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	95.15	95.82	DC	36.34
40433	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	97.76	98.29	DC	37.08
40435	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 568	single	3218.56	94.33	94.82	DC	34.39
40381	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	99.93	100.46	DC	36.72
40382	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	single	3218.56	98.28	98.76	DC	34.18
40251	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 2092	single	478.0	96.16	104.82	DC	41.39
40252	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 246	single	478.0	96.04	104.53	DC	40.58

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39835	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	99.97	100.72	DC	65.25
39836	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	93.48	94.2	DC	62.77

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
39970	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	92.44	92.93	DC	41.52
39971	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: H1T581	breaker	3938.0	92.81	93.36	DC	46.47
40747	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	97.75	98.29	DC	46.26

Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41073	242631	05EDAN1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11112_05J.FE RR 765_A1	breaker	402.0	143.85	145.25	DC	12.49
41074	242631	05EDAN1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11111_05J.FE RR 765_B1	breaker	402.0	141.42	142.88	DC	12.98
41483	242631	05EDAN1	AEP	242620	05DANVL2	AEP	1	AEP_P1-2_#1377	single	402.0	121.26	122.42	DC	10.27
39908	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 24642	breaker	897.0	104.44	113.59	DC	82.06
40219	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	115.33	120.33	DC	18.71
40323	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	104.6	108.85	DC	19.08
40187	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	144.87	145.88	DC	9.96
39786	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P4-2: 562T563	breaker	684.0	124.32	125.3	DC	14.77
40442	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	103.77	104.72	DC	11.85
39806	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P4-2: 562T563	breaker	684.0	121.31	122.29	DC	14.77
40464	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	100.07	101.02	DC	11.85
40105	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	138.54	139.75	DC	11.71
40216	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	133.48	134.5	DC	9.96
40211	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	137.1	138.12	DC	9.96
40296	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	118.36	119.38	DC	9.96
39965	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 246T247	breaker	830.0	102.13	104.39	DC	41.45
39966	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 24642	breaker	830.0	101.34	103.45	DC	38.68
40674	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	275.79	280.04	DC	15.32
40283	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	single	598.78	102.06	107.15	DC	30.47
39735	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	144.76	147.54	DC	10.96
39736	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: WT2171	breaker	208.0	123.31	125.23	DC	7.57

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	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
39853	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	123.45	125.37	DC	7.57
40111	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	113.3	125.03	DC	67.03
40112	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	112.55	124.28	DC	67.05
39763	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P4-2: 2020T2144	breaker	485.0	130.31	141.11	DC	52.37
40703	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	145.09	154.69	DC	46.56
40122	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.86	118.59	DC	67.03
40123	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	106.11	117.84	DC	67.05
39739	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 246T247	breaker	427.0	142.14	146.34	DC	39.56
40180	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	114.79	122.55	DC	29.11
40181	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	114.45	120.37	DC	22.21
39732	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	136.76	147.62	DC	71.47
39914	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	102.58	111.73	DC	82.06
39817	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	117.99	118.9	DC	62.97
39818	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	114.77	115.63	DC	59.62
40198	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	117.37	118.24	DC	47.17
40199	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	117.4	118.28	DC	47.32
39923	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	101.63	102.19	DC	41.79
39924	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	101.12	101.68	DC	41.65
40240	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	118.4	119.03	DC	32.97
40241	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	113.03	113.65	DC	32.35
39758	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	129.61	130.54	DC	68.24
39759	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	129.61	130.54	DC	68.24
40076	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	149.07	150.09	DC	53.99
40079	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	135.35	136.22	DC	45.96
39900	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	105.28	105.85	DC	42.07
39901	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	102.31	102.9	DC	42.5
39902	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	102.31	102.9	DC	42.5
40334	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	107.86	108.43	DC	33.46
40335	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	105.9	106.45	DC	32.22
39768	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	117.63	118.26	DC	68.07
40100	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	119.71	120.63	DC	49.65
40103	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	110.74	111.61	DC	47.29
40133	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.84	118.57	DC	67.03

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
40134	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	106.1	117.83	DC	67.05
40158	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	126.12	133.88	DC	29.11
40159	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	125.0	130.92	DC	22.21
40162	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	single	346.86	111.05	116.94	DC	20.43
40698	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	153.25	162.99	DC	46.56

Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41482	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P1-2: #1377	operation	402.0	141.4	142.85	DC	12.98
40204	313713	6SWAMP	DVP	313721	6ACORN HILL	DVP	1	DVP_P1-2: LN 2020	operation	449.32	153.47	165.26	DC	52.98
40308	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P1-2: LN 246	operation	733.2	127.56	138.79	DC	82.35
40312	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	Base Case	operation	733.2	97.77	106.87	DC	66.74
40206	313721	6ACORN HILL	DVP	314648	6SUNBURY	DVP	1	DVP_P1-2: LN 2020	operation	449.32	153.47	165.26	DC	52.98
40218	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	operation	374.0	152.4	155.27	DC	23.64
40320	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	136.07	138.51	DC	24.12
40510	313885	6WALBMRL	DVP	313714	6PERQUIMANS	DVP	1	DVP_P1-2: LN 246	operation	733.2	99.26	110.5	DC	82.4
40477	314203	6MACKEYS	DVP	314637	6EDENTON	DVP	1	DVP_P1-2: LN 246	operation	731.32	103.59	114.86	DC	82.4
40186	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	146.45	147.74	DC	12.59
40441	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	operation	559.3	114.52	115.73	DC	14.98
40463	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	operation	559.3	110.82	112.03	DC	14.98
40104	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	168.08	169.6	DC	14.8

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
40598	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	91.76	92.48	DC	15.37
40215	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	135.06	136.35	DC	12.59
40210	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	138.68	139.98	DC	12.59
40295	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	119.94	121.23	DC	12.59
40412	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2092	operation	678.68	123.3	125.79	DC	37.29
40417	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operation	678.68	104.56	106.35	DC	26.71
40277	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	operation	598.78	142.2	145.12	DC	38.51
40282	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	120.37	122.4	DC	26.73
40275	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P1-3: 6EARLEYS-TX#4	operation	175.78	144.31	146.58	DC	7.57
40276	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P1-3: 6EARLEYS-TX#3	operation	175.78	144.08	146.35	DC	7.57
40106	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	170.29	185.11	DC	84.72
40114	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operation	571.52	107.59	117.34	DC	55.72
40226	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2092	operation	449.32	140.29	151.93	DC	52.32
40231	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	116.22	125.08	DC	39.78
40117	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	163.85	178.67	DC	84.72
40125	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operation	571.52	101.17	110.92	DC	55.72
40614	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238	operation	441.8	98.99	100.67	DC	16.25
40174	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 2092	operation	375.06	157.28	166.78	DC	35.63
40179	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	operation	346.86	130.12	133.5	DC	25.82
40285	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 2056-A	operation	375.06	140.55	144.38	DC	14.38
40405	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	operation	470.0	124.66	126.99	DC	24.12
40438	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P1-2: LN 2092	operation	224.66	109.85	123.49	DC	30.65
40362	314616	6TRWBRDG	DVP	933990	AD1-023 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	129.32	132.58	DC	18.65
40616	314616	6TRWBRDG	DVP	314594	6PLYMOTH	DVP	1	DVP_P1-2: LN 246	operation	789.6	89.68	100.13	DC	82.47
40139	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	operation	571.52	144.27	179.74	DC	202.7
40508	314637	6EDENTON	DVP	313885	6WALBMRL	DVP	1	DVP_P1-2: LN 246	operation	733.2	99.27	110.51	DC	82.4
40313	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P1-2: LN 247	operation	571.52	128.79	138.83	DC	57.38
40317	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	Base Case	operation	530.16	101.82	109.13	DC	38.74
40208	314648	6SUNBURY	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2020	operation	449.32	151.16	162.95	DC	52.98

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
40444	314651	6WINFALL	DVP	313713	6SWAMP	DVP	1	DVP_P1-2: LN 2020	operation	449.32	109.24	121.04	DC	53.03
40347	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P1-2: LN 246	operation	733.2	125.28	136.51	DC	82.35
40351	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	Base Case	operation	733.2	94.54	103.64	DC	66.74
40268	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	112.45	113.31	DC	61.22
40192	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	146.01	147.13	DC	59.61
40197	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	117.1	117.96	DC	45.92
40237	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	138.46	139.25	DC	41.67
40073	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	177.7	178.98	DC	68.24
40331	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	124.89	125.6	DC	42.28
40096	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	153.86	154.86	DC	62.75
40102	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	95.08	95.95	DC	46.99
40428	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	113.48	114.15	DC	46.86
40436	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	89.48	89.98	DC	35.34
40543	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	97.43	97.91	DC	32.95
40519	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	74.73	75.74	DC	54.34
40375	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	operation	3218.56	116.18	116.8	DC	43.2
40380	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	93.76	94.26	DC	35.07
40128	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	163.83	178.65	DC	84.72
40136	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	101.13	110.88	DC	55.72
40153	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	operation	375.06	170.34	174.78	DC	36.79
40157	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	operation	346.86	145.42	148.8	DC	25.82
40256	933990	AD1-023 TAP	DVP	314620	6CASHIE	DVP	1	DVP_P1-2: LN 2092	operation	571.52	146.37	149.63	DC	18.65
40245	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	operation	478.0	137.97	148.7	DC	51.28
40250	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	Base Case	operation	478.0	113.45	121.78	DC	39.78

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
40112,40111	25	6EARLEYS 230.0 kV - 6NUCO TP 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 246 14 mi Va CPCN Time Estimate : 44-48 Months Cost : \$34,500,000	\$34,500,000
39965,39966	21	6SAPONY 230.0 kV - 6CARSON 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 238 12 mi Va CPCN Time Estimate : 30-36 Months Cost : \$29,425,000	\$29,425,000
40216	18	6PENNIMAN 230.0 kV - 6WALR209 230.0 kV Ckt 1	DVP Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
39914	28	6S HERTFORD 230.0 kV - 6WINFALL 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 2031 3.5 mi Rebuild NC PUC Required Time Estimate : 30-36 Months Cost : \$8,305,000	\$8,305,000
40105	17	6CHESTF B 230.0 kV - 6BASIN 230.0 kV Ckt 1	DVP Description : PJM baseline upgrade b2990: Chesterfield to Basin 230 kV line - Replace 0.14 miles of 1109 ACAR with a conductor which will increase the line rating to approximately 706 MVA. The baseline project went in-service on 04/27/2018.	\$0
40187,40190	1	6SKIFF CREEK 230.0 kV - 6KINGS M 230.0 kV Ckt 1	DVP Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0

ID	Index	Facility	Upgrade Description	Cost
40283,40284	2	6CLUBHSE 230.0 kV - 6SAPONY 230.0 kV Ckt 1	DVP Description : Replace wave trap at Clubhouse Substation Time Estimate : 12-16 Months Cost : \$150,000	\$150,000
40219	13	6HATHAWAY 230.0 kV - 6ROCKYMT230T 230.0 kV Ckt 1	CPL Description : The external (i.e. Non-PJM) Transmission Owner, CPL, will not evaluate this violation until the impact study phase. DVP Description : Line 2058 Rebuild DEV portion for high capacity 4.5 mi Time Estimate : 30-36 Months Cost : \$12,000,000	\$12,000,000
39786,40442	15	6CARSON 230.0 kV - 6CHRL249 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 249 7.5 mi Va CPCN Time Estimate : 44-48 Months Cost : \$18,500,000	\$18,500,000
40133,40134	33	AA1-138 TAP 230.0 kV - 6SUFFOLK 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 246 16.5 mi Va CPCN & NC PUC Required Time Estimate : 36-40 Months Cost : \$41,250,000	\$41,250,000
40433,39970,39971, 40435	8	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	DVP Description : No Violation. Facility loading does not exceed 100%.	\$0
39768,40100,40103	32	8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1	DVP Description : Rebuild / Uprate Line 576 - 41.13 mi Va CPCN Time Estimate : 24-30 Months Cost : \$123,400,000	\$123,400,000
40162,40158,40159	34	AB2-100 TAP 230.0 kV - 6CLUBHSE 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 254 2 mi Va CPCN Time Estimate : 24-28 Months Cost : \$5,000,000	\$5,000,000
40698,40251,40252	10	AD2-068 TAP 230.0 kV - 6GREENVILE T 230.0 kV Ckt 1	CPL Description : The external (i.e. Non-PJM) Transmission Owner, CPL, will not evaluate this violation until the impact study phase. DVP Description : Line 218 Rebuild DEV portion for high capacity 3.0 mi Time Estimate : 30-36 Months Cost : \$6,000,000	\$6,000,000

ID	Index	Facility	Upgrade Description	Cost
40211	19	6KINGS M 230.0 kV - 6PENNIMAN 230.0 kV Ckt 1	DVP Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
40747,40381,40382	9	8SPOTSYL 500.0 kV - 8MORRSVL 500.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 594 17 mi Va CPCN Time Estimate : 44-48 Months Cost : \$60,000,000	\$60,000,000
40144	5	6CASHIE 230.0 kV - 6EARLEYS 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 2034 14.5 mi Rebuild NC PUC Required Time Estimate : 36-40 Months Cost : \$36,250,000	\$36,250,000
40273,39835,39836	6	8CARSON 500.0 kV - 8MDLTHAN 500.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 563 38 mi Va CPCN Time Estimate : 44-48 Months Cost : \$112,230,000	\$112,230,000
39732	27	6ELIZ CT 230.0 kV - 6SHAWBRO 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 2021 10.3 mi Rebuild NC PUC Required Time Estimate : 36-40 Months Cost : \$25,000,000	\$25,000,000
39908	12	6PERQUIMANS 230.0 kV - 6S HERTFORD 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 2131 Rebuild 4.6 mi NC PUC Required Time Estimate : 36-40 Months Cost : \$11,500,000	\$11,500,000
39817,39818,40203, 40198,40199	7	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	DVP Description : Rebuild / Uprate Line 557 - 28 mi Va CPCN Time Estimate : 36-44 Months Cost : \$84,000,000	\$84,000,000
40334,39900,39901, 39902,40335	31	8LADYSMITH 500.0 kV - 8CHANCE 500.0 kV Ckt 1	DVP Description : 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.	\$0

ID	Index	Facility	Upgrade Description	Cost
40323	14	6HATHAWAY 230.0 kV - 6NASH 230.0 kV Ckt 1	DVP Description : Wreck/Rebuild Line 2181 1 mi Time Estimate : 30-36 Months Cost : \$2,250,000	\$2,250,000
40240,40241,39923, 39924	29	8CHANCE 500.0 kV - 8BRISTER 500.0 kV Ckt 1	DVP Description : 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.	\$0
41073,41074,41483	11	05EDAN 1 138.0 kV - 05DANVL2 138.0 kV Ckt 1	AEP Description : 1) Replace the Bus 1.5" AL Tubular \$300k 2) Replace switches (1200) (x2) \$500k 3) Replace Sub cond 1590 AAC 61 Str (x6) \$1.05M 4) Recondutor 2.85 miles of ACSR 336/556 six wire (Danville to East Danville) \$4.275M 5) Replace Relay Thermal Limit 1795 Amps (x2) \$1.2M 6) Replace Relay Compliance Trip Limit 1916 Amps \$1.2M 7) Replace ACSR 1351.5 45/7 DIPPER \$2.14M 8) Replace ACSR 1351.5 45/7 DIPPER \$2.14M 9) Replace Breaker (2000A) Non Oil \$500k 10) Replace Sub Cond 2-795 AAC 37 Str. (x5) \$875k 11) Replace Sub Cond 2156 ACSR 84/19 STD (x2) \$350k 12) Replace CT Thermal Limit 2393 Amps (x2) \$1.2M Time Estimate : 18-24 Months Cost : \$15,730,000	\$15,730,000
40296	20	6WALR209 230.0 kV - 6LIGH209 230.0 kV Ckt 1	DVP Description : PJM baseline upgrade b3056: Partial Rebuild 230 kV Line #2113 Waller to Lightfoot. The baseline project has an projected in-service date of 12/30/2024.	\$0
40464,39806	16	6CHRL249 230.0 kV - 6LOCKS 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 249 3 mi Va CPCN Time Estimate : 44-48 Months Cost : \$7,500,000	\$7,500,000
40079,40076,39758, 39759	30	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	DVP Description : PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has an projected in-service date of 12/31/2022.	\$0
40185,39739,40180, 40181	4	6LAKEVEW 230.0 kV - AB2-100 TAP 230.0 kV Ckt 1	DVP Description : Wreck & Rebuild Line 254 16 mi NC PUC Time Estimate : 44-48 Months Cost : \$40,000,000	\$40,000,000
40232,40233,39763, 40703	3	6EVERETS 230.0 kV - AD2- 068 TAP 230.0 kV Ckt 1	DVP Description : Line 218 Rebuild DEV portion for high capacity 17.0 mi Time Estimate : 30-36 Months Cost : \$34,000,000	\$34,000,000

ID	Index	Facility	Upgrade Description	Cost
40674	22	3BTLEBRO 115.0 kV - 3ROCKYMT115T 115.0 kV Ckt 1	<u>CPLE</u> Description : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. <u>DVP</u> Description : New Suffolk – Earleys – Everetts 500kV line with substation 500/230kV transformation at Earleys and Everetts substations. Time Estimate : 30-36 Months Cost : \$570,000,000	\$570,000,000
39853	24	3EARLEYS 115.0 kV - 6EARLEYS 230.0 kV Ckt 1	<u>DVP</u> Description : Replace / Upgrade Transformer Time Estimate : 24-30 Months Cost : \$5,500,000	\$5,500,000
39736,39735	23	3EARLEYS 115.0 kV - 6EARLEYS 230.0 kV Ckt 2	<u>DVP</u> Description : Replace Transformer Time Estimate : 24-30 Months Cost : \$5,500,000	\$5,500,000
40122,40123	26	6NUCO TP 230.0 kV - AA1-138 TAP 230.0 kV Ckt 1	<u>DVP</u> Description : Wreck & Rebuild Line 246 14.2 mi NC PUC Required Time Estimate : 36-40 Months Cost : \$35,200,000	\$35,200,000
			TOTAL COST	\$1,323,190,000

Flow Gate Details- Option 1

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

Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40187	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	144.87	145.88	DC	9.96

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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
40283	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	single	598.78	102.06	107.15	DC	30.47

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.72
315126	1ROARAP2	2.35
315128	1ROARAP4	2.26
315131	1EDGECEMA	10.76
315132	1EDGECEMB	10.76
315136	1ROSEMG1	4.44
315137	1ROSEMS1	2.75
315138	1ROSEMG2	2.08
315139	1GASTONA	6.57
315141	1GASTONB	6.57
315150	1BUGGS 1	8.66
315151	1BUGGS 2	8.66
315159	1KERR 2	1.4
315160	1KERR 3	1.38
315161	1KERR 4	1.38
315162	1KERR 5	1.38
315163	1KERR 6	1.38
315164	1KERR 7	1.38
917331	Z2-043 C	0.5
917341	Z2-044 C	0.28
917511	Z2-088 C OP1	1.71
918491	AA1-063AC OP	2.16
918511	AA1-065 C OP	1.84
918531	AA1-067 C	0.31
918561	AA1-072 C	0.08
919691	AA2-053 C	2.34
919701	AA2-057 C	8.91
920041	AA2-088 C OP	1.07
920591	AA2-165 C	0.21
920671	AA2-174 C	0.11
923801	AB2-015 C O1	5.17
923911	AB2-031 C O1	4.86
923941	AB2-035 C	0.38
923991	AB2-040 C O1	2.75
924151	AB2-059 C O1	2.07
924391	AB2-088 C	0.49
924401	AB2-089 C	2.29
924491	AB2-098 C	0.61
924501	AB2-099 C	0.7

Bus #	Bus	MW Impact
924511	AB2-100 C	35.71
925171	AB2-174 C O1	16.03
925291	AB2-188 C O1	1.45
925591	AC1-034 C	7.77
925781	AC1-054 C O1	8.2
926071	AC1-086 C	42.9
926201	AC1-098 C	8.09
926211	AC1-099 C	2.71
927021	AC1-189 C	9.39
927141	AC1-208 C	12.39
930401	AB1-081 C O1	1.75
930861	AB1-132 C O1	5.01
931231	AB1-173 C	0.84
931241	AB1-173AC	0.84
932631	AC2-084 C	11.54
933991	AD1-023 C	11.69
934201	AD1-047 C	17.41
934231	AD1-050 C	5.04
934331	AD1-057 C O1	15.69
934521	AD1-076 C	42.7
936261	AD2-033 C	8.95
936361	AD2-046 C O1	8.32
936401	AD2-051 C O1	10.8
936481	AD2-063 C O1	11.54
936531	AD2-068 C	4.58
936701	AD2-089 C	8.14
936711	AD2-090 C O1	5.48
937571	AD2-169 C	20.52
938171	AE1-026 C1 O	26.62
938172	AE1-026 C2 O	3.85
938221	AE1-035 C	2.67
AA2-074	AA2-074	2.54
CARR	CARR	0.23
CBM-S1	CBM-S1	5.72
CBM-S2	CBM-S2	6.71
CBM-W1	CBM-W1	5.82
CBM-W2	CBM-W2	37.68
CIN	CIN	2.63
CPLE	CPLE	3.73
IPL	IPL	1.65
LGEE	LGEE	0.76
MEC	MEC	5.82
MECS	MECS	2.5
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.7

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
40703	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	145.09	154.69	DC	46.56

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.07
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.78
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECEMA	8.55
315132	1EDGECEMB	8.55
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315292	1DOMTR78	1.86
315293	1DOMTR9	1.52
315294	1DOMTR10	2.75
900672	V4-068 E	0.24
901082	W1-029 E	24.72
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.86
917122	Z2-027 E	0.52
917331	Z2-043 C	0.38
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	2.58
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	1.2
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.93
918512	AA1-065 E OP	5.52

Bus #	Bus	MW Impact
918531	AA1-067 C	0.58
918532	AA1-067 E	1.45
918561	AA1-072 C	0.06
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.12
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.8
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.53
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.71
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	3.39
924152	AB2-059 E O1	3.09
924391	AB2-088 C	0.57
924392	AB2-088 E	0.28
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.1
924512	AB2-100 E	3.0
925121	AB2-169 C	1.68
925122	AB2-169 E	8.75
925171	AB2-174 C O1	3.83
925172	AB2-174 E O1	3.46
925281	AB2-186 C	0.37
925282	AB2-186 E	0.16
925291	AB2-188 C O1	2.2
925292	AB2-188 E O1	0.99
925591	AC1-034 C	3.89
925592	AC1-034 E	2.93
926071	AC1-086 C	15.86
926072	AC1-086 E	7.22
926201	AC1-098 C	4.52
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.23
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59

Bus #	Bus	MW Impact
931242	AB1-173AE	0.59
932631	AC2-084 C	6.44
932632	AC2-084 E	3.17
933991	AD1-023 C	14.77
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.51
934332	AD1-057 E O1	4.54
934521	AD1-076 C	58.83
934522	AD1-076 E	29.96
936401	AD2-051 C O1	9.45
936402	AD2-051 E O1	4.06
936701	AD2-089 C	9.54
936702	AD2-089 E	6.36
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.84
937571	AD2-169 C	5.83
937572	AD2-169 E	3.89
938171	AE1-026 C1 O	32.18
938172	AE1-026 C2 O	4.66
938173	AE1-026 E O1	9.72
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
AC1-133	AC1-133	24.6
BAYOU	BAYOU	2.84
BIG_CAJUN1	BIG_CAJUN1	4.49
BIG_CAJUN2	BIG_CAJUN2	9.03
BLUEG	BLUEG	7.76
CALDERWOOD	CALDERWOOD	1.66
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.62
CBM-N	CBM-N	0.22
CHEOAH	CHEOAH	1.55
CHILHOWEE	CHILHOWEE	0.54
CHOCTAW	CHOCTAW	3.06
COFFEEN	COFFEEN	0.92
COTTONWOOD	COTTONWOOD	11.11
DEARBORN	DEARBORN	0.96
DUCKCREEK	DUCKCREEK	1.88
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.03
GIBSON	GIBSON	0.34
HAMLET	HAMLET	6.97
NEWTON	NEWTON	2.39
NYISO	NYISO	0.94
O-066A	O-066A	0.47
PRAIRIE	PRAIRIE	5.05
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.45

Bus #	Bus	MW Impact
TATANKA	TATANKA	1.13
TILTON	TILTON	0.98
TRIMBLE	TRIMBLE	0.85
TVA	TVA	4.68
UNIONPOWER	UNIONPOWER	2.32
VFT	VFT	2.73

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
39739	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 246T247	breaker	427.0	142.14	146.34	DC	39.56

Bus #	Bus	MW Impact
314541	3WATKINS	0.3
314554	3BTLEBRO	0.85
314557	3BETHEL	0.89
314566	3CRESWEL	1.67
314574	6EVERETS	4.37
314578	3HORNRTN	3.34
314582	3KELFORD	3.8
314594	6PLYMOTH	0.69
314603	3SCOT NK	3.52
314617	3TUNIS	0.79
314620	6CASHIE	0.82
314623	3WITAKRS	1.43
315131	1EDGECEMA	10.63
315132	1EDGECEMB	10.63
315136	1ROSEMG1	4.67
315137	1ROSEMS1	2.9
315138	1ROSEMG2	2.19
315139	1GASTONA	6.95
315141	1GASTONB	6.95
900672	V4-068 E	0.24
916042	Z1-036 E	21.06
917331	Z2-043 C	0.43
917332	Z2-043 E	1.08
917341	Z2-044 C	0.25
917342	Z2-044 E	0.61
917511	Z2-088 C OP1	1.69
917512	Z2-088 E OP1	4.2
918491	AA1-063AC OP	1.52
918492	AA1-063AE OP	4.16
918511	AA1-065 C OP	1.82
918512	AA1-065 E OP	5.2
918531	AA1-067 C	0.31
918532	AA1-067 E	0.77
918561	AA1-072 C	0.07
918562	AA1-072 E	0.18
919691	AA2-053 C	1.53
919692	AA2-053 E	3.83
919701	AA2-057 C	7.49
919702	AA2-057 E	3.75
920042	AA2-088 E OP	6.85

Bus #	Bus	MW Impact
920591	AA2-165 C	0.18
920592	AA2-165 E	0.49
920671	AA2-174 C	0.07
920672	AA2-174 E	0.44
920692	AA2-178 E	2.87
923941	AB2-035 C	0.38
923942	AB2-035 E	0.16
924151	AB2-059 C O1	1.96
924152	AB2-059 E O1	5.86
924391	AB2-088 C	0.48
924392	AB2-088 E	0.23
924491	AB2-098 C	0.6
924492	AB2-098 E	0.26
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
925122	AB2-169 E	5.47
925291	AB2-188 C O1	1.65
925292	AB2-188 E O1	0.74
925591	AC1-034 C	7.37
925592	AC1-034 E	5.56
925781	AC1-054 C O1	3.71
925782	AC1-054 E O1	1.71
926071	AC1-086 C	45.39
926072	AC1-086 E	20.66
926201	AC1-098 C	6.52
926202	AC1-098 E	3.88
926211	AC1-099 C	2.19
926212	AC1-099 E	1.28
927021	AC1-189 C	9.28
927022	AC1-189 E	4.62
927141	AC1-208 C	9.44
927142	AC1-208 E	4.19
930401	AB1-081 C O1	1.66
930402	AB1-081 E O1	4.13
930861	AB1-132 C O1	5.31
930862	AB1-132 E O1	13.21
932631	AC2-084 C	9.29
932632	AC2-084 E	4.58
933991	AD1-023 C	12.17
933992	AD1-023 E	6.63
934331	AD1-057 C O1	16.15
934332	AD1-057 E O1	8.61
934521	AD1-076 C	45.65
934522	AD1-076 E	23.24
936401	AD2-051 C O1	9.63
936402	AD2-051 E O1	4.14
936531	AD2-068 C	4.47
936532	AD2-068 E	2.3
936701	AD2-089 C	8.05
936702	AD2-089 E	5.37
936711	AD2-090 C O1	3.68
936712	AD2-090 E O1	2.46

Bus #	Bus	MW Impact
938171	AE1-026 C1 O	27.35
938172	AE1-026 C2 O	3.96
938173	AE1-026 E O1	8.26
938221	AE1-035 C	2.64
938222	AE1-035 E	1.3
AA2-074	AA2-074	2.25
CARR	CARR	0.18
CBM-S1	CBM-S1	4.89
CBM-S2	CBM-S2	5.87
CBM-W1	CBM-W1	4.92
CBM-W2	CBM-W2	32.19
CIN	CIN	2.21
CPLE	CPLE	3.31
G-007	G-007	0.64
IPL	IPL	1.39
LGEE	LGEE	0.64
MEC	MEC	4.93
MECS	MECS	2.09
O-066	O-066	2.14
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.59

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
40144	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	single	571.52	72.13	100.19	DC	160.39

Bus #	Bus	MW Impact
315292	1DOMTR78	5.09
315293	1DOMTR9	4.15
315294	1DOMTR10	7.53
916041	Z1-036 C	5.09
920691	AA2-178 C	7.3
925121	AB2-169 C	2.8
925291	AB2-188 C O1	10.45
933991	AD1-023 C	63.15
934521	AD1-076 C	242.91
938171	AE1-026 C1 O	140.12
938172	AE1-026 C2 O	20.27
CARR	CARR	0.05
CBM-S1	CBM-S1	0.34
CBM-S2	CBM-S2	0.61
CBM-W1	CBM-W1	0.15
CBM-W2	CBM-W2	2.1
CIN	CIN	0.08
CPLE	CPLE	0.38
DEARBORN	DEARBORN	0.01
IPL	IPL	0.05
LGEE	LGEE	0.02
MEC	MEC	0.24
RENSSELAER	RENSSELAER	0.04
WEC	WEC	0.02

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
39835	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	99.97	100.72	DC	65.25

Bus #	Bus	MW Impact
314539	3UNCAMP	3.9
314541	3WATKINS	1.1
314554	3BTLEBRO	1.2
314557	3BETHEL	1.22
314566	3CRESWEL	3.95
314572	3EMPORIA	0.62
314574	6EVERETS	6.48
314578	3HORNRTN	4.99
314582	3KELFORD	5.44
314594	6PLYMOTH	1.38
314603	3SCOT NK	5.06
314617	3TUNIS	1.32
314620	6CASHIE	1.36
314623	3WITAKRS	2.03
314648	6SUNBURY	1.5
314651	6WINFALL	2.97
315090	1YORKTN1	40.62
315091	1YORKTN2	42.16
315102	1BRUNSWICKG1	16.87
315103	1BRUNSWICKG2	16.87
315104	1BRUNSWICKG3	16.87
315105	1BRUNSWICKS1	35.05
315108	1ELIZAR1	5.8
315109	1ELIZAR2	5.7
315110	1ELIZAR3	5.87
315131	1EDGECEMA	13.89
315132	1EDGECEMB	13.89
315150	1BUGGS 1	14.89
315151	1BUGGS 2	14.89
315233	1SURRY 2	45.77
900672	V4-068 E	0.47
901082	W1-029 E	77.64
907092	X1-038 E	9.75
913392	Y1-086 E	3.75
916042	Z1-036 E	76.32
916191	Z1-068 C	0.08
916192	Z1-068 E	3.24
916301	Z1-086 C	102.98
916302	Z1-086 E	18.72
917122	Z2-027 E	1.8

Bus #	Bus	MW Impact
917332	Z2-043 E	1.55
917342	Z2-044 E	0.87
917512	Z2-088 E OP1	5.99
918492	AA1-063AE OP	6.12
918512	AA1-065 E OP	7.02
918532	AA1-067 E	1.14
918562	AA1-072 E	0.26
919151	AA1-139 C	4.44
919152	AA1-139 E	11.05
919692	AA2-053 E	5.69
919701	AA2-057 C	10.73
919702	AA2-057 E	5.36
920042	AA2-088 E OP	16.58
920592	AA2-165 E	0.71
920672	AA2-174 E	0.66
920692	AA2-178 E	6.77
923801	AB2-015 C O1	13.82
923802	AB2-015 E O1	11.33
923832	AB2-022 E	2.12
923852	AB2-025 E	1.64
923911	AB2-031 C O1	3.35
923912	AB2-031 E O1	1.65
923941	AB2-035 C	0.51
923942	AB2-035 E	0.22
923992	AB2-040 E O1	8.99
924022	AB2-043 E O1	6.43
924152	AB2-059 E O1	8.13
924162	AB2-060 E O1	5.28
924241	AB2-068 O1	333.94
924302	AB2-077 E O1	1.67
924312	AB2-078 E O1	1.67
924322	AB2-079 E O1	1.67
924391	AB2-088 C	0.66
924392	AB2-088 E	0.32
924401	AB2-089 C	2.95
924402	AB2-089 E	1.52
924491	AB2-098 C	0.89
924492	AB2-098 E	0.38
924501	AB2-099 C	0.92
924502	AB2-099 E	0.39
924511	AB2-100 C	17.28
924512	AB2-100 E	8.51
924812	AB2-134 E O1	14.4
925061	AB2-161 C O1	4.86
925062	AB2-161 E O1	7.93
925122	AB2-169 E	9.3
925171	AB2-174 C O1	10.49
925172	AB2-174 E O1	9.49
925281	AB2-186 C	1.03
925282	AB2-186 E	0.44
925291	AB2-188 C O1	3.89
925292	AB2-188 E O1	1.75

Bus #	Bus	MW Impact
925331	AB2-190 C	22.91
925332	AB2-190 E	9.82
925521	AC1-027 C	0.59
925522	AC1-027 E	1.97
925591	AC1-034 C	10.22
925592	AC1-034 E	7.71
925781	AC1-054 C O1	10.09
925782	AC1-054 E O1	4.65
926071	AC1-086 C	31.41
926072	AC1-086 E	14.3
926201	AC1-098 C	9.4
926202	AC1-098 E	5.6
926211	AC1-099 C	3.15
926212	AC1-099 E	1.85
926271	AC1-105 C O1	7.5
926272	AC1-105 E O1	3.73
926291	AC1-107 O1	504.06
926662	AC1-147 E	2.27
926751	AC1-161 C O1	55.61
926752	AC1-161 E O1	23.74
927021	AC1-189 C	13.41
927022	AC1-189 E	6.68
927141	AC1-208 C	13.7
927142	AC1-208 E	6.09
927221	AC1-216 C O1	11.57
927222	AC1-216 E O1	9.1
927251	AC1-221 C	3.14
927252	AC1-221 E	3.14
927261	AC1-222 C	4.86
927262	AC1-222 E	4.63
930402	AB1-081 E O1	5.74
930862	AB1-132 E O1	9.14
931232	AB1-173 E	1.57
931242	AB1-173AE	1.57
932041	AC2-012 C	17.47
932042	AC2-012 E	28.5
932581	AC2-078 C O1	5.18
932582	AC2-078 E O1	8.44
932591	AC2-079 C O1	8.83
932592	AC2-079 E O1	14.41
932631	AC2-084 C	13.41
932632	AC2-084 E	6.6
932761	AC2-100 C	7.23
932762	AC2-100 E	3.53
933291	AC2-141 C	55.61
933292	AC2-141 E	23.74
933731	AC2-196 C	0.53
933732	AC2-196 E	2.07
933991	AD1-023 C	21.24
933992	AD1-023 E	11.56
934011	AD1-025 C	19.89
934012	AD1-025 E	11.78

Bus #	Bus	MW Impact
934061	AD1-033 C	13.01
934062	AD1-033 E	8.68
934201	AD1-047 C	11.99
934202	AD1-047 E	7.99
934231	AD1-050 C	6.51
934232	AD1-050 E	3.56
934311	AD1-055 C	3.38
934312	AD1-055 E	0.87
934331	AD1-057 C O1	15.07
934332	AD1-057 E O1	8.04
934341	AD1-058 C	7.87
934342	AD1-058 E	2.0
934521	AD1-076 C	88.52
934522	AD1-076 E	45.07
934571	AD1-082 C	11.07
934572	AD1-082 E	6.31
934611	AD1-087 C O1	12.77
934612	AD1-087 E O1	6.0
934621	AD1-088 C	17.21
934622	AD1-088 E	8.08
934991	AD1-131 C	2.58
934992	AD1-131 E	1.72
935112	AD1-144 E	1.54
935161	AD1-151 C O1	18.41
935162	AD1-151 E O1	12.27
935171	AD1-152 C O1	12.69
935172	AD1-152 E O1	8.46
935212	AD1-156 E	1.73
936041	AD2-007	2.11
936051	AD2-008 C	3.46
936052	AD2-008 E	7.54
936331	AD2-043 C	6.32
936332	AD2-043 E	7.48
936361	AD2-046 C O1	11.9
936362	AD2-046 E O1	5.47
936391	AD2-049 C	2.65
936392	AD2-049 E	2.65
936401	AD2-051 C O1	13.77
936402	AD2-051 E O1	5.91
936481	AD2-063 C O1	17.89
936482	AD2-063 E O1	11.93
936531	AD2-068 C	7.89
936532	AD2-068 E	4.07
936661	AD2-085 C	5.28
936662	AD2-085 E	8.61
936701	AD2-089 C	11.02
936702	AD2-089 E	7.35
936711	AD2-090 C O1	11.44
936712	AD2-090 E O1	7.62
937221	AD2-160 C O1	10.1
937222	AD2-160 E O1	5.3
937251	AD2-164	6.91

Bus #	Bus	MW Impact
937481	AD2-202 C O1	3.52
937482	AD2-202 E O1	1.77
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
937571	AD2-169 C	14.99
937572	AD2-169 E	9.99
938171	AE1-026 C1 O	45.11
938172	AE1-026 C2 O	6.53
938173	AE1-026 E O1	13.62
938181	AE1-027 C	4.05
938182	AE1-027 E	2.13
938191	AE1-028 C	2.35
938192	AE1-028 E	1.36
938221	AE1-035 C	3.56
938222	AE1-035 E	1.76
938461	AE1-065 C O1	48.97
938462	AE1-065 E O1	197.59
938471	AE1-066 C O1	50.32
938472	AE1-066 E O1	196.23
938481	AE1-067 C O1	45.76
938482	AE1-067 E O1	200.79
938491	AE1-068 C O1	119.55
938492	AE1-068 E O1	66.03
938501	AE1-069 C O1	93.4
938502	AE1-069 E O1	53.4
938531	AE1-072 C O1	30.18
938532	AE1-072 E O1	15.73
AA2-074	AA2-074	8.89
AB2-013	AB2-013	5.7
AE1-033	AE1-033	5.94
AE1-042	AE1-042	14.39
CARR	CARR	1.71
CBM-S1	CBM-S1	21.98
CBM-S2	CBM-S2	25.61
CBM-W1	CBM-W1	20.03
CBM-W2	CBM-W2	142.14
CIN	CIN	9.32
CPLE	CPLE	13.07
G-007	G-007	5.64
IPL	IPL	5.81
LGEE	LGEE	2.72
MEC	MEC	21.15
MECS	MECS	7.49
O-066	O-066	18.81
RENSSELAER	RENSSELAER	1.35
WEC	WEC	2.47
Z1-043	Z1-043	9.72

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
40199	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	117.4	118.28	DC	47.32

Bus #	Bus	MW Impact
314421	6WINCHST	0.28
314507	3THOMPSN	0.61
315058	1CHESTF3	19.15
315059	1CHESTF4	31.04
315074	1HOPCGN1	10.62
315075	1HOPCGN2	10.48
315090	1YORKTN1	52.26
315091	1YORKTN2	54.24
315092	1YORKTN3	44.78
315098	1CHESPKA	0.8
315099	1CHESPKB	1.99
315108	1ELIZAR1	5.89
315109	1ELIZAR2	5.78
315110	1ELIZAR3	5.96
315131	1EDGECEMA	11.19
315132	1EDGECEMB	11.19
315233	1SURRY 2	53.45
315260	1GOSPORTA	0.64
315261	1GOSPORTB	0.82
315262	1GOSPORTC	0.69
916191	Z1-068 C	0.08
919151	AA1-139 C	4.44
919701	AA2-057 C	8.85
923801	AB2-015 C O1	13.1
923911	AB2-031 C O1	2.83
923941	AB2-035 C	0.43
924241	AB2-068 O1	618.84
924391	AB2-088 C	0.55
924491	AB2-098 C	0.77
924501	AB2-099 C	0.82
924511	AB2-100 C	14.55
925051	AB2-160 C O1	6.27
925061	AB2-161 C O1	4.95
925171	AB2-174 C O1	8.85
925281	AB2-186 C	1.01
925291	AB2-188 C O1	3.67
925331	AB2-190 C	28.92
925521	AC1-027 C	0.6
925591	AC1-034 C	8.24
925861	AC1-065 C	5.38

Bus #	Bus	MW Impact
926071	AC1-086 C	26.65
926201	AC1-098 C	7.98
926211	AC1-099 C	2.68
926291	AC1-107 O1	934.1
926661	AC1-147 C	0.68
926751	AC1-161 C O1	56.88
926781	AC1-164 C	68.74
927021	AC1-189 C	11.42
927141	AC1-208 C	11.51
927221	AC1-216 C O1	14.39
932041	AC2-012 C	17.77
932581	AC2-078 C O1	5.39
932591	AC2-079 C O1	8.91
932631	AC2-084 C	11.38
932831	AC2-110 C	2.15
933061	AC2-130	3.18
933071	AC2-131 1	2.16
933081	AC2-131 2	0.98
933111	AC2-132 1	1.13
933121	AC2-132 2	0.58
933291	AC2-141 C	56.88
933731	AC2-196 C	0.54
933991	AD1-023 C	19.56
934011	AD1-025 C	24.74
934061	AD1-033 C	13.1
934141	AD1-041 C	8.5
934201	AD1-047 C	10.14
934331	AD1-057 C O1	12.43
934521	AD1-076 C	82.16
934571	AD1-082 C	11.29
935161	AD1-151 C O1	23.24
936041	AD2-007	2.63
936051	AD2-008 C	4.31
936151	AD2-021	0.34
936241	AD2-030 C	3.71
936301	AD2-039 C	2.15
936341	AD2-044 C	0.3
936391	AD2-049 C	3.16
936401	AD2-051 C O1	12.27
936531	AD2-068 C	6.42
936591	AD2-074 C	7.5
936661	AD2-085 C	5.33
936701	AD2-089 C	9.12
936711	AD2-090 C O1	10.68
937221	AD2-160 C O1	10.12
937251	AD2-164	8.65
937541	AD2-215 C	2.97
937571	AD2-169 C	12.7
938031	AE1-004 C	2.15
938171	AE1-026 C1 O	41.34
938172	AE1-026 C2 O	5.98
938181	AE1-027 C	4.07

Bus #	Bus	MW Impact
938191	AE1-028 C	2.36
938221	AE1-035 C	3.21
938461	AE1-065 C O1	49.52
938471	AE1-066 C O1	50.89
938481	AE1-067 C O1	46.28
938491	AE1-068 C O1	78.84
938501	AE1-069 C O1	61.68
938531	AE1-072 C O1	30.14
AA2-074	AA2-074	6.27
AE1-042	AE1-042	8.65
CARR	CARR	1.25
CBM-S1	CBM-S1	12.69
CBM-S2	CBM-S2	17.39
CBM-W1	CBM-W1	8.96
CBM-W2	CBM-W2	79.72
CIN	CIN	4.3
CPLE	CPLE	9.22
IPL	IPL	2.64
LGEE	LGEE	1.25
MEC	MEC	10.78
MECS	MECS	2.24
RENSSELAER	RENSSELAER	0.99
WEC	WEC	1.14

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
40433	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	97.76	98.29	DC	37.08

Bus #	Bus	MW Impact
314236	6NRTHEST	0.24
314250	6ROCKVILLE	0.43
314309	6IRON208	0.57
314314	3LOCKS	0.37
315053	1BELMED1	21.19
315054	1BELMED2	21.19
315055	1BELMED3	17.59
315058	1CHESTF3	21.97
315059	1CHESTF4	35.61
315065	1CHESTF6	25.77
315074	1HOPCGN1	10.18
315075	1HOPCGN2	10.05
315083	1SPRUNCA	13.14
315084	1SPRUNCB	13.14
315085	1SPRUNCC	9.74
315086	1SPRUNCD	9.74
315090	1YORKTN1	34.77
315091	1YORKTN2	36.09
315108	1ELIZAR1	4.15
315109	1ELIZAR2	4.08
315110	1ELIZAR3	4.2
315225	1N ANNA1	64.22
315226	1N ANNA2	64.36
315233	1SURRY 2	32.16
923801	AB2-015 C O1	10.2
923911	AB2-031 C O1	2.55
924241	AB2-068 O1	231.59
924501	AB2-099 C	0.67
924511	AB2-100 C	13.4
925051	AB2-160 C O1	6.69
925061	AB2-161 C O1	4.14
925171	AB2-174 C O1	8.02
925281	AB2-186 C	0.74
925291	AB2-188 C O1	2.78
925331	AB2-190 C	24.6
925821	AC1-061	0.01
925861	AC1-065 C	4.0
926071	AC1-086 C	23.42
926291	AC1-107 O1	349.57
926751	AC1-161 C O1	37.51

Bus #	Bus	MW Impact
926781	AC1-164 C	47.96
927041	AC1-191 C O1	11.13
927221	AC1-216 C O1	12.04
932041	AC2-012 C	12.55
932581	AC2-078 C O1	5.0
932591	AC2-079 C O1	7.0
932831	AC2-110 C	1.6
933011	AC2-125	2.88
933021	AC2-126	2.9
933031	AC2-127	1.59
933041	AC2-128	1.53
933051	AC2-129	1.43
933061	AC2-130	2.9
933071	AC2-131 1	1.96
933081	AC2-131 2	0.89
933111	AC2-132 1	1.03
933121	AC2-132 2	0.53
933291	AC2-141 C	37.51
933501	AC2-165 C	11.05
933991	AD1-023 C	15.24
934011	AD1-025 C	20.69
934061	AD1-033 C	9.22
934141	AD1-041 C	6.29
934201	AD1-047 C	9.12
934521	AD1-076 C	63.42
934571	AD1-082 C	9.42
935161	AD1-151 C O1	19.77
935211	AD1-156 C	0.45
936041	AD2-007	2.2
936051	AD2-008 C	3.6
936151	AD2-021	0.28
936241	AD2-030 C	2.73
936301	AD2-039 C	1.6
936391	AD2-049 C	2.18
936401	AD2-051 C O1	9.98
936591	AD2-074 C	6.22
936661	AD2-085 C	4.2
936711	AD2-090 C O1	8.44
937221	AD2-160 C O1	7.16
937251	AD2-164	5.84
937541	AD2-215 C	2.13
937571	AD2-169 C	11.35
938031	AE1-004 C	1.6
938081	AE1-010	3.66
938171	AE1-026 C1 O	32.39
938172	AE1-026 C2 O	4.69
938181	AE1-027 C	2.87
938191	AE1-028 C	1.66
938221	AE1-035 C	2.57
938461	AE1-065 C O1	34.92
938471	AE1-066 C O1	35.89
938481	AE1-067 C O1	32.63

Bus #	Bus	MW Impact
938491	AE1-068 C O1	70.54
938501	AE1-069 C O1	55.26
938531	AE1-072 C O1	21.42
938551	AE1-074 C	3.1
938561	AE1-075 C	2.46
AA2-074	AA2-074	5.92
AE1-042	AE1-042	9.23
CARR	CARR	1.8
CBM-S1	CBM-S1	13.8
CBM-S2	CBM-S2	17.09
CBM-W1	CBM-W1	9.4
CBM-W2	CBM-W2	85.62
CIN	CIN	4.82
CPL	CPL	8.71
IPL	IPL	2.97
LGEE	LGEE	1.45
MEC	MEC	11.65
MECS	MECS	1.83
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.23

Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40381	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	99.93	100.46	DC	36.72

Bus #	Bus	MW Impact
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.43
314309	6IRON208	0.56
314314	3LOCKS	0.37
315053	1BELMED1	20.98
315054	1BELMED2	20.98
315055	1BELMED3	17.41
315058	1CHESTF3	21.74
315059	1CHESTF4	35.24
315065	1CHESTF6	25.5
315074	1HOPCGN1	10.08
315075	1HOPCGN2	9.95
315083	1SPRUNCA	13.01
315084	1SPRUNCB	13.01
315085	1SPRUNCC	9.65
315086	1SPRUNCD	9.65
315090	1YORKTN1	34.4
315091	1YORKTN2	35.7
315108	1ELIZAR1	4.1
315109	1ELIZAR2	4.03
315110	1ELIZAR3	4.16
315225	1N ANNA1	62.98
315226	1N ANNA2	63.12
315233	1SURRY 2	31.81
923801	AB2-015 C O1	10.1
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	229.24
924501	AB2-099 C	0.66
924511	AB2-100 C	13.27
925021	AB2-158 C	2.4
925051	AB2-160 C O1	6.62
925061	AB2-161 C O1	4.09
925171	AB2-174 C O1	7.95
925281	AB2-186 C	0.73
925291	AB2-188 C O1	2.76
925331	AB2-190 C	24.35
925821	AC1-061	0.01
925861	AC1-065 C	3.96
926001	AC1-076 C	6.66
926071	AC1-086 C	23.2

Bus #	Bus	MW Impact
926291	AC1-107 O1	346.02
926731	AC1-158 C	193.77
926751	AC1-161 C O1	37.1
926781	AC1-164 C	47.47
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.91
932041	AC2-012 C	12.41
932581	AC2-078 C O1	4.94
932591	AC2-079 C O1	6.93
932831	AC2-110 C	1.58
933011	AC2-125	2.84
933021	AC2-126	2.86
933031	AC2-127	1.56
933041	AC2-128	1.51
933051	AC2-129	1.41
933061	AC2-130	2.87
933071	AC2-131 1	1.94
933081	AC2-131 2	0.88
933111	AC2-132 1	1.02
933121	AC2-132 2	0.52
933291	AC2-141 C	37.1
933501	AC2-165 C	11.13
933991	AD1-023 C	15.09
934011	AD1-025 C	20.47
934061	AD1-033 C	9.12
934141	AD1-041 C	6.22
934201	AD1-047 C	9.05
934521	AD1-076 C	62.8
934541	AD1-078 C	4.08
934571	AD1-082 C	9.33
935161	AD1-151 C O1	19.56
935211	AD1-156 C	0.45
936041	AD2-007	2.17
936051	AD2-008 C	3.56
936151	AD2-021	0.28
936241	AD2-030 C	2.7
936301	AD2-039 C	1.58
936391	AD2-049 C	2.16
936401	AD2-051 C O1	9.89
936591	AD2-074 C	6.15
936661	AD2-085 C	4.16
936711	AD2-090 C O1	8.36
937221	AD2-160 C O1	7.08
937251	AD2-164	5.77
937541	AD2-215 C	2.11
937571	AD2-169 C	11.26
938031	AE1-004 C	1.58
938081	AE1-010	9.24
938171	AE1-026 C1 O	32.08
938172	AE1-026 C2 O	4.64
938181	AE1-027 C	2.84
938191	AE1-028 C	1.65

Bus #	Bus	MW Impact
938221	AE1-035 C	2.54
938461	AE1-065 C O1	34.54
938471	AE1-066 C O1	35.5
938481	AE1-067 C O1	32.28
938491	AE1-068 C O1	69.77
938501	AE1-069 C O1	54.66
938531	AE1-072 C O1	21.19
938551	AE1-074 C	3.07
938561	AE1-075 C	2.47
AA2-074	AA2-074	5.88
AE1-042	AE1-042	9.22
CARR	CARR	1.81
CBM-S1	CBM-S1	13.81
CBM-S2	CBM-S2	17.0
CBM-W1	CBM-W1	9.47
CBM-W2	CBM-W2	85.71
CIN	CIN	4.86
CPLE	CPLE	8.65
IPL	IPL	2.99
LGEE	LGEE	1.46
MEC	MEC	11.7
MECS	MECS	1.88
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.24

Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40698	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	153.25	162.99	DC	46.56

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.07
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.78
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECEMA	8.55
315132	1EDGECEMB	8.55
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315292	1DOMTR78	1.86
315293	1DOMTR9	1.52
315294	1DOMTR10	2.75
900672	V4-068 E	0.24
901082	W1-029 E	24.72
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.86
917122	Z2-027 E	0.52
917331	Z2-043 C	0.38
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	2.58
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	1.2
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.93
918512	AA1-065 E OP	5.52

Bus #	Bus	MW Impact
918531	AA1-067 C	0.58
918532	AA1-067 E	1.45
918561	AA1-072 C	0.06
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.12
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.8
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.53
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.71
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	3.39
924152	AB2-059 E O1	3.09
924391	AB2-088 C	0.57
924392	AB2-088 E	0.28
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.1
924512	AB2-100 E	3.0
925121	AB2-169 C	1.68
925122	AB2-169 E	8.75
925171	AB2-174 C O1	3.83
925172	AB2-174 E O1	3.46
925281	AB2-186 C	0.37
925282	AB2-186 E	0.16
925291	AB2-188 C O1	2.2
925292	AB2-188 E O1	0.99
925591	AC1-034 C	3.89
925592	AC1-034 E	2.93
926071	AC1-086 C	15.86
926072	AC1-086 E	7.22
926201	AC1-098 C	4.52
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.23
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59

Bus #	Bus	MW Impact
931242	AB1-173AE	0.59
932631	AC2-084 C	6.44
932632	AC2-084 E	3.17
933991	AD1-023 C	14.77
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.51
934332	AD1-057 E O1	4.54
934521	AD1-076 C	58.83
934522	AD1-076 E	29.96
936401	AD2-051 C O1	9.45
936402	AD2-051 E O1	4.06
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.54
936702	AD2-089 E	6.36
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.84
937571	AD2-169 C	5.83
937572	AD2-169 E	3.89
938171	AE1-026 C1 O	32.18
938172	AE1-026 C2 O	4.66
938173	AE1-026 E O1	9.72
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
AC1-133	AC1-133	24.6
BAYOU	BAYOU	2.84
BIG_CAJUN1	BIG_CAJUN1	4.49
BIG_CAJUN2	BIG_CAJUN2	9.03
BLUEG	BLUEG	7.76
CALDERWOOD	CALDERWOOD	1.66
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.62
CBM-N	CBM-N	0.22
CHEOAH	CHEOAH	1.55
CHILHOWEE	CHILHOWEE	0.54
CHOCTAW	CHOCTAW	3.06
COFFEEN	COFFEEN	0.92
COTTONWOOD	COTTONWOOD	11.11
DEARBORN	DEARBORN	0.96
DUCKCREEK	DUCKCREEK	1.88
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.03
GIBSON	GIBSON	0.34
HAMLET	HAMLET	6.97
NEWTON	NEWTON	2.39
NYISO	NYISO	0.94
O-066A	O-066A	0.47
PRAIRIE	PRAIRIE	5.05

Bus #	Bus	MW Impact
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.45
TATANKA	TATANKA	1.13
TILTON	TILTON	0.98
TRIMBLE	TRIMBLE	0.85
TVA	TVA	4.68
UNIONPOWER	UNIONPOWER	2.32
VFT	VFT	2.73

Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41073	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11112_05J.FERR 765_A1	breaker	402.0	143.85	145.25	DC	12.49

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.35
314557	3BETHELC	0.34
314572	3EMPORIA	0.13
314574	6EVERETS	1.55
314578	3HORNRTN	1.17
314582	3KELFORD	1.22
314594	6PLYMOTH	0.25
314603	3SCOT NK	1.2
314617	3TUNIS	0.27
314620	6CASHIE	0.26
314623	3WITAKRS	0.58
315131	1EDGECEMA	4.1
315132	1EDGECEMB	4.1
315150	1BUGGS 1	4.53
315151	1BUGGS 2	4.53
900672	V4-068 E	0.09
917332	Z2-043 E	0.35
917342	Z2-044 E	0.25
917512	Z2-088 E OP1	1.53
918492	AA1-063AE OP	1.36
918512	AA1-065 E OP	1.43
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.29
919701	AA2-057 C	2.92
919702	AA2-057 E	1.46
920042	AA2-088 E OP	3.14
920592	AA2-165 E	0.19
920672	AA2-174 E	0.15
923911	AB2-031 C O1	0.74
923912	AB2-031 E O1	0.36
923941	AB2-035 C	0.14
923942	AB2-035 E	0.06
923992	AB2-040 E O1	1.98
924022	AB2-043 E O1	1.89
924152	AB2-059 E O1	2.4
924162	AB2-060 E O1	1.55
924302	AB2-077 E O1	0.49
924312	AB2-078 E O1	0.49
924322	AB2-079 E O1	0.49
924391	AB2-088 C	0.18

Bus #	Bus	MW Impact
924392	AB2-088 E	0.09
924401	AB2-089 C	0.88
924402	AB2-089 E	0.45
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.19
924502	AB2-099 E	0.08
925122	AB2-169 E	1.94
925171	AB2-174 C O1	2.28
925172	AB2-174 E O1	2.06
925591	AC1-034 C	3.02
925592	AC1-034 E	2.28
925612	AC1-036 E	0.51
925781	AC1-054 C O1	2.91
925782	AC1-054 E O1	1.34
926051	AC1-083 C O1	3.92
926052	AC1-083 E O1	6.39
926071	AC1-086 C	7.0
926072	AC1-086 E	3.19
926201	AC1-098 C	2.32
926202	AC1-098 E	1.38
926211	AC1-099 C	0.78
926212	AC1-099 E	0.46
926271	AC1-105 C O1	2.27
926272	AC1-105 E O1	1.13
927021	AC1-189 C	3.36
927022	AC1-189 E	1.67
927141	AC1-208 C	3.48
927142	AC1-208 E	1.54
927251	AC1-221 C	1.55
927252	AC1-221 E	1.55
927261	AC1-222 C	1.45
927262	AC1-222 E	1.38
930402	AB1-081 E O1	1.7
930862	AB1-132 E O1	2.04
931232	AB1-173 E	0.35
931242	AB1-173AE	0.35
932631	AC2-084 C	3.31
932632	AC2-084 E	1.63
932761	AC2-100 C	3.57
932762	AC2-100 E	1.74
933941	AD1-017 C	0.78
933942	AD1-017 E	1.28
933991	AD1-023 C	4.0
933992	AD1-023 E	2.18
934201	AD1-047 C	2.64
934202	AD1-047 E	1.76
934231	AD1-050 C	1.93
934232	AD1-050 E	1.06
934311	AD1-055 C	1.01
934312	AD1-055 E	0.26
934331	AD1-057 C O1	3.96

Bus #	Bus	MW Impact
934332	AD1-057 E O1	2.11
934341	AD1-058 C	3.89
934342	AD1-058 E	0.99
934521	AD1-076 C	16.18
934522	AD1-076 E	8.24
934611	AD1-087 C O1	3.23
934612	AD1-087 E O1	1.52
934621	AD1-088 C	3.76
934622	AD1-088 E	1.77
934991	AD1-131 C	1.28
934992	AD1-131 E	0.85
935171	AD1-152 C O1	3.21
935172	AD1-152 E O1	2.14
936161	AD2-022 C O1	10.56
936162	AD2-022 E O1	6.33
936171	AD2-023 C O1	6.07
936172	AD2-023 E O1	3.3
936261	AD2-033 C	4.36
936262	AD2-033 E	2.91
936331	AD2-043 C	1.88
936332	AD2-043 E	2.23
936361	AD2-046 C O1	3.67
936362	AD2-046 E O1	1.69
936401	AD2-051 C O1	2.89
936402	AD2-051 E O1	1.24
936481	AD2-063 C O1	5.27
936482	AD2-063 E O1	3.52
936531	AD2-068 C	2.24
936532	AD2-068 E	1.16
936701	AD2-089 C	3.02
936702	AD2-089 E	2.01
937481	AD2-202 C O1	0.89
937482	AD2-202 E O1	0.45
937492	AD2-205 E	0.2
937571	AD2-169 C	3.33
937572	AD2-169 E	2.22
938171	AE1-026 C1 O	8.63
938172	AE1-026 C2 O	1.25
938173	AE1-026 E O1	2.61
938221	AE1-035 C	0.73
938222	AE1-035 E	0.36
AA2-074	AA2-074	3.75
BLUEG	BLUEG	4.06
CANNELTON	CANNELTON	0.12
CBM-N	CBM-N	0.03
CBM-S1	CBM-S1	2.92
CBM-S2	CBM-S2	10.5
CBM-W2	CBM-W2	13.53
COFFEEN	COFFEEN	0.18
CPL	CPL	5.51
DEARBORN	DEARBORN	0.82
DUCKCREEK	DUCKCREEK	0.56

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.29
ELMERSMITH	ELMERSMITH	0.16
G-007A	G-007A	0.44
GIBSON	GIBSON	0.12
NEWTON	NEWTON	0.53
NYISO	NYISO	0.13
O-066A	O-066A	0.2
TATANKA	TATANKA	0.13
TILTON	TILTON	0.41
TRIMBLE	TRIMBLE	0.47
VFT	VFT	1.15

Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39908	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 24642	breaker	897.0	104.44	113.59	DC	82.06

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.52
314557	3BETHELC	0.69
314566	3CRESWEL	7.34
314574	6EVERETS	4.87
314578	3HORNRTN	2.04
314582	3KELFORD	3.49
314594	6PLYMOTH	2.21
314603	3SCOT NK	2.88
314617	3TUNIS	0.73
314620	6CASHIE	1.71
314623	3WITAKRS	0.9
315131	1EDGECEMA	6.16
315132	1EDGECEMB	6.16
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.93
315139	1GASTONA	2.09
315141	1GASTONB	2.09
315292	1DOMTR78	3.19
315293	1DOMTR9	2.61
315294	1DOMTR10	4.73
900672	V4-068 E	0.19
916041	Z1-036 C	4.65
916042	Z1-036 E	180.94
917331	Z2-043 C	0.4
917332	Z2-043 E	0.99
917342	Z2-044 E	0.39
917511	Z2-088 C OP1	1.58
917512	Z2-088 E OP1	3.94
918491	AA1-063AC OP	1.18
918492	AA1-063AE OP	3.22
918511	AA1-065 C OP	2.05
918512	AA1-065 E OP	5.87
918531	AA1-067 C	0.35
918532	AA1-067 E	0.86
918561	AA1-072 C	0.06
918562	AA1-072 E	0.17
919691	AA2-053 C	1.07
919692	AA2-053 E	2.67
919701	AA2-057 C	4.9
919702	AA2-057 E	2.45
920591	AA2-165 C	0.11

Bus #	Bus	MW Impact
920592	AA2-165 E	0.32
920671	AA2-174 C	0.05
920672	AA2-174 E	0.31
920691	AA2-178 C	5.06
920692	AA2-178 E	12.59
923941	AB2-035 C	0.29
923942	AB2-035 E	0.12
924152	AB2-059 E O1	3.53
924391	AB2-088 C	0.37
924392	AB2-088 E	0.18
924491	AB2-098 C	0.67
924492	AB2-098 E	0.29
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
925121	AB2-169 C	2.1
925122	AB2-169 E	10.97
925291	AB2-188 C O1	7.24
925292	AB2-188 E O1	3.25
925591	AC1-034 C	4.44
925592	AC1-034 E	3.35
926071	AC1-086 C	13.64
926072	AC1-086 E	6.21
926201	AC1-098 C	4.9
926202	AC1-098 E	2.92
926211	AC1-099 C	1.64
926212	AC1-099 E	0.96
927021	AC1-189 C	9.24
927022	AC1-189 E	4.6
927141	AC1-208 C	6.37
927142	AC1-208 E	2.83
930402	AB1-081 E O1	2.49
930861	AB1-132 C O1	1.59
930862	AB1-132 E O1	3.97
932631	AC2-084 C	6.99
932632	AC2-084 E	3.44
933991	AD1-023 C	28.94
933992	AD1-023 E	15.76
934331	AD1-057 C O1	6.61
934332	AD1-057 E O1	3.53
934521	AD1-076 C	136.52
934522	AD1-076 E	69.51
936401	AD2-051 C O1	9.77
936402	AD2-051 E O1	4.19
936531	AD2-068 C	4.42
936532	AD2-068 E	2.28
936701	AD2-089 C	6.19
936702	AD2-089 E	4.13
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	56.72
938172	AE1-026 C2 O	8.21
938173	AE1-026 E O1	17.13

Bus #	Bus	MW Impact
938221	AE1-035 C	2.98
938222	AE1-035 E	1.47
AA2-074	AA2-074	1.8
CARR	CARR	0.13
CBM-S1	CBM-S1	3.91
CBM-S2	CBM-S2	4.65
CBM-W1	CBM-W1	3.99
CBM-W2	CBM-W2	25.75
CIN	CIN	1.79
CPLE	CPLE	2.65
G-007	G-007	0.48
IPL	IPL	1.12
LGEE	LGEE	0.52
MEC	MEC	3.98
MECS	MECS	1.73
O-066	O-066	1.58
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.48

Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40219	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	115.33	120.33	DC	18.71

Bus #	Bus	MW Impact
314589	3MURPHYS	0.06
314704	3LAWRENC	0.18
315115	1S HAMPT1	0.76
315126	1ROARAP2	1.14
315128	1ROARAP4	1.1
315131	1EDGECEMA	24.76
315132	1EDGECEMB	24.76
315136	1ROSEMG1	2.97
315137	1ROSEMS1	1.84
315138	1ROSEMG2	1.39
315139	1GASTONA	3.56
315141	1GASTONB	3.56
315292	1DOMTR78	0.83
315293	1DOMTR9	0.67
315294	1DOMTR10	1.22
901081	W1-029 C	0.35
916041	Z1-036 C	0.41
917331	Z2-043 C	0.32
917341	Z2-044 C	0.29
917511	Z2-088 C OP1	2.06
918491	AA1-063AC OP	1.11
918511	AA1-065 C OP	1.02
918531	AA1-067 C	0.21
918561	AA1-072 C	0.05
919691	AA2-053 C	1.17
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.65
920591	AA2-165 C	0.19
920671	AA2-174 C	0.05
920691	AA2-178 C	0.77
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.17
923911	AB2-031 C O1	1.61
923941	AB2-035 C	0.66
923991	AB2-040 C O1	0.91
924151	AB2-059 C O1	2.91
924391	AB2-088 C	0.84
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4

Bus #	Bus	MW Impact
924511	AB2-100 C	8.4
925121	AB2-169 C	0.69
925171	AB2-174 C O1	4.94
925281	AB2-186 C	0.2
925291	AB2-188 C O1	1.1
925591	AC1-034 C	10.94
925781	AC1-054 C O1	2.84
926071	AC1-086 C	23.26
926201	AC1-098 C	5.92
926211	AC1-099 C	1.99
927021	AC1-189 C	9.73
927141	AC1-208 C	9.06
930401	AB1-081 C O1	2.47
930861	AB1-132 C O1	2.72
931231	AB1-173 C	0.28
931241	AB1-173AC	0.28
932631	AC2-084 C	8.45
933991	AD1-023 C	7.41
934201	AD1-047 C	5.78
934231	AD1-050 C	1.61
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.81
936401	AD2-051 C O1	6.15
936701	AD2-089 C	14.06
936711	AD2-090 C O1	3.7
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.34
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.49
BAYOU	BAYOU	2.02
BIG_CAJUN1	BIG_CAJUN1	3.18
BIG_CAJUN2	BIG_CAJUN2	6.4
BLUEG	BLUEG	5.85
CALDERWOOD	CALDERWOOD	1.19
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.16
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.11
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.16
COFFEEN	COFFEEN	0.68
COTTONWOOD	COTTONWOOD	7.9
DEARBORN	DEARBORN	0.74
DUCKCREEK	DUCKCREEK	1.4
EDWARDS	EDWARDS	0.62
ELMERSMITH	ELMERSMITH	0.7
FARMERCITY	FARMERCITY	0.49
G-007A	G-007A	0.68
GIBSON	GIBSON	0.25
HAMLET	HAMLET	4.6
NEWTON	NEWTON	1.77
NYISO	NYISO	0.58

Bus #	Bus	MW Impact
O-066A	O-066A	0.31
PRAIRIE	PRAIRIE	3.7
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.83
TILTON	TILTON	0.74
TRIMBLE	TRIMBLE	0.64
TVA	TVA	3.35
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	1.79

Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40323	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	104.6	108.85	DC	19.08

Bus #	Bus	MW Impact
314589	3MURPHYS	0.06
314704	3LAWRENC	0.18
315115	1S HAMPT1	0.78
315126	1ROARAP2	1.16
315128	1ROARAP4	1.12
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	3.03
315137	1ROSEMS1	1.88
315138	1ROSEMG2	1.42
315139	1GASTONA	3.63
315141	1GASTONB	3.63
315292	1DOMTR78	0.84
315293	1DOMTR9	0.69
315294	1DOMTR10	1.25
901081	W1-029 C	0.35
916041	Z1-036 C	0.42
917331	Z2-043 C	0.33
917341	Z2-044 C	0.29
917511	Z2-088 C OP1	2.11
918491	AA1-063AC OP	1.13
918511	AA1-065 C OP	1.04
918531	AA1-067 C	0.21
918561	AA1-072 C	0.05
919691	AA2-053 C	1.19
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.66
920591	AA2-165 C	0.19
920671	AA2-174 C	0.05
920691	AA2-178 C	0.78
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.18
923911	AB2-031 C O1	1.65
923941	AB2-035 C	0.67
923991	AB2-040 C O1	0.93
924151	AB2-059 C O1	2.96
924391	AB2-088 C	0.86
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41

Bus #	Bus	MW Impact
924511	AB2-100 C	8.57
925121	AB2-169 C	0.7
925171	AB2-174 C O1	5.04
925281	AB2-186 C	0.2
925291	AB2-188 C O1	1.12
925591	AC1-034 C	11.16
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.72
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	2.52
930861	AB1-132 C O1	2.77
931231	AB1-173 C	0.29
931241	AB1-173AC	0.29
932631	AC2-084 C	8.61
933991	AD1-023 C	7.56
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.21
934521	AD1-076 C	29.39
936401	AD2-051 C O1	6.27
936701	AD2-089 C	14.34
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.55
938171	AE1-026 C1 O	16.67
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.52
BAYOU	BAYOU	2.06
BIG_CAJUN1	BIG_CAJUN1	3.24
BIG_CAJUN2	BIG_CAJUN2	6.53
BLUEG	BLUEG	5.97
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.14
CHEOAH	CHEOAH	1.13
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.21
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	8.06
DEARBORN	DEARBORN	0.75
DUCKCREEK	DUCKCREEK	1.43
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5
G-007A	G-007A	0.69
GIBSON	GIBSON	0.26
HAMLET	HAMLET	4.69
NEWTON	NEWTON	1.81
NYISO	NYISO	0.59

Bus #	Bus	MW Impact
O-066A	O-066A	0.31
PRAIRIE	PRAIRIE	3.78
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.85
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.41
UNIONPOWER	UNIONPOWER	1.69
VFT	VFT	1.83

Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39786	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P4-2: 562T563	breaker	684.0	124.32	125.3	DC	14.77

Bus #	Bus	MW Impact
314541	3WATKINS	0.23
314554	3BTLEBRO	0.4
314557	3BETHEL	0.39
314572	3EMPORIA	0.33
314574	6EVERETS	1.77
314578	3HORNRTN	1.92
314582	3KELFORD	1.62
314603	3SCOT NK	1.61
314617	3TUNIS	0.36
314620	6CASHIE	0.31
314623	3WITAKRS	0.69
314704	3LAWRENC	0.24
315102	1BRUNSWICKG1	4.71
315103	1BRUNSWICKG2	4.71
315104	1BRUNSWICKG3	4.71
315105	1BRUNSWICKS1	9.79
315131	1EDGECEMA	4.73
315132	1EDGECEMB	4.73
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.92
315138	1ROSEMG2	0.7
315139	1GASTONA	2.15
315141	1GASTONB	2.15
315150	1BUGGS 1	5.14
315151	1BUGGS 2	5.14
900672	V4-068 E	0.13
916301	Z1-086 C	28.73
916302	Z1-086 E	5.22
917332	Z2-043 E	0.46
917342	Z2-044 E	0.3
917512	Z2-088 E OP1	1.76
918492	AA1-063AE OP	2.11
918512	AA1-065 E OP	1.81
918532	AA1-067 E	0.31
918562	AA1-072 E	0.08
919692	AA2-053 E	2.08
919701	AA2-057 C	3.67
919702	AA2-057 E	1.83
920042	AA2-088 E OP	4.28
920592	AA2-165 E	0.24

Bus #	Bus	MW Impact
920672	AA2-174 E	0.24
923851	AB2-025 C	0.5
923852	AB2-025 E	1.3
923911	AB2-031 C O1	1.6
923912	AB2-031 E O1	0.79
923941	AB2-035 C	0.16
923942	AB2-035 E	0.07
923991	AB2-040 C O1	0.9
923992	AB2-040 E O1	4.29
924022	AB2-043 E O1	2.32
924152	AB2-059 E O1	2.75
924162	AB2-060 E O1	1.9
924302	AB2-077 E O1	0.6
924312	AB2-078 E O1	0.6
924322	AB2-079 E O1	0.6
924391	AB2-088 C	0.21
924392	AB2-088 E	0.1
924401	AB2-089 C	1.07
924402	AB2-089 E	0.55
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.26
924502	AB2-099 E	0.11
924511	AB2-100 C	10.63
924512	AB2-100 E	5.23
925122	AB2-169 E	2.2
925171	AB2-174 C O1	5.2
925172	AB2-174 E O1	4.71
925591	AC1-034 C	3.46
925592	AC1-034 E	2.61
925612	AC1-036 E	0.6
925781	AC1-054 C O1	3.69
925782	AC1-054 E O1	1.7
926071	AC1-086 C	14.06
926072	AC1-086 E	6.4
926201	AC1-098 C	3.12
926202	AC1-098 E	1.86
926211	AC1-099 C	1.04
926212	AC1-099 E	0.61
926271	AC1-105 C O1	2.36
926272	AC1-105 E O1	1.18
927021	AC1-189 C	3.85
927022	AC1-189 E	1.92
927141	AC1-208 C	4.79
927142	AC1-208 E	2.13
927251	AC1-221 C	0.93
927252	AC1-221 E	0.93
927261	AC1-222 C	1.47
927262	AC1-222 E	1.4
930402	AB1-081 E O1	1.94
930861	AB1-132 C O1	1.64
930862	AB1-132 E O1	4.09

Bus #	Bus	MW Impact
931231	AB1-173 C	0.28
931232	AB1-173 E	0.75
931241	AB1-173AC	0.28
931242	AB1-173AE	0.75
932631	AC2-084 C	4.44
932632	AC2-084 E	2.19
932761	AC2-100 C	2.14
932762	AC2-100 E	1.04
933991	AD1-023 C	4.64
933992	AD1-023 E	2.53
934201	AD1-047 C	5.72
934202	AD1-047 E	3.81
934231	AD1-050 C	2.36
934232	AD1-050 E	1.29
934311	AD1-055 C	1.02
934312	AD1-055 E	0.26
934331	AD1-057 C O1	5.86
934332	AD1-057 E O1	3.13
934341	AD1-058 C	2.33
934342	AD1-058 E	0.59
934521	AD1-076 C	18.16
934522	AD1-076 E	9.25
934611	AD1-087 C O1	3.67
934612	AD1-087 E O1	1.73
934621	AD1-088 C	4.84
934622	AD1-088 E	2.27
934991	AD1-131 C	0.76
934992	AD1-131 E	0.51
935171	AD1-152 C O1	3.65
935172	AD1-152 E O1	2.43
935212	AD1-156 E	0.63
936261	AD2-033 C	5.16
936262	AD2-033 E	3.44
936331	AD2-043 C	1.91
936332	AD2-043 E	2.27
936361	AD2-046 C O1	4.25
936362	AD2-046 E O1	1.95
936401	AD2-051 C O1	3.84
936402	AD2-051 E O1	1.65
936481	AD2-063 C O1	6.37
936482	AD2-063 E O1	4.25
936531	AD2-068 C	2.27
936532	AD2-068 E	1.17
936701	AD2-089 C	3.47
936702	AD2-089 E	2.31
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	1.01
937482	AD2-202 E O1	0.51
937571	AD2-169 C	6.85
937572	AD2-169 E	4.57
938171	AE1-026 C1 O	10.21

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.48
938173	AE1-026 E O1	3.08
938221	AE1-035 C	0.92
938222	AE1-035 E	0.45
938491	AE1-068 C O1	33.33
938492	AE1-068 E O1	18.41
938501	AE1-069 C O1	26.06
938502	AE1-069 E O1	14.9
AA2-074	AA2-074	2.63
CARR	CARR	0.31
CBM-S1	CBM-S1	6.67
CBM-S2	CBM-S2	7.56
CBM-W1	CBM-W1	6.65
CBM-W2	CBM-W2	43.74
CIN	CIN	3.01
CPL	CPL	3.87
G-007	G-007	1.05
IPL	IPL	1.89
LGEE	LGEE	0.87
MEC	MEC	6.71
MECS	MECS	2.79
O-066	O-066	3.49
RENSSELAER	RENSSELAER	0.24
WEC	WEC	0.81

Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39806	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P4-2: 562T563	breaker	684.0	121.31	122.29	DC	14.77

Bus #	Bus	MW Impact
314541	3WATKINS	0.23
314554	3BTLEBRO	0.4
314557	3BETHELC	0.39
314572	3EMPORIA	0.33
314574	6EVERETS	1.77
314578	3HORNRTN	1.92
314582	3KELFORD	1.62
314603	3SCOT NK	1.61
314617	3TUNIS	0.36
314620	6CASHIE	0.31
314623	3WITAKRS	0.69
314704	3LAWRENC	0.24
315102	1BRUNSWICKG1	4.71
315103	1BRUNSWICKG2	4.71
315104	1BRUNSWICKG3	4.71
315105	1BRUNSWICKS1	9.79
315131	1EDGECEMA	4.73
315132	1EDGECEMB	4.73
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.92
315138	1ROSEMG2	0.7
315139	1GASTONA	2.15
315141	1GASTONB	2.15
315150	1BUGGS 1	5.14
315151	1BUGGS 2	5.14
900672	V4-068 E	0.13
916301	Z1-086 C	28.73
916302	Z1-086 E	5.22
917332	Z2-043 E	0.46
917342	Z2-044 E	0.3
917512	Z2-088 E OP1	1.76
918492	AA1-063AE OP	2.11
918512	AA1-065 E OP	1.81
918532	AA1-067 E	0.31
918562	AA1-072 E	0.08
919692	AA2-053 E	2.08
919701	AA2-057 C	3.67
919702	AA2-057 E	1.83
920042	AA2-088 E OP	4.28
920592	AA2-165 E	0.24

Bus #	Bus	MW Impact
920672	AA2-174 E	0.24
923851	AB2-025 C	0.5
923852	AB2-025 E	1.3
923911	AB2-031 C O1	1.6
923912	AB2-031 E O1	0.79
923941	AB2-035 C	0.16
923942	AB2-035 E	0.07
923991	AB2-040 C O1	0.9
923992	AB2-040 E O1	4.29
924022	AB2-043 E O1	2.32
924152	AB2-059 E O1	2.75
924162	AB2-060 E O1	1.9
924302	AB2-077 E O1	0.6
924312	AB2-078 E O1	0.6
924322	AB2-079 E O1	0.6
924391	AB2-088 C	0.21
924392	AB2-088 E	0.1
924401	AB2-089 C	1.07
924402	AB2-089 E	0.55
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.26
924502	AB2-099 E	0.11
924511	AB2-100 C	10.63
924512	AB2-100 E	5.23
925122	AB2-169 E	2.2
925171	AB2-174 C O1	5.2
925172	AB2-174 E O1	4.71
925591	AC1-034 C	3.46
925592	AC1-034 E	2.61
925612	AC1-036 E	0.6
925781	AC1-054 C O1	3.69
925782	AC1-054 E O1	1.7
926071	AC1-086 C	14.06
926072	AC1-086 E	6.4
926201	AC1-098 C	3.12
926202	AC1-098 E	1.86
926211	AC1-099 C	1.04
926212	AC1-099 E	0.61
926271	AC1-105 C O1	2.36
926272	AC1-105 E O1	1.18
927021	AC1-189 C	3.85
927022	AC1-189 E	1.92
927141	AC1-208 C	4.79
927142	AC1-208 E	2.13
927251	AC1-221 C	0.93
927252	AC1-221 E	0.93
927261	AC1-222 C	1.47
927262	AC1-222 E	1.4
930402	AB1-081 E O1	1.94
930861	AB1-132 C O1	1.64
930862	AB1-132 E O1	4.09

Bus #	Bus	MW Impact
931231	AB1-173 C	0.28
931232	AB1-173 E	0.75
931241	AB1-173AC	0.28
931242	AB1-173AE	0.75
932631	AC2-084 C	4.44
932632	AC2-084 E	2.19
932761	AC2-100 C	2.14
932762	AC2-100 E	1.04
933991	AD1-023 C	4.64
933992	AD1-023 E	2.53
934201	AD1-047 C	5.72
934202	AD1-047 E	3.81
934231	AD1-050 C	2.36
934232	AD1-050 E	1.29
934311	AD1-055 C	1.02
934312	AD1-055 E	0.26
934331	AD1-057 C O1	5.86
934332	AD1-057 E O1	3.13
934341	AD1-058 C	2.33
934342	AD1-058 E	0.59
934521	AD1-076 C	18.16
934522	AD1-076 E	9.25
934611	AD1-087 C O1	3.67
934612	AD1-087 E O1	1.73
934621	AD1-088 C	4.84
934622	AD1-088 E	2.27
934991	AD1-131 C	0.76
934992	AD1-131 E	0.51
935171	AD1-152 C O1	3.65
935172	AD1-152 E O1	2.43
935212	AD1-156 E	0.63
936261	AD2-033 C	5.16
936262	AD2-033 E	3.44
936331	AD2-043 C	1.91
936332	AD2-043 E	2.27
936361	AD2-046 C O1	4.25
936362	AD2-046 E O1	1.95
936401	AD2-051 C O1	3.84
936402	AD2-051 E O1	1.65
936481	AD2-063 C O1	6.37
936482	AD2-063 E O1	4.25
936531	AD2-068 C	2.27
936532	AD2-068 E	1.17
936701	AD2-089 C	3.47
936702	AD2-089 E	2.31
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	1.01
937482	AD2-202 E O1	0.51
937571	AD2-169 C	6.85
937572	AD2-169 E	4.57
938171	AE1-026 C1 O	10.21

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.48
938173	AE1-026 E O1	3.08
938221	AE1-035 C	0.92
938222	AE1-035 E	0.45
938491	AE1-068 C O1	33.33
938492	AE1-068 E O1	18.41
938501	AE1-069 C O1	26.06
938502	AE1-069 E O1	14.9
AA2-074	AA2-074	2.63
CARR	CARR	0.31
CBM-S1	CBM-S1	6.67
CBM-S2	CBM-S2	7.56
CBM-W1	CBM-W1	6.65
CBM-W2	CBM-W2	43.74
CIN	CIN	3.01
CPL	CPL	3.87
G-007	G-007	1.05
IPL	IPL	1.89
LGEE	LGEE	0.87
MEC	MEC	6.71
MECS	MECS	2.79
O-066	O-066	3.49
RENSSELAER	RENSSELAER	0.24
WEC	WEC	0.81

Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40105	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	138.54	139.75	DC	11.71

Bus #	Bus	MW Impact
314314	3LOCKS	0.19
315065	1CHESTF6	29.64
315074	1HOPCGN1	6.05
315075	1HOPCGN2	5.97
315076	1HOPPOLC	1.19
315077	1HOPHCF1	1.87
315078	1HOPHCF2	1.87
315079	1HOPHCF3	1.87
315080	1HOPHCF4	2.83
315116	1SURRY 1	11.5
315117	1GRAVELC	0.4
315119	1GRAVEL3	1.17
315120	1GRAVEL4	1.18
315121	1GRAVEL5	1.17
315122	1GRAVEL6	1.18
315136	1ROSEMG1	1.01
315137	1ROSEMS1	0.63
315138	1ROSEMG2	0.47
315139	1GASTONA	1.45
315141	1GASTONB	1.45
919701	AA2-057 C	2.66
923801	AB2-015 C O1	3.38
923851	AB2-025 C	0.28
923911	AB2-031 C O1	1.04
923991	AB2-040 C O1	0.59
924501	AB2-099 C	0.23
924511	AB2-100 C	6.45
924811	AB2-134 C O1	1.25
925051	AB2-160 C O1	3.51
925061	AB2-161 C O1	1.97
925171	AB2-174 C O1	3.34
925281	AB2-186 C	0.21
925291	AB2-188 C O1	0.84
925331	AB2-190 C	11.74
925821	AC1-061	0.0
926071	AC1-086 C	9.48
926201	AC1-098 C	2.36
926211	AC1-099 C	0.79
927141	AC1-208 C	3.5
927221	AC1-216 C O1	5.53

Bus #	Bus	MW Impact
930861	AB1-132 C O1	1.11
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932041	AC2-012 C	3.41
932581	AC2-078 C O1	3.0
932591	AC2-079 C O1	2.78
932631	AC2-084 C	3.37
933991	AD1-023 C	4.77
934011	AD1-025 C	9.51
934201	AD1-047 C	3.73
934331	AD1-057 C O1	4.04
934521	AD1-076 C	19.56
934571	AD1-082 C	4.48
935161	AD1-151 C O1	9.44
935211	AD1-156 C	0.35
936041	AD2-007	1.01
936051	AD2-008 C	1.66
936401	AD2-051 C O1	3.34
936661	AD2-085 C	1.69
936711	AD2-090 C O1	2.84
937541	AD2-215 C	0.6
937571	AD2-169 C	4.54
938171	AE1-026 C1 O	10.23
938172	AE1-026 C2 O	1.48
938221	AE1-035 C	0.84
938461	AE1-065 C O1	9.39
938471	AE1-066 C O1	9.65
938481	AE1-067 C O1	8.77
938491	AE1-068 C O1	20.17
938501	AE1-069 C O1	15.77
AA2-074	AA2-074	1.69
CARR	CARR	0.32
CBM-S1	CBM-S1	3.59
CBM-S2	CBM-S2	4.7
CBM-W1	CBM-W1	2.8
CBM-W2	CBM-W2	22.8
CIN	CIN	1.32
CPL	CPL	2.48
IPL	IPL	0.82
LGEE	LGEE	0.38
MEC	MEC	3.19
MECS	MECS	0.85
RENSSELAER	RENSSELAER	0.25
WEC	WEC	0.35

Index 18

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40216	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	133.48	134.5	DC	9.96

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40211	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	137.1	138.12	DC	9.96

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 20

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40296	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	118.36	119.38	DC	9.96

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39965	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 246T247	breaker	830.0	102.13	104.39	DC	41.45

Bus #	Bus	MW Impact
314541	3WATKINS	0.45
314554	3BTLEBRO	0.92
314557	3BETHEL	0.93
314566	3CRESWEL	1.73
314572	3EMPORIA	1.04
314574	6EVERETS	4.59
314578	3HORNRTN	5.39
314582	3KELFORD	4.54
314594	6PLYMOTH	0.72
314603	3SCOT NK	4.36
314617	3TUNIS	0.99
314620	6CASHIE	0.86
314623	3WITAKRS	1.64
314704	3LAWRENC	0.72
315131	1EDGECEMA	10.97
315132	1EDGECEMB	10.97
315136	1ROSEMG1	4.49
315137	1ROSEMS1	2.78
315138	1ROSEMG2	2.1
315139	1GASTONA	6.64
315141	1GASTONB	6.64
315150	1BUGGS 1	8.75
315151	1BUGGS 2	8.75
900672	V4-068 E	0.33
917332	Z2-043 E	1.29
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.39
918492	AA1-063AE OP	6.04
918512	AA1-065 E OP	5.47
918532	AA1-067 E	0.81
918562	AA1-072 E	0.22
919692	AA2-053 E	5.92
919701	AA2-057 C	9.07
919702	AA2-057 E	4.54
920042	AA2-088 E OP	10.18
920592	AA2-165 E	0.6
920672	AA2-174 E	0.68
920692	AA2-178 E	2.97
923851	AB2-025 C	1.77
923852	AB2-025 E	4.63

Bus #	Bus	MW Impact
923911	AB2-031 C O1	4.9
923912	AB2-031 E O1	2.41
923941	AB2-035 C	0.39
923942	AB2-035 E	0.17
923991	AB2-040 C O1	2.77
923992	AB2-040 E O1	13.15
924022	AB2-043 E O1	4.39
924152	AB2-059 E O1	6.3
924162	AB2-060 E O1	3.57
924302	AB2-077 E O1	1.12
924312	AB2-078 E O1	1.12
924322	AB2-079 E O1	1.12
924391	AB2-088 C	0.5
924392	AB2-088 E	0.24
924401	AB2-089 C	2.31
924402	AB2-089 E	1.19
924491	AB2-098 C	0.63
924492	AB2-098 E	0.27
924501	AB2-099 C	0.72
924502	AB2-099 E	0.31
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	5.72
925171	AB2-174 C O1	16.14
925172	AB2-174 E O1	14.6
925291	AB2-188 C O1	1.71
925292	AB2-188 E O1	0.77
925591	AC1-034 C	7.93
925592	AC1-034 E	5.98
925612	AC1-036 E	1.02
925781	AC1-054 C O1	8.29
925782	AC1-054 E O1	3.82
926071	AC1-086 C	43.37
926072	AC1-086 E	19.74
926201	AC1-098 C	8.26
926202	AC1-098 E	4.92
926211	AC1-099 C	2.77
926212	AC1-099 E	1.63
927021	AC1-189 C	9.71
927022	AC1-189 E	4.84
927141	AC1-208 C	12.61
927142	AC1-208 E	5.6
930402	AB1-081 E O1	4.45
930861	AB1-132 C O1	5.07
930862	AB1-132 E O1	12.62
931231	AB1-173 C	0.85
931232	AB1-173 E	2.3
931241	AB1-173AC	0.85
931242	AB1-173AE	2.3
932631	AC2-084 C	11.78
932632	AC2-084 E	5.8
933991	AD1-023 C	12.73

Bus #	Bus	MW Impact
933992	AD1-023 E	6.93
934201	AD1-047 C	17.54
934202	AD1-047 E	11.69
934231	AD1-050 C	5.1
934232	AD1-050 E	2.78
934331	AD1-057 C O1	15.91
934332	AD1-057 E O1	8.49
934521	AD1-076 C	47.62
934522	AD1-076 E	24.25
936261	AD2-033 C	9.03
936262	AD2-033 E	6.02
936361	AD2-046 C O1	8.41
936362	AD2-046 E O1	3.87
936401	AD2-051 C O1	11.13
936402	AD2-051 E O1	4.78
936481	AD2-063 C O1	11.63
936482	AD2-063 E O1	7.76
936531	AD2-068 C	4.73
936532	AD2-068 E	2.44
936701	AD2-089 C	8.36
936702	AD2-089 E	5.57
936711	AD2-090 C O1	5.49
936712	AD2-090 E O1	3.66
937571	AD2-169 C	20.69
937572	AD2-169 E	13.79
938171	AE1-026 C1 O	28.65
938172	AE1-026 C2 O	4.14
938173	AE1-026 E O1	8.65
938221	AE1-035 C	2.78
938222	AE1-035 E	1.37
AA2-074	AA2-074	2.6
CARR	CARR	0.24
CBM-S1	CBM-S1	5.83
CBM-S2	CBM-S2	6.86
CBM-W1	CBM-W1	5.92
CBM-W2	CBM-W2	38.39
CIN	CIN	2.67
CPL	CPL	3.82
G-007	G-007	0.82
IPL	IPL	1.68
LGEE	LGEE	0.77
MEC	MEC	5.92
MECS	MECS	2.53
O-066	O-066	2.74
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.71

Index 22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40674	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	275.79	280.04	DC	15.32

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHELC	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.88
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECEMA	13.53
315132	1EDGECEMB	13.53
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315139	1GASTONA	2.2
315141	1GASTONB	2.2
900672	V4-068 E	0.15
917331	Z2-043 C	0.33
917332	Z2-043 E	0.82
917341	Z2-044 C	0.5
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	1.17
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.92
918532	AA1-067 E	0.31
918561	AA1-072 C	0.05
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.33
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.31
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2

Bus #	Bus	MW Impact
923912	AB2-031 E O1	0.59
923941	AB2-035 C	0.36
923942	AB2-035 E	0.16
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	4.08
924152	AB2-059 E O1	12.22
924391	AB2-088 C	0.47
924392	AB2-088 E	0.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.32
924512	AB2-100 E	2.62
925122	AB2-169 E	2.22
925171	AB2-174 C O1	3.61
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.35
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.66
926212	AC1-099 E	1.57
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.52
927142	AC1-208 E	5.56
930401	AB1-081 C O1	3.46
930402	AB1-081 E O1	8.63
930861	AB1-132 C O1	1.68
930862	AB1-132 E O1	4.18
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.34
932632	AC2-084 E	5.58
933991	AD1-023 C	4.79
933992	AD1-023 E	2.61
934201	AD1-047 C	4.3
934202	AD1-047 E	2.87
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.97
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.84
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.59

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O1	3.2
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
AC1-133	AC1-133	9.48
BAYOU	BAYOU	1.36
BIG_CAJUN1	BIG_CAJUN1	2.15
BIG_CAJUN2	BIG_CAJUN2	4.33
BLUEG	BLUEG	3.95
CALDERWOOD	CALDERWOOD	0.81
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.79
CBM-N	CBM-N	0.08
CHEOAH	CHEOAH	0.75
CHILHOWEE	CHILHOWEE	0.26
CHOCTAW	CHOCTAW	1.46
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	5.34
DEARBORN	DEARBORN	0.5
DUCKCREEK	DUCKCREEK	0.95
EDWARDS	EDWARDS	0.42
ELMERSMITH	ELMERSMITH	0.47
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.41
GIBSON	GIBSON	0.17
HAMLET	HAMLET	3.15
NEWTON	NEWTON	1.2
NYISO	NYISO	0.33
O-066A	O-066A	0.19
PRAIRIE	PRAIRIE	2.5
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.56
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.43
TVA	TVA	2.26
UNIONPOWER	UNIONPOWER	1.12
VFT	VFT	1.08

Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39735	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	144.76	147.54	DC	10.96

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314572	3EMPORIA	0.18
314578	3HORNRTN	2.81
314582	3KELFORD	9.44
314589	3MURPHYS	0.17
314603	3SCOT NK	6.48
314617	3TUNIS	2.15
314623	3WITAKRS	0.69
315115	1S HAMPT1	1.23
315126	1ROARAP2	1.16
315128	1ROARAP4	1.12
900672	V4-068 E	0.55
907092	X1-038 E	3.65
917331	Z2-043 C	1.08
917332	Z2-043 E	2.68
917342	Z2-044 E	0.3
918491	AA1-063AC OP	2.71
918492	AA1-063AE OP	7.42
918561	AA1-072 C	0.16
918562	AA1-072 E	0.45
919691	AA2-053 C	2.09
919692	AA2-053 E	5.21
919701	AA2-057 C	5.23
919702	AA2-057 E	2.61
920041	AA2-088 C OP	1.22
920042	AA2-088 E OP	11.54
920591	AA2-165 C	0.12
920592	AA2-165 E	0.34
920671	AA2-174 C	0.1
920672	AA2-174 E	0.6
923801	AB2-015 C O1	6.0
923802	AB2-015 E O1	4.92
923911	AB2-031 C O1	1.29
923912	AB2-031 E O1	0.63
923992	AB2-040 E O1	3.46
924401	AB2-089 C	0.89
924402	AB2-089 E	0.46
924501	AB2-099 C	1.76
924502	AB2-099 E	0.76

Bus #	Bus	MW Impact
925171	AB2-174 C O1	3.68
925172	AB2-174 E O1	3.33
925781	AC1-054 C O1	3.34
925782	AC1-054 E O1	1.54
926201	AC1-098 C	9.29
926202	AC1-098 E	5.53
926211	AC1-099 C	3.11
926212	AC1-099 E	1.83
927141	AC1-208 C	9.21
927142	AC1-208 E	4.09
931232	AB1-173 E	0.61
931242	AB1-173AE	0.61
932631	AC2-084 C	13.24
932632	AC2-084 E	6.52
934201	AD1-047 C	4.61
934202	AD1-047 E	3.07
934231	AD1-050 C	1.97
934232	AD1-050 E	1.08
936401	AD2-051 C O1	29.7
936402	AD2-051 E O1	12.75
936711	AD2-090 C O1	6.31
936712	AD2-090 E O1	4.2
937571	AD2-169 C	6.32
937572	AD2-169 E	4.21
938174	AE1-026 CBAT	1.16
938175	AE1-026 EBAT	4.65
CARR	CARR	0.02
CBM-S1	CBM-S1	0.07
CBM-S2	CBM-S2	0.03
CBM-W1	CBM-W1	0.03
CBM-W2	CBM-W2	0.38
CIN	CIN	0.02
DEARBORN	DEARBORN	0.0
G-007	G-007	0.07
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
O-066	O-066	0.25
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.0

Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39853	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	123.45	125.37	DC	7.57

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314578	3HORNRTN	2.4
314582	3KELFORD	9.59
314589	3MURPHYS	0.17
314603	3SCOT NK	6.48
314617	3TUNIS	2.18
314623	3WITAKRS	0.63
315115	1S HAMPT1	1.21
315126	1ROARAP2	0.97
315128	1ROARAP4	0.93
900672	V4-068 E	0.55
907092	X1-038 E	3.64
917331	Z2-043 C	1.09
917332	Z2-043 E	2.73
917342	Z2-044 E	0.27
918491	AA1-063AC OP	2.64
918492	AA1-063AE OP	7.23
918561	AA1-072 C	0.16
918562	AA1-072 E	0.45
919691	AA2-053 C	1.96
919692	AA2-053 E	4.89
919701	AA2-057 C	4.87
919702	AA2-057 E	2.43
920041	AA2-088 C OP	1.19
920042	AA2-088 E OP	11.24
920591	AA2-165 C	0.11
920592	AA2-165 E	0.32
920671	AA2-174 C	0.09
920672	AA2-174 E	0.57
923801	AB2-015 C O1	5.93
923802	AB2-015 E O1	4.86
923911	AB2-031 C O1	0.99
923912	AB2-031 E O1	0.49
923992	AB2-040 E O1	2.66
924501	AB2-099 C	1.8
924502	AB2-099 E	0.77
925171	AB2-174 C O1	2.75
925172	AB2-174 E O1	2.49
925781	AC1-054 C O1	2.75

Bus #	Bus	MW Impact
925782	AC1-054 E O1	1.27
926201	AC1-098 C	9.13
926202	AC1-098 E	5.44
926211	AC1-099 C	3.06
926212	AC1-099 E	1.8
927141	AC1-208 C	8.65
927142	AC1-208 E	3.84
931232	AB1-173 E	0.47
931242	AB1-173AE	0.47
932631	AC2-084 C	13.01
932632	AC2-084 E	6.41
934201	AD1-047 C	3.55
934202	AD1-047 E	2.37
936401	AD2-051 C O1	30.42
936402	AD2-051 E O1	13.06
936711	AD2-090 C O1	6.19
936712	AD2-090 E O1	4.12
937571	AD2-169 C	4.99
937572	AD2-169 E	3.33
938174	AE1-026 CBAT	0.8
938175	AE1-026 EBAT	3.21
CARR	CARR	0.02
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.02
CBM-W2	CBM-W2	0.19
CIN	CIN	0.0
DEARBORN	DEARBORN	0.01
G-007	G-007	0.06
IPL	IPL	0.0
LGEE	LGEE	0.0
MEC	MEC	0.02
O-066	O-066	0.2
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.0

Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40111	314569	GEARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	113.3	125.03	DC	67.03

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
916041	Z1-036 C	2.32
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.98
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	2.11

Bus #	Bus	MW Impact
925171	AB2-174 C O1	5.2
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.72
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.54
CIN	CIN	2.78
CPL	CPL	4.0
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40122	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.86	118.59	DC	67.03

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
916041	Z1-036 C	2.32
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.98
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	2.11

Bus #	Bus	MW Impact
925171	AB2-174 C O1	5.2
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.72
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.54
CIN	CIN	2.78
CPL	CPL	4.0
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39732	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	136.76	147.62	DC	71.47

Bus #	Bus	MW Impact
314557	3BETHEL C	0.6
314566	3CRESWEL	6.39
314574	6EVERETS	4.25
314582	3KELFORD	3.05
314594	6PLYMOTH	1.92
314603	3SCOT NK	2.52
314617	3TUNIS	0.64
314620	6CASHIE	1.49
314638	6ELIZ CT	1.01
314639	6TANGLEW	1.78
314651	6WINFALL	6.71
315292	1DOMTR78	2.78
315293	1DOMTR9	2.27
315294	1DOMTR10	4.11
901081	W1-029 C	4.51
901082	W1-029 E	175.16
913392	Y1-086 E	9.58
916041	Z1-036 C	4.05
916042	Z1-036 E	157.46
917122	Z2-027 E	4.42
917331	Z2-043 C	0.35
917332	Z2-043 E	0.87
917511	Z2-088 C OP1	1.38
917512	Z2-088 E OP1	3.44
918491	AA1-063AC OP	1.03
918492	AA1-063AE OP	2.82
918511	AA1-065 C OP	1.79
918512	AA1-065 E OP	5.12
918531	AA1-067 C	0.3
918532	AA1-067 E	0.75
918561	AA1-072 C	0.05
918562	AA1-072 E	0.14
919691	AA2-053 C	0.94
919692	AA2-053 E	2.34
920671	AA2-174 C	0.04
920672	AA2-174 E	0.27
920691	AA2-178 C	4.4
920692	AA2-178 E	10.96
923831	AB2-022 C	1.73
923832	AB2-022 E	5.41

Bus #	Bus	MW Impact
923941	AB2-035 C	0.25
923942	AB2-035 E	0.11
924391	AB2-088 C	0.32
924392	AB2-088 E	0.16
924491	AB2-098 C	0.58
924492	AB2-098 E	0.25
924501	AB2-099 C	0.51
924502	AB2-099 E	0.22
925121	AB2-169 C	1.83
925122	AB2-169 E	9.56
925281	AB2-186 C	2.25
925282	AB2-186 E	0.96
925291	AB2-188 C O1	6.3
925292	AB2-188 E O1	2.83
926201	AC1-098 C	4.29
926202	AC1-098 E	2.55
926211	AC1-099 C	1.44
926212	AC1-099 E	0.84
927021	AC1-189 C	8.05
927022	AC1-189 E	4.01
927141	AC1-208 C	5.57
927142	AC1-208 E	2.47
932631	AC2-084 C	6.11
932632	AC2-084 E	3.01
933991	AD1-023 C	25.21
933992	AD1-023 E	13.72
934521	AD1-076 C	118.86
934522	AD1-076 E	60.52
936401	AD2-051 C O1	8.54
936402	AD2-051 E O1	3.67
936531	AD2-068 C	3.85
936532	AD2-068 E	1.98
936701	AD2-089 C	5.39
936702	AD2-089 E	3.59
938171	AE1-026 C1 O	49.41
938172	AE1-026 C2 O	7.15
938173	AE1-026 E O1	14.92
938221	AE1-035 C	2.6
938222	AE1-035 E	1.28
AA2-074	AA2-074	1.56
CARR	CARR	0.13
CBM-S1	CBM-S1	3.3
CBM-S2	CBM-S2	4.0
CBM-W1	CBM-W1	3.29
CBM-W2	CBM-W2	21.67
CIN	CIN	1.48
CPL	CPL	2.29
G-007	G-007	0.45
IPL	IPL	0.93
LGEE	LGEE	0.43
MEC	MEC	3.32
MECS	MECS	1.39

Bus #	Bus	MW Impact
O-066	O-066	1.49
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.4

Index 28

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39914	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	102.58	111.73	DC	82.06

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.52
314557	3BETHEL	0.69
314566	3CRESWEL	7.34
314574	6EVERETS	4.87
314578	3HORNRTN	2.04
314582	3KELFORD	3.49
314594	6PLYMOTH	2.21
314603	3SCOT NK	2.88
314617	3TUNIS	0.73
314620	6CASHIE	1.71
314623	3WITAKRS	0.9
315131	1EDGECEMA	6.16
315132	1EDGECEMB	6.16
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.93
315139	1GASTONA	2.09
315141	1GASTONB	2.09
315292	1DOMTR78	3.19
315293	1DOMTR9	2.61
315294	1DOMTR10	4.73
900672	V4-068 E	0.19
916041	Z1-036 C	4.65
916042	Z1-036 E	180.94
917331	Z2-043 C	0.4
917332	Z2-043 E	0.99
917342	Z2-044 E	0.39
917511	Z2-088 C OP1	1.58
917512	Z2-088 E OP1	3.94
918491	AA1-063AC OP	1.18
918492	AA1-063AE OP	3.22
918511	AA1-065 C OP	2.05
918512	AA1-065 E OP	5.87
918531	AA1-067 C	0.35
918532	AA1-067 E	0.86
918561	AA1-072 C	0.06
918562	AA1-072 E	0.17
919691	AA2-053 C	1.07
919692	AA2-053 E	2.67
919701	AA2-057 C	4.9
919702	AA2-057 E	2.45
920591	AA2-165 C	0.11

Bus #	Bus	MW Impact
920592	AA2-165 E	0.32
920671	AA2-174 C	0.05
920672	AA2-174 E	0.31
920691	AA2-178 C	5.06
920692	AA2-178 E	12.59
923941	AB2-035 C	0.29
923942	AB2-035 E	0.12
924152	AB2-059 E O1	3.53
924391	AB2-088 C	0.37
924392	AB2-088 E	0.18
924491	AB2-098 C	0.67
924492	AB2-098 E	0.29
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
925121	AB2-169 C	2.1
925122	AB2-169 E	10.97
925281	AB2-186 C	2.58
925282	AB2-186 E	1.11
925291	AB2-188 C O1	7.24
925292	AB2-188 E O1	3.25
925591	AC1-034 C	4.44
925592	AC1-034 E	3.35
926071	AC1-086 C	13.64
926072	AC1-086 E	6.21
926201	AC1-098 C	4.9
926202	AC1-098 E	2.92
926211	AC1-099 C	1.64
926212	AC1-099 E	0.96
927021	AC1-189 C	9.24
927022	AC1-189 E	4.6
927141	AC1-208 C	6.37
927142	AC1-208 E	2.83
930402	AB1-081 E O1	2.49
930861	AB1-132 C O1	1.59
930862	AB1-132 E O1	3.97
932631	AC2-084 C	6.99
932632	AC2-084 E	3.44
933991	AD1-023 C	28.94
933992	AD1-023 E	15.76
934331	AD1-057 C O1	6.61
934332	AD1-057 E O1	3.53
934521	AD1-076 C	136.52
934522	AD1-076 E	69.51
936401	AD2-051 C O1	9.77
936402	AD2-051 E O1	4.19
936531	AD2-068 C	4.42
936532	AD2-068 E	2.28
936701	AD2-089 C	6.19
936702	AD2-089 E	4.13
938171	AE1-026 C1 O	56.72
938172	AE1-026 C2 O	8.21
938173	AE1-026 E O1	17.13

Bus #	Bus	MW Impact
938221	AE1-035 C	2.98
938222	AE1-035 E	1.47
AA2-074	AA2-074	1.8
CARR	CARR	0.13
CBM-S1	CBM-S1	3.91
CBM-S2	CBM-S2	4.65
CBM-W1	CBM-W1	3.99
CBM-W2	CBM-W2	25.75
CIN	CIN	1.79
CPLE	CPLE	2.65
G-007	G-007	0.48
IPL	IPL	1.12
LGEE	LGEE	0.52
MEC	MEC	3.98
MECS	MECS	1.73
O-066	O-066	1.58
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.48

Index 29

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40240	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	118.4	119.03	DC	32.97

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHEST	0.22
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.4
315038	1LDYSMT2	5.39
315039	1LDYSMT3	5.71
315040	1LDYSMT4	5.72
315041	1LDYSMT5	5.74
315043	1FOUR RIVERA	4.28
315044	1FOUR RIVERB	3.32
315045	1FOUR RIVERC	4.28
315046	1FOUR RIVERD	3.32
315047	1FOUR RIVERE	3.32
315048	1FOUR RIVERF	4.28
315053	1BELMED1	19.56
315054	1BELMED2	19.56
315055	1BELMED3	16.23
315058	1CHESTF3	20.52
315059	1CHESTF4	33.27
315067	1DARBY 1	3.07
315068	1DARBY 2	3.07
315069	1DARBY 3	3.08
315070	1DARBY 4	3.08
315074	1HOPCGN1	9.41
315075	1HOPCGN2	9.29
315083	1SPRUNCA	11.98
315084	1SPRUNCB	11.98
315085	1SPRUNCC	8.88
315086	1SPRUNCD	8.88
315090	1YORKTN1	31.94
315091	1YORKTN2	33.14
315225	1N ANNA1	43.91
315226	1N ANNA2	44.01
919211	AA1-145	12.38
923801	AB2-015 C O1	9.1
923911	AB2-031 C O1	2.25
924061	AB2-050	0.73
924241	AB2-068 O1	227.05
924501	AB2-099 C	0.6
924511	AB2-100 C	11.86

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.11
925061	AB2-161 C O1	3.72
925171	AB2-174 C O1	7.09
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.56
925861	AC1-065 C	3.77
926001	AC1-076 C	4.94
926071	AC1-086 C	20.72
926291	AC1-107 O1	342.72
926411	AC1-112 C	0.39
926551	AC1-134	1.82
926731	AC1-158 C	93.45
926751	AC1-161 C O1	33.58
926781	AC1-164 C	45.66
927041	AC1-191 C O1	10.8
927221	AC1-216 C O1	11.02
930121	AB1-027 C	0.51
932041	AC2-012 C	11.24
932501	AC2-070 C	0.33
932581	AC2-078 C O1	4.51
932591	AC2-079 C O1	6.29
932831	AC2-110 C	1.51
933011	AC2-125	3.09
933021	AC2-126	3.11
933031	AC2-127	1.7
933041	AC2-128	1.64
933051	AC2-129	1.54
933061	AC2-130	2.72
933071	AC2-131 1	1.84
933081	AC2-131 2	0.84
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.41
933291	AC2-141 C	33.58
933501	AC2-165 C	9.63
933991	AD1-023 C	13.56
934011	AD1-025 C	18.95
934061	AD1-033 C	8.25
934141	AD1-041 C	5.93
934201	AD1-047 C	8.07
934211	AD1-048 C	0.48
934521	AD1-076 C	56.45
934541	AD1-078 C	3.05
934571	AD1-082 C	8.48
934781	AD1-105 C	7.81
935161	AD1-151 C O1	18.13
936041	AD2-007	2.01
936051	AD2-008 C	3.3
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51

Bus #	Bus	MW Impact
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.86
936581	AD2-073 C	2.23
936591	AD2-074 C	5.95
936661	AD2-085 C	3.77
936711	AD2-090 C O1	7.52
937221	AD2-160 C O1	6.4
937251	AD2-164	5.35
937541	AD2-215 C	1.92
937571	AD2-169 C	10.04
938031	AE1-004 C	1.51
938081	AE1-010	6.85
938171	AE1-026 C1 O	28.81
938172	AE1-026 C2 O	4.17
938181	AE1-027 C	2.57
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O1	31.26
938471	AE1-066 C O1	32.13
938481	AE1-067 C O1	29.22
938491	AE1-068 C O1	60.04
938501	AE1-069 C O1	47.05
938531	AE1-072 C O1	19.15
938551	AE1-074 C	2.75
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.47
CARR	CARR	1.66
CBM-S1	CBM-S1	12.82
CBM-S2	CBM-S2	15.15
CBM-W1	CBM-W1	9.54
CBM-W2	CBM-W2	80.27
CIN	CIN	4.81
CPL	CPL	7.65
IPL	IPL	2.97
LGEE	LGEE	1.44
MEC	MEC	11.26
MECS	MECS	2.34
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.23

Index 30

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
40076	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	149.07	150.09	DC	53.99

Bus #	Bus	MW Impact
314229	6MT RD221	0.24
314236	6NRTHST	0.37
314309	6IRON208	0.87
315053	1BELMED1	31.59
315054	1BELMED2	31.59
315055	1BELMED3	26.22
315058	1CHESTF3	33.56
315059	1CHESTF4	54.4
315060	1CHESTF5	19.83
315061	1CHESTG7	7.77
315062	1CHESTS7	3.53
315063	1CHESTG8	7.62
315064	1CHESTS8	3.93
315067	1DARBY 1	5.07
315068	1DARBY 2	5.08
315069	1DARBY 3	5.09
315070	1DARBY 4	5.1
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.12
315084	1SPRUNCB	19.12
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.35
315091	1YORKTN2	55.36
315092	1YORKTN3	45.59
315233	1SURREY 2	49.51
923801	AB2-015 C O1	14.88
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.75
924501	AB2-099 C	0.97
924511	AB2-100 C	19.07
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.43
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.17
925861	AC1-065 C	6.04
926071	AC1-086 C	33.58

Bus #	Bus	MW Impact
926291	AC1-107 O1	647.17
926411	AC1-112 C	0.66
926751	AC1-161 C O1	55.63
926781	AC1-164 C	77.8
927041	AC1-191 C O1	17.07
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.85
932041	AC2-012 C	18.51
932501	AC2-070 C	0.56
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.42
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.69
933291	AC2-141 C	55.63
933991	AD1-023 C	22.21
934011	AD1-025 C	31.22
934061	AD1-033 C	13.58
934141	AD1-041 C	9.42
934201	AD1-047 C	13.02
934211	AD1-048 C	0.79
934521	AD1-076 C	92.52
934571	AD1-082 C	13.84
935161	AD1-151 C O1	29.87
936041	AD2-007	3.31
936051	AD2-008 C	5.44
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.42
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.46
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.54
937251	AD2-164	8.91
937541	AD2-215 C	3.16
937571	AD2-169 C	16.22
938031	AE1-004 C	2.42
938171	AE1-026 C1 O	47.17
938172	AE1-026 C2 O	6.82
938181	AE1-027 C	4.23
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O1	51.48
938471	AE1-066 C O1	52.9
938481	AE1-067 C O1	48.11
938491	AE1-068 C O1	93.35
938501	AE1-069 C O1	73.22

Bus #	Bus	MW Impact
938531	AE1-072 C O1	31.51
938551	AE1-074 C	4.29
AA2-074	AA2-074	8.69
AB2-013	AB2-013	8.01
AE1-033	AE1-033	8.34
AE1-042	AE1-042	17.0
CARR	CARR	2.56
CBM-S1	CBM-S1	27.03
CBM-S2	CBM-S2	26.21
CBM-W1	CBM-W1	28.48
CBM-W2	CBM-W2	177.58
CIN	CIN	13.28
CPLE	CPLE	12.77
IPL	IPL	8.37
LGEE	LGEE	3.91
MEC	MEC	28.22
MECS	MECS	11.98
RENSSELAER	RENSSELAER	2.02
WEC	WEC	3.49
Z1-043	Z1-043	13.73

Index 31

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
40334	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	107.86	108.43	DC	33.46

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHST	0.23
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.54
315038	1LDYSMT2	5.53
315039	1LDYSMT3	5.86
315040	1LDYSMT4	5.87
315041	1LDYSMT5	5.89
315043	1FOUR RIVERA	4.37
315044	1FOUR RIVERB	3.38
315045	1FOUR RIVERC	4.37
315046	1FOUR RIVERD	3.38
315047	1FOUR RIVERE	3.38
315048	1FOUR RIVERF	4.37
315053	1BELMED1	19.89
315054	1BELMED2	19.89
315055	1BELMED3	16.51
315058	1CHESTF3	20.88
315059	1CHESTF4	33.85
315067	1DARBY 1	3.12
315068	1DARBY 2	3.12
315069	1DARBY 3	3.13
315070	1DARBY 4	3.14
315074	1HOPCGN1	9.57
315075	1HOPCGN2	9.45
315083	1SPRUNCA	12.17
315084	1SPRUNCB	12.17
315085	1SPRUNCC	9.02
315086	1SPRUNCD	9.02
315090	1YORKTN1	32.48
315091	1YORKTN2	33.71
315225	1N ANNA1	44.6
315226	1N ANNA2	44.7
919211	AA1-145	12.63
923801	AB2-015 C O1	9.24
923911	AB2-031 C O1	2.28
924061	AB2-050	0.74
924241	AB2-068 O1	231.33
924501	AB2-099 C	0.6
924511	AB2-100 C	12.03

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.21
925061	AB2-161 C O1	3.78
925171	AB2-174 C O1	7.19
925281	AB2-186 C	0.67
925291	AB2-188 C O1	2.52
925331	AB2-190 C	22.94
925861	AC1-065 C	3.84
926071	AC1-086 C	21.01
926291	AC1-107 O1	349.18
926411	AC1-112 C	0.4
926551	AC1-134	1.86
926751	AC1-161 C O1	34.13
926781	AC1-164 C	46.49
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.21
930121	AB1-027 C	0.51
932041	AC2-012 C	11.42
932501	AC2-070 C	0.34
932581	AC2-078 C O1	4.59
932591	AC2-079 C O1	6.39
932831	AC2-110 C	1.54
933011	AC2-125	3.17
933021	AC2-126	3.19
933031	AC2-127	1.75
933041	AC2-128	1.68
933051	AC2-129	1.58
933061	AC2-130	2.76
933071	AC2-131 1	1.87
933081	AC2-131 2	0.85
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933261	AC2-137 C	0.41
933291	AC2-141 C	34.13
933501	AC2-165 C	9.61
933991	AD1-023 C	13.76
934011	AD1-025 C	19.27
934061	AD1-033 C	8.38
934141	AD1-041 C	6.04
934201	AD1-047 C	8.18
934211	AD1-048 C	0.48
934521	AD1-076 C	57.29
934571	AD1-082 C	8.62
934781	AD1-105 C	7.98
935161	AD1-151 C O1	18.43
936041	AD2-007	2.05
936051	AD2-008 C	3.35
936151	AD2-021	0.27
936241	AD2-030 C	2.62
936301	AD2-039 C	1.54
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.98

Bus #	Bus	MW Impact
936581	AD2-073 C	2.28
936591	AD2-074 C	6.07
936661	AD2-085 C	3.83
936711	AD2-090 C O1	7.63
937221	AD2-160 C O1	6.51
937251	AD2-164	5.44
937541	AD2-215 C	1.95
937571	AD2-169 C	10.18
938031	AE1-004 C	1.54
938081	AE1-010	3.16
938171	AE1-026 C1 O	29.23
938172	AE1-026 C2 O	4.23
938181	AE1-027 C	2.61
938191	AE1-028 C	1.51
938221	AE1-035 C	2.31
938461	AE1-065 C O1	31.77
938471	AE1-066 C O1	32.65
938481	AE1-067 C O1	29.69
938491	AE1-068 C O1	60.89
938501	AE1-069 C O1	47.72
938531	AE1-072 C O1	19.46
938551	AE1-074 C	2.8
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.26
AE1-042	AE1-042	8.49
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.28
CBM-W1	CBM-W1	9.43
CBM-W2	CBM-W2	80.22
CIN	CIN	4.76
CPL	CPL	7.73
IPL	IPL	2.94
LGEE	LGEE	1.43
MEC	MEC	11.2
MECS	MECS	2.25
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.22

Index 32

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
40100	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	119.71	120.63	DC	49.65

Bus #	Bus	MW Impact
314507	3THOMPSN	0.56
315053	1BELMED1	25.08
315054	1BELMED2	25.08
315055	1BELMED3	20.82
315058	1CHESTF3	25.15
315059	1CHESTF4	40.77
315074	1HOPCGN1	12.13
315075	1HOPCGN2	11.97
315083	1SPRUNCA	16.05
315084	1SPRUNCB	16.05
315085	1SPRUNCC	11.9
315086	1SPRUNCD	11.9
315090	1YORKTN1	42.52
315091	1YORKTN2	44.13
315098	1CHESPKA	0.74
315099	1CHESPKB	1.84
315102	1BRUNSWICKG1	14.58
315103	1BRUNSWICKG2	14.58
315104	1BRUNSWICKG3	14.58
315105	1BRUNSWICKS1	30.29
315108	1ELIZAR1	5.42
315109	1ELIZAR2	5.33
315110	1ELIZAR3	5.49
315131	1EDGECEMA	13.55
315132	1EDGECEMB	13.55
315150	1BUGGS 1	15.65
315151	1BUGGS 2	15.65
315260	1GOSPORTA	0.59
315261	1GOSPORTB	0.75
315262	1GOSPORTC	0.64
916191	Z1-068 C	0.07
916301	Z1-086 C	88.72
919151	AA1-139 C	4.13
919701	AA2-057 C	10.54
923801	AB2-015 C O1	13.51
923911	AB2-031 C O1	3.44
923941	AB2-035 C	0.5
924241	AB2-068 O1	245.85
924391	AB2-088 C	0.64
924401	AB2-089 C	3.07

Bus #	Bus	MW Impact
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	18.02
925051	AB2-160 C O1	8.21
925061	AB2-161 C O1	5.31
925171	AB2-174 C O1	10.82
925281	AB2-186 C	0.97
925291	AB2-188 C O1	3.71
925331	AB2-190 C	30.04
925521	AC1-027 C	0.55
925591	AC1-034 C	9.98
925781	AC1-054 C O1	10.43
925861	AC1-065 C	4.35
926071	AC1-086 C	31.67
926201	AC1-098 C	9.26
926211	AC1-099 C	3.1
926291	AC1-107 O1	371.09
926661	AC1-147 C	0.62
926751	AC1-161 C O1	49.19
926761	AC1-162 C	38.62
926781	AC1-164 C	52.76
927021	AC1-189 C	12.99
927141	AC1-208 C	13.56
927221	AC1-216 C O1	14.75
932041	AC2-012 C	16.39
932581	AC2-078 C O1	6.33
932591	AC2-079 C O1	9.07
932631	AC2-084 C	13.2
932831	AC2-110 C	1.74
933061	AC2-130	3.31
933071	AC2-131 1	2.24
933081	AC2-131 2	1.02
933111	AC2-132 1	1.18
933121	AC2-132 2	0.6
933291	AC2-141 C	49.19
933501	AC2-165 C	14.56
933731	AC2-196 C	0.5
933991	AD1-023 C	20.39
934011	AD1-025 C	25.36
934061	AD1-033 C	12.09
934141	AD1-041 C	6.82
934201	AD1-047 C	12.32
934231	AD1-050 C	6.76
934331	AD1-057 C O1	14.92
934521	AD1-076 C	84.71
934571	AD1-082 C	12.11
934611	AD1-087 C O1	12.18
934621	AD1-088 C	18.68
935161	AD1-151 C O1	24.14
935171	AD1-152 C O1	12.1
936041	AD2-007	2.69
936051	AD2-008 C	4.41

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936241	AD2-030 C	2.95
936301	AD2-039 C	1.74
936361	AD2-046 C O1	12.52
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.43
936481	AD2-063 C O1	20.3
936531	AD2-068 C	7.6
936661	AD2-085 C	5.44
936701	AD2-089 C	10.72
936711	AD2-090 C O1	11.22
937221	AD2-160 C O1	9.39
937251	AD2-164	7.18
937481	AD2-202 C O1	3.35
937541	AD2-215 C	2.76
937571	AD2-169 C	15.33
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.37
938172	AE1-026 C2 O	6.27
938181	AE1-027 C	3.76
938191	AE1-028 C	2.18
938221	AE1-035 C	3.45
938461	AE1-065 C O1	45.7
938471	AE1-066 C O1	46.97
938481	AE1-067 C O1	42.71
938491	AE1-068 C O1	102.76
938501	AE1-069 C O1	80.47
938531	AE1-072 C O1	28.13
938551	AE1-074 C	4.01
938561	AE1-075 C	3.3
AA2-074	AA2-074	8.52
AB2-013	AB2-013	6.49
AE1-033	AE1-033	6.77
AE1-042	AE1-042	15.06
CARR	CARR	2.04
CBM-S1	CBM-S1	23.47
CBM-S2	CBM-S2	25.07
CBM-W1	CBM-W1	22.93
CBM-W2	CBM-W2	152.8
CIN	CIN	10.7
CPL	CPL	12.52
IPL	IPL	6.71
LGEE	LGEE	3.14
MEC	MEC	23.48
MECS	MECS	9.09
RENSSELAER	RENSSELAER	1.62
WEC	WEC	2.82
Z1-043	Z1-043	11.11

Index 33

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
40133	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.84	118.57	DC	67.03

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
916041	Z1-036 C	2.32
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.98
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	2.11

Bus #	Bus	MW Impact
925171	AB2-174 C O1	5.2
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.72
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.54
CIN	CIN	2.78
CPL	CPL	4.0
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 34

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
40158	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	126.12	133.88	DC	29.11

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
315115	1S HAMPT1	0.72
315126	1ROARAP2	1.4
315128	1ROARAP4	1.34
315131	1EDGECEMA	10.43
315132	1EDGECEMB	10.43
315136	1ROSEMG1	4.62
315137	1ROSEMS1	2.87
315138	1ROSEMG2	2.17
315139	1GASTONA	6.88
315141	1GASTONB	6.88
315159	1KERR 2	0.49
315163	1KERR 6	0.48
315164	1KERR 7	0.48
315292	1DOMTR78	1.18
315293	1DOMTR9	0.96
315294	1DOMTR10	1.74
916041	Z1-036 C	0.38
917331	Z2-043 C	0.42
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	1.63
918491	AA1-063AC OP	1.48
918511	AA1-065 C OP	1.75
918531	AA1-067 C	0.3
918561	AA1-072 C	0.06
919691	AA2-053 C	1.5
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.71
920591	AA2-165 C	0.17
920671	AA2-174 C	0.07
920691	AA2-178 C	0.98
923801	AB2-015 C O1	3.46
923941	AB2-035 C	0.37
924151	AB2-059 C O1	1.92
924391	AB2-088 C	0.47
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
924511	AB2-100 C	42.5
925121	AB2-169 C	0.98

Bus #	Bus	MW Impact
925291	AB2-188 C O1	1.4
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13
927021	AC1-189 C	8.97
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.63
930861	AB1-132 C O1	5.25
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.01
936401	AD2-051 C O1	9.32
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.68
938171	AE1-026 C1 O	25.43
938172	AE1-026 C2 O	3.68
938221	AE1-035 C	2.54
AA2-074	AA2-074	2.19
CARR	CARR	0.18
CBM-S1	CBM-S1	4.77
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.79
CBM-W2	CBM-W2	31.36
CIN	CIN	2.16
CPLE	CPLE	3.22
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.81
MECS	MECS	2.04
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

Affected Systems

LG&E

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

MISO

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

TVA

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

Duke Energy Progress

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

NYISO

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

Contingency Definitions –Option 1

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURREY 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 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: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END
DVP_P1-2: LN 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 568	CONTINGENCY 'DVP_P1-2: LN 568' OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: WT2171	CONTINGENCY 'DVP_P4-2: WT2171' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END
DVP_P4-2: 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_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_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

Contingency Name	Contingency Definition
DVP_P4-2: 201262	CONTINGENCY 'DVP_P4-2: 201262' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2020	CONTINGENCY 'DVP_P1-2: LN 2020' OPEN BRANCH FROM BUS 313851 TO BUS 314638 CKT 1 /* 6ECITYDP2 230.00 - 6ELIZ CT 230.00 OPEN BRANCH FROM BUS 313851 TO BUS 314639 CKT 1 /* 6ECITYDP2 230.00 - 6TANGLEW 230.00 OPEN BRANCH FROM BUS 314639 TO BUS 314651 CKT 1 /* 6TANGLEW 230.00 - 6WINFALL 230.00 OPEN BUS 313851 /* ISLAND: 6ECITYDP2 230.00 OPEN BUS 314639 /* ISLAND: 6TANGLEW 230.00 OPEN BUS 917122 /* ISLAND: Z2-027 E 230.00 END
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_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P4-2: H1T581	CONTINGENCY 'DVP_P4-2: H1T581' /* LADYSMITH 500 KV 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 OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END
DVP_P1-3: 6EARLEYS-TX#4	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#4' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 247	CONTINGENCY 'DVP_P1-2: LN 247' OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END
DVP_P1-2: LN 1029-B	CONTINGENCY 'DVP_P1-2: LN 1029-B' OPEN BRANCH FROM BUS 925170 TO BUS 314615 CKT 1 /* AB2-174 TAP 115.00 - 3TREGOTP 115.00 END
DVP_P4-2: 24642	CONTINGENCY 'DVP_P4-2: 24642' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
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_P4-2: 246T247	CONTINGENCY 'DVP_P4-2: 246T247' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END

Contingency Name	Contingency Definition
DVP_P7-1: LN 198-581	CONTINGENCY 'DVP_P7-1: LN 198-581' OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00 OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00 OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00 OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00 OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00 OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00 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: 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_P1-3: 6EARLEYS-TX#3	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#3' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: 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
AEP_P4_#11111_05J.FERR 765_B1	CONTINGENCY 'AEP_P4_#11111_05J.FERR 765_B1' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242514 TO BUS 242684 CKT 2 / 242514 05J.FERR 765 242684 05J.FERR 138 2 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
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

Contingency Name	Contingency Definition
AEP_P1-2_#1377	CONTINGENCY 'AEP_P1-2_#1377' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
DVP_P1-2: LN 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 238	CONTINGENCY 'DVP_P1-2: LN 238' OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 314563 CKT 1 /* 6SAPONY 230.00 - 6CLUBHSE 230.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 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_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	
DVP_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 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: 217162	CONTINGENCY 'DVP_P4-2: 217162' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 230.00 END
DVP_P4-2: 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
AEP_P4_#11112_05J.FERR 765_A1	CONTINGENCY 'AEP_P4_#11112_05J.FERR 765_A1' OPEN BRANCH FROM BUS 242511 TO BUS 242514 CKT 1 / 242511 05BROADF 765 242514 05J.FERR 765 1 OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 OPEN BRANCH FROM BUS 242566 TO BUS 242567 CKT ZB / 242566 05BROADF 138 242567 05BROADX 138 ZB END

Contingency Name	Contingency Definition
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

Short Circuit – Option 1

Short Circuit

The following Breakers are overduty:

None

Network Impacts – Option 2

The Queue Project AE1-024 / AE1-025 / AE1-026 was evaluated as a 240 MW (Capacity 189.9 MW) injection tapping the Cashie to Trowbridge 230 kV line in the Dominion area. Project AE1-024 / AE1-025 / AE1-026 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-024 / AE1-025 / AE1-026 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow – Option 2

Generation Deliverability

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
40343	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	90.91	92.08	DC	11.46
40450	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2092	single	598.78	99.0	103.93	DC	29.51
40398	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2092	single	449.32	98.02	107.25	DC	41.44
40399	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2131	single	449.32	97.72	106.94	DC	41.45
40338	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	single	346.86	99.04	104.91	DC	20.36
40298	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	single	571.52	72.13	100.13	DC	160.01
40439	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	90.29	90.97	DC	48.45
40356	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	95.16	95.84	DC	36.36
40603	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	97.77	98.3	DC	37.09
40605	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 568	single	3218.56	94.35	94.83	DC	34.39
40535	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	99.94	100.47	DC	36.73
40536	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	single	3218.56	98.3	98.78	DC	34.19
40417	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 2092	single	478.0	96.22	104.88	DC	41.44
40418	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	single	478.0	96.1	104.57	DC	40.5
40261	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	DVP_P1-2: LN 2092	single	571.52	74.62	102.61	DC	160.01
40263	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	DVP_P1-2: LN 2131	single	571.52	73.48	101.48	DC	160.03

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
40089	314614	3TRWBRDG2	DVP	314596	3POPLR C	DVP	1	DVP_P4-2: 203462	breaker	329.0	87.23	107.65	DC	67.17
40033	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 246T2034	breaker	897.0	99.52	117.33	DC	159.81
39978	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	100.0	100.75	DC	65.27
39979	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	93.51	94.23	DC	62.79
40107	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	92.46	92.95	DC	41.52
40108	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: H1T581	breaker	3938.0	92.83	93.37	DC	46.48
40091	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: H1T568	breaker	3938.0	95.19	95.7	DC	43.5
40921	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	97.76	98.3	DC	46.27

Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
41240	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11112_05J.FE RR 765_A1	breaker	402.0	143.76	145.16	DC	12.48
41241	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11111_05J.FE RR 765_B1	breaker	402.0	141.36	142.81	DC	12.98
41640	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P1-2_#1377	single	402.0	121.2	122.36	DC	10.27
40023	313714	6PERQUIMAN S	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 246T2034	breaker	897.0	100.89	118.7	DC	159.81
40024	313714	6PERQUIMAN S	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 24642	breaker	897.0	104.42	113.62	DC	82.52
40382	313845	6HATHAWAY	DVP	304222	6ROCKYMT230 T	CPL	1	DVP_P1-2: LN 2181	single	374.0	115.43	120.42	DC	18.67
40488	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	104.66	108.9	DC	19.04
40340	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	144.9	145.92	DC	9.97
39927	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P4-2: 562T563	breaker	684.0	124.37	125.35	DC	14.75
40613	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	103.81	104.77	DC	11.84

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	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
39947	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P4-2: 562T563	breaker	684.0	121.35	122.32	DC	14.75
40633	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	100.11	101.07	DC	11.84
40243	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	138.58	139.8	DC	11.71
40379	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	133.5	134.51	DC	9.97
40368	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	137.12	138.14	DC	9.97
40462	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	118.4	119.42	DC	9.97
40102	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 246T247	breaker	830.0	102.06	104.32	DC	41.31
40103	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 24642	breaker	830.0	101.28	103.38	DC	38.53
40840	314554	3BTLEBRO	DVP	304223	3ROCKYMT115 T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	275.89	280.13	DC	15.29
40449	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	single	598.78	101.97	107.04	DC	30.35
39866	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	144.76	147.53	DC	10.92
39867	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: WT2171	breaker	208.0	123.26	125.17	DC	7.54
39994	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	123.45	125.36	DC	7.54
40249	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	113.2	124.92	DC	67.0
40250	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	112.46	124.19	DC	67.01
39904	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P4-2: 2020T2144	breaker	485.0	130.36	141.17	DC	52.43
40861	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	145.16	154.74	DC	46.5
40276	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.78	118.5	DC	67.0
40277	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	106.03	117.75	DC	67.01
39870	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 246T247	breaker	427.0	142.05	146.24	DC	39.44
40333	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	114.69	122.43	DC	29.0
40334	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	114.36	120.27	DC	22.14
39894	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P4-2: 203462	breaker	239.0	117.7	145.8	DC	67.17
39861	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	136.73	147.65	DC	71.87
40034	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	102.56	111.76	DC	82.52
39958	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	118.01	118.92	DC	63.01
39959	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	114.79	115.65	DC	59.66
40351	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	117.39	118.27	DC	47.2
40352	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	117.42	118.3	DC	47.35
40058	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	101.64	102.21	DC	41.8
40059	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	101.12	101.69	DC	41.67
40406	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	118.42	119.05	DC	32.98
40407	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	113.05	113.67	DC	32.36

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
39889	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	129.62	130.55	DC	68.26
39890	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	129.62	130.55	DC	68.26
40212	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	149.09	150.11	DC	54.01
40215	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	135.36	136.23	DC	45.97
40043	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	105.29	105.86	DC	42.08
40044	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	102.32	102.91	DC	42.51
40045	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	102.32	102.91	DC	42.51
40499	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	107.88	108.45	DC	33.47
40500	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	105.91	106.46	DC	32.23
39911	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	117.65	118.28	DC	68.09
40237	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	119.74	120.67	DC	49.66
40241	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	110.77	111.65	DC	47.31
40287	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.76	118.49	DC	67.0
40288	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	106.01	117.73	DC	67.01
40312	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	126.03	133.76	DC	29.0
40313	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	124.92	130.82	DC	22.14
40316	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	single	346.86	110.95	116.82	DC	20.36
40856	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	153.34	163.07	DC	46.5

Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41639	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P1-2_#1377	operation	402.0	141.33	142.79	DC	12.98

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
40360	313713	6SWAMP	DVP	313721	6ACORN HILL	DVP	1	DVP_P1-2: LN 2020	operation	449.32	153.44	165.33	DC	53.42
40473	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P1-2: LN 246	operation	733.2	127.51	138.8	DC	82.82
40477	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	Base Case	operation	733.2	97.74	106.92	DC	67.28
40357	313721	6ACORN HILL	DVP	314648	6SUNBURY	DVP	1	DVP_P1-2: LN 2020	operation	449.32	153.44	165.33	DC	53.42
40381	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	operation	374.0	152.5	155.36	DC	23.59
40485	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	136.13	138.56	DC	24.07
40672	313885	6WALBMRL	DVP	313714	6PERQUIMANS	DVP	1	DVP_P1-2: LN 246	operation	733.2	99.23	110.53	DC	82.86
40637	314203	6MACKEYS	DVP	314637	6EDENTON	DVP	1	DVP_P1-2: LN 246	operation	731.32	103.56	114.89	DC	82.86
40339	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	146.48	147.78	DC	12.6
40612	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	operation	559.3	114.56	115.77	DC	14.96
40632	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	operation	559.3	110.86	112.07	DC	14.96
40242	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	168.12	169.64	DC	14.8
40765	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	91.77	92.49	DC	15.37
40378	314296	6PENNYMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	135.08	136.37	DC	12.6
40367	314386	6KINGS M	DVP	314296	6PENNYMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	138.7	139.99	DC	12.6
40461	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	119.98	121.27	DC	12.6
40589	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2092	operation	678.68	123.21	125.7	DC	37.28
40594	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operation	678.68	104.49	106.27	DC	26.62
40443	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	operation	598.78	142.11	145.01	DC	38.35
40448	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	120.29	122.31	DC	26.64
40441	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P1-3: 6EARLEYS-TX#4	operation	175.78	144.31	146.57	DC	7.54
40442	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P1-3: 6EARLEYS-TX#3	operation	175.78	144.08	146.34	DC	7.54
40244	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	170.19	185.0	DC	84.67
40252	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operation	571.52	107.53	117.23	DC	55.45
40392	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2092	operation	449.32	140.35	152.01	DC	52.37
40397	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	116.27	125.12	DC	39.73
40271	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	163.77	178.58	DC	84.67
40279	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operation	571.52	101.11	110.81	DC	55.45
40780	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238	operation	441.8	98.96	100.63	DC	16.18
40327	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 2092	operation	375.06	157.19	166.68	DC	35.63

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
40332	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	operation	346.86	130.02	133.39	DC	25.73
40451	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 2056-A	operation	375.06	140.6	144.42	DC	14.33
40575	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	operation	470.0	124.72	127.04	DC	24.07
40387	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P1-2: LN 2034-C	operation	224.66	125.19	155.1	DC	67.2
40608	314614	3TRWBRDG2	DVP	314596	3POPLR C	DVP	1	DVP_P1-2: LN 2034-C	operation	285.76	100.42	123.93	DC	67.2
40526	314616	6TRWBRDG	DVP	933990	AD1-023 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	129.3	132.61	DC	18.89
40782	314616	6TRWBRDG	DVP	314594	6PLYMOTH	DVP	1	DVP_P1-2: LN 246	operation	789.6	89.64	100.14	DC	82.93
40293	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	operation	571.52	144.27	179.65	DC	202.22
40675	314637	6EDENTON	DVP	313885	6WALBMRL	DVP	1	DVP_P1-2: LN 246	operation	733.2	99.23	110.53	DC	82.86
40478	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P1-2: LN 247	operation	571.52	128.75	138.87	DC	57.83
40482	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	Base Case	operation	530.16	101.81	109.17	DC	39.02
40364	314648	6SUNBURY	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2020	operation	449.32	151.13	163.02	DC	53.42
40610	314651	6WINFALL	DVP	313713	6SWAMP	DVP	1	DVP_P1-2: LN 2020	operation	449.32	109.22	121.12	DC	53.47
40512	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P1-2: LN 246	operation	733.2	125.23	136.53	DC	82.82
40516	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	Base Case	operation	733.2	94.51	103.69	DC	67.28
40434	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	112.49	113.35	DC	61.24
40345	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	146.03	147.15	DC	59.65
40350	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	117.12	117.97	DC	45.96
40403	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	138.48	139.27	DC	41.68
40209	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	177.72	178.99	DC	68.26
40496	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	124.9	125.62	DC	42.3
40234	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	153.89	154.9	DC	62.76
40240	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	95.12	95.99	DC	47.0
40598	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	113.49	114.16	DC	46.87
40606	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	89.49	90.0	DC	35.35
40709	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	97.45	97.93	DC	32.96
40692	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	74.76	75.76	DC	54.38
40529	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	operation	3218.56	116.2	116.81	DC	43.21
40534	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	93.78	94.28	DC	35.08
40282	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	163.75	178.57	DC	84.67
40290	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	101.08	110.78	DC	55.45
40307	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	operation	375.06	170.24	174.67	DC	36.65
40311	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	operation	346.86	145.31	148.68	DC	25.73

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
40422	933990	AD1-023 TAP	DVP	938170	AE1-026 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	146.37	149.67	DC	18.89
40411	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	operation	478.0	138.02	148.73	DC	51.18
40416	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	Base Case	operation	478.0	113.53	121.84	DC	39.73
40256	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	DVP_P1-2: LN 2092	operation	571.52	146.02	181.4	DC	202.22
40262	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	Base Case	operation	571.52	74.38	100.78	DC	150.82

Flow Gate Details – Option 2

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

Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40340	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	144.9	145.92	DC	9.97

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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
40449	314563	6CLUBHSE	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 246	single	598.78	101.97	107.04	DC	30.35

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.72
315126	1ROARAP2	2.35
315128	1ROARAP4	2.26
315131	1EDGECEMA	10.76
315132	1EDGECEMB	10.76
315136	1ROSEMG1	4.44
315137	1ROSEMS1	2.75
315138	1ROSEMG2	2.08
315139	1GASTONA	6.57
315141	1GASTONB	6.57
315150	1BUGGS 1	8.66
315151	1BUGGS 2	8.66
315159	1KERR 2	1.4
315160	1KERR 3	1.38
315161	1KERR 4	1.38
315162	1KERR 5	1.38
315163	1KERR 6	1.38
315164	1KERR 7	1.38
917331	Z2-043 C	0.5
917341	Z2-044 C	0.28
917511	Z2-088 C OP1	1.71
918491	AA1-063AC OP	2.16
918511	AA1-065 C OP	1.84
918531	AA1-067 C	0.31
918561	AA1-072 C	0.08
919691	AA2-053 C	2.34
919701	AA2-057 C	8.91
920041	AA2-088 C OP	1.07
920591	AA2-165 C	0.21
920671	AA2-174 C	0.11
923801	AB2-015 C O1	5.17
923911	AB2-031 C O1	4.86
923941	AB2-035 C	0.38
923991	AB2-040 C O1	2.75
924151	AB2-059 C O1	2.07
924391	AB2-088 C	0.49
924401	AB2-089 C	2.29
924491	AB2-098 C	0.61
924501	AB2-099 C	0.7

Bus #	Bus	MW Impact
924511	AB2-100 C	35.71
925171	AB2-174 C O1	16.03
925291	AB2-188 C O1	1.45
925591	AC1-034 C	7.77
925781	AC1-054 C O1	8.2
926071	AC1-086 C	42.9
926201	AC1-098 C	8.09
926211	AC1-099 C	2.71
927021	AC1-189 C	9.39
927141	AC1-208 C	12.39
930401	AB1-081 C O1	1.75
930861	AB1-132 C O1	5.01
931231	AB1-173 C	0.84
931241	AB1-173AC	0.84
932631	AC2-084 C	11.54
933991	AD1-023 C	11.69
934201	AD1-047 C	17.41
934231	AD1-050 C	5.04
934331	AD1-057 C O1	15.69
934521	AD1-076 C	42.7
936261	AD2-033 C	8.95
936361	AD2-046 C O1	8.32
936401	AD2-051 C O1	10.8
936481	AD2-063 C O1	11.54
936531	AD2-068 C	4.58
936701	AD2-089 C	8.14
936711	AD2-090 C O1	5.48
937571	AD2-169 C	20.52
938171	AE1-026 C1 O	26.51
938172	AE1-026 C2 O	3.84
938221	AE1-035 C	2.67
AA2-074	AA2-074	2.53
CARR	CARR	0.23
CBM-S1	CBM-S1	5.72
CBM-S2	CBM-S2	6.7
CBM-W1	CBM-W1	5.82
CBM-W2	CBM-W2	37.66
CIN	CIN	2.63
CPLE	CPLE	3.73
IPL	IPL	1.65
LGEE	LGEE	0.76
MEC	MEC	5.82
MECS	MECS	2.5
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.7

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
40861	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	145.16	154.74	DC	46.5

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.07
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.78
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECEMA	8.55
315132	1EDGECEMB	8.55
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315292	1DOMTR78	1.86
315293	1DOMTR9	1.52
315294	1DOMTR10	2.75
900672	V4-068 E	0.24
901082	W1-029 E	24.71
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.86
917122	Z2-027 E	0.52
917331	Z2-043 C	0.38
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	2.58
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	1.2
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.93
918512	AA1-065 E OP	5.52

Bus #	Bus	MW Impact
918531	AA1-067 C	0.58
918532	AA1-067 E	1.45
918561	AA1-072 C	0.06
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.12
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.8
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.53
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.71
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	3.39
924152	AB2-059 E O1	3.09
924391	AB2-088 C	0.57
924392	AB2-088 E	0.28
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.1
924512	AB2-100 E	3.0
925121	AB2-169 C	1.68
925122	AB2-169 E	8.75
925171	AB2-174 C O1	3.83
925172	AB2-174 E O1	3.46
925281	AB2-186 C	0.37
925282	AB2-186 E	0.16
925291	AB2-188 C O1	2.2
925292	AB2-188 E O1	0.99
925591	AC1-034 C	3.89
925592	AC1-034 E	2.93
926071	AC1-086 C	15.86
926072	AC1-086 E	7.22
926201	AC1-098 C	4.52
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.23
927022	AC1-189 E	7.58
927141	AC1-208 C	5.87
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59

Bus #	Bus	MW Impact
931242	AB1-173AE	0.59
932631	AC2-084 C	6.44
932632	AC2-084 E	3.17
933991	AD1-023 C	14.77
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.51
934332	AD1-057 E O1	4.54
934521	AD1-076 C	58.83
934522	AD1-076 E	29.96
936401	AD2-051 C O1	9.45
936402	AD2-051 E O1	4.06
936701	AD2-089 C	9.54
936702	AD2-089 E	6.36
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.84
937571	AD2-169 C	5.83
937572	AD2-169 E	3.89
938171	AE1-026 C1 O	32.14
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O2	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
AC1-133	AC1-133	24.59
BAYOU	BAYOU	2.84
BIG_CAJUN1	BIG_CAJUN1	4.49
BIG_CAJUN2	BIG_CAJUN2	9.03
BLUEG	BLUEG	7.76
CALDERWOOD	CALDERWOOD	1.66
CANNELTON	CANNELTON	0.53
CATAWBA	CATAWBA	1.62
CBM-N	CBM-N	0.22
CHEOAH	CHEOAH	1.55
CHILHOWEE	CHILHOWEE	0.54
CHOCTAW	CHOCTAW	3.06
COFFEEN	COFFEEN	0.92
COTTONWOOD	COTTONWOOD	11.11
DEARBORN	DEARBORN	0.96
DUCKCREEK	DUCKCREEK	1.88
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.03
GIBSON	GIBSON	0.34
HAMLET	HAMLET	6.97
NEWTON	NEWTON	2.39
NYISO	NYISO	0.94
O-066A	O-066A	0.47
PRAIRIE	PRAIRIE	5.05
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.45

Bus #	Bus	MW Impact
TATANKA	TATANKA	1.13
TILTON	TILTON	0.98
TRIMBLE	TRIMBLE	0.85
TVA	TVA	4.68
UNIONPOWER	UNIONPOWER	2.32
VFT	VFT	2.72

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
39870	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 246T247	breaker	427.0	142.05	146.24	DC	39.44

Bus #	Bus	MW Impact
314541	3WATKINS	0.3
314554	3BTLEBRO	0.85
314557	3BETHEL	0.89
314566	3CRESWEL	1.67
314574	6EVERETS	4.37
314578	3HORNRTN	3.34
314582	3KELFORD	3.8
314594	6PLYMOTH	0.69
314603	3SCOT NK	3.52
314617	3TUNIS	0.79
314620	6CASHIE	0.82
314623	3WITAKRS	1.43
315131	1EDGECEMA	10.63
315132	1EDGECEMB	10.63
315136	1ROSEMG1	4.67
315137	1ROSEMS1	2.9
315138	1ROSEMG2	2.19
315139	1GASTONA	6.95
315141	1GASTONB	6.95
900672	V4-068 E	0.24
916042	Z1-036 E	21.06
917331	Z2-043 C	0.43
917332	Z2-043 E	1.08
917341	Z2-044 C	0.25
917342	Z2-044 E	0.61
917511	Z2-088 C OP1	1.69
917512	Z2-088 E OP1	4.2
918491	AA1-063AC OP	1.52
918492	AA1-063AE OP	4.16
918511	AA1-065 C OP	1.82
918512	AA1-065 E OP	5.2
918531	AA1-067 C	0.31
918532	AA1-067 E	0.77
918561	AA1-072 C	0.07
918562	AA1-072 E	0.18
919691	AA2-053 C	1.53
919692	AA2-053 E	3.83
919701	AA2-057 C	7.49
919702	AA2-057 E	3.75
920042	AA2-088 E OP	6.85

Bus #	Bus	MW Impact
920591	AA2-165 C	0.18
920592	AA2-165 E	0.49
920671	AA2-174 C	0.07
920672	AA2-174 E	0.44
920692	AA2-178 E	2.87
923941	AB2-035 C	0.38
923942	AB2-035 E	0.16
924151	AB2-059 C O1	1.96
924152	AB2-059 E O1	5.86
924391	AB2-088 C	0.48
924392	AB2-088 E	0.23
924491	AB2-098 C	0.6
924492	AB2-098 E	0.26
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
925122	AB2-169 E	5.47
925291	AB2-188 C O1	1.65
925292	AB2-188 E O1	0.74
925591	AC1-034 C	7.36
925592	AC1-034 E	5.56
925781	AC1-054 C O1	3.71
925782	AC1-054 E O1	1.71
926071	AC1-086 C	45.39
926072	AC1-086 E	20.66
926201	AC1-098 C	6.52
926202	AC1-098 E	3.88
926211	AC1-099 C	2.18
926212	AC1-099 E	1.28
927021	AC1-189 C	9.28
927022	AC1-189 E	4.62
927141	AC1-208 C	9.44
927142	AC1-208 E	4.19
930401	AB1-081 C O1	1.66
930402	AB1-081 E O1	4.13
930861	AB1-132 C O1	5.31
930862	AB1-132 E O1	13.21
932631	AC2-084 C	9.29
932632	AC2-084 E	4.58
933991	AD1-023 C	12.17
933992	AD1-023 E	6.62
934331	AD1-057 C O1	16.15
934332	AD1-057 E O1	8.61
934521	AD1-076 C	45.65
934522	AD1-076 E	23.24
936401	AD2-051 C O1	9.63
936402	AD2-051 E O1	4.14
936531	AD2-068 C	4.47
936532	AD2-068 E	2.3
936701	AD2-089 C	8.05
936702	AD2-089 E	5.36
936711	AD2-090 C O1	3.69
936712	AD2-090 E O1	2.46

Bus #	Bus	MW Impact
938171	AE1-026 C1 O	27.26
938172	AE1-026 C2 O	3.94
938173	AE1-026 E O2	8.23
938221	AE1-035 C	2.64
938222	AE1-035 E	1.3
AA2-074	AA2-074	2.25
CARR	CARR	0.18
CBM-S1	CBM-S1	4.89
CBM-S2	CBM-S2	5.87
CBM-W1	CBM-W1	4.91
CBM-W2	CBM-W2	32.16
CIN	CIN	2.21
CPLE	CPLE	3.31
G-007	G-007	0.64
IPL	IPL	1.39
LGEE	LGEE	0.64
MEC	MEC	4.93
MECS	MECS	2.09
O-066	O-066	2.13
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.59

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
40298	314620	6CASHIE	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 2092	single	571.52	72.13	100.13	DC	160.01

Bus #	Bus	MW Impact
315292	1DOMTR78	5.09
315293	1DOMTR9	4.15
315294	1DOMTR10	7.53
916041	Z1-036 C	5.09
920691	AA2-178 C	7.3
925121	AB2-169 C	2.8
925291	AB2-188 C O1	10.45
933991	AD1-023 C	63.15
934521	AD1-076 C	242.91
938171	AE1-026 C1 O	139.78
938172	AE1-026 C2 O	20.22
CARR	CARR	0.05
CBM-S1	CBM-S1	0.34
CBM-S2	CBM-S2	0.61
CBM-W1	CBM-W1	0.15
CBM-W2	CBM-W2	2.1
CIN	CIN	0.08
CPLE	CPLE	0.38
DEARBORN	DEARBORN	0.01
IPL	IPL	0.05
LGEE	LGEE	0.02
MEC	MEC	0.24
RENSSELAER	RENSSELAER	0.04
WEC	WEC	0.02

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
39978	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	100.0	100.75	DC	65.27

Bus #	Bus	MW Impact
314539	3UNCAMP	3.9
314541	3WATKINS	1.1
314554	3BTLEBRO	1.2
314557	3BETHELC	1.22
314566	3CRESWEL	3.95
314572	3EMPORIA	0.62
314574	6EVERETS	6.49
314578	3HORNRTN	4.99
314582	3KELFORD	5.44
314594	6PLYMOTH	1.38
314603	3SCOT NK	5.06
314617	3TUNIS	1.32
314620	6CASHIE	1.36
314623	3WITAKRS	2.03
314648	6SUNBURY	1.5
314651	6WINFALL	2.97
315090	1YORKTN1	40.61
315091	1YORKTN2	42.15
315102	1BRUNSWICKG1	16.89
315103	1BRUNSWICKG2	16.89
315104	1BRUNSWICKG3	16.89
315105	1BRUNSWICKS1	35.08
315108	1ELIZAR1	5.8
315109	1ELIZAR2	5.69
315110	1ELIZAR3	5.87
315131	1EDGECEMA	13.89
315132	1EDGECEMB	13.89
315150	1BUGGS 1	14.9
315151	1BUGGS 2	14.9
315233	1SURRY 2	45.76
900672	V4-068 E	0.47
901082	W1-029 E	77.63
907092	X1-038 E	9.74
913392	Y1-086 E	3.75
916042	Z1-036 E	76.31
916191	Z1-068 C	0.08
916192	Z1-068 E	3.24
916301	Z1-086 C	103.07
916302	Z1-086 E	18.73
917122	Z2-027 E	1.8

Bus #	Bus	MW Impact
917332	Z2-043 E	1.55
917342	Z2-044 E	0.87
917512	Z2-088 E OP1	5.99
918492	AA1-063AE OP	6.12
918512	AA1-065 E OP	7.02
918532	AA1-067 E	1.14
918562	AA1-072 E	0.26
919151	AA1-139 C	4.44
919152	AA1-139 E	11.05
919692	AA2-053 E	5.69
919701	AA2-057 C	10.73
919702	AA2-057 E	5.36
920042	AA2-088 E OP	16.58
920592	AA2-165 E	0.71
920672	AA2-174 E	0.66
920692	AA2-178 E	6.77
923801	AB2-015 C O1	13.82
923802	AB2-015 E O1	11.33
923832	AB2-022 E	2.11
923852	AB2-025 E	1.64
923911	AB2-031 C O1	3.35
923912	AB2-031 E O1	1.65
923941	AB2-035 C	0.51
923942	AB2-035 E	0.22
923992	AB2-040 E O1	8.99
924022	AB2-043 E O1	6.43
924152	AB2-059 E O1	8.13
924162	AB2-060 E O1	5.28
924241	AB2-068 O1	333.87
924302	AB2-077 E O1	1.67
924312	AB2-078 E O1	1.67
924322	AB2-079 E O1	1.67
924391	AB2-088 C	0.66
924392	AB2-088 E	0.32
924401	AB2-089 C	2.96
924402	AB2-089 E	1.52
924491	AB2-098 C	0.89
924492	AB2-098 E	0.38
924501	AB2-099 C	0.92
924502	AB2-099 E	0.39
924511	AB2-100 C	17.27
924512	AB2-100 E	8.51
924812	AB2-134 E O1	14.39
925061	AB2-161 C O1	4.86
925062	AB2-161 E O1	7.92
925122	AB2-169 E	9.3
925171	AB2-174 C O1	10.49
925172	AB2-174 E O1	9.49
925281	AB2-186 C	1.03
925282	AB2-186 E	0.44
925291	AB2-188 C O1	3.89
925292	AB2-188 E O1	1.75

Bus #	Bus	MW Impact
925331	AB2-190 C	22.91
925332	AB2-190 E	9.82
925521	AC1-027 C	0.59
925522	AC1-027 E	1.97
925591	AC1-034 C	10.23
925592	AC1-034 E	7.71
925781	AC1-054 C O1	10.09
925782	AC1-054 E O1	4.65
926071	AC1-086 C	31.41
926072	AC1-086 E	14.3
926201	AC1-098 C	9.4
926202	AC1-098 E	5.6
926211	AC1-099 C	3.15
926212	AC1-099 E	1.85
926271	AC1-105 C O1	7.51
926272	AC1-105 E O1	3.74
926291	AC1-107 O1	503.95
926662	AC1-147 E	2.27
926751	AC1-161 C O1	55.59
926752	AC1-161 E O1	23.73
927021	AC1-189 C	13.41
927022	AC1-189 E	6.68
927141	AC1-208 C	13.7
927142	AC1-208 E	6.09
927221	AC1-216 C O1	11.57
927222	AC1-216 E O1	9.1
927251	AC1-221 C	3.14
927252	AC1-221 E	3.14
927261	AC1-222 C	4.86
927262	AC1-222 E	4.63
930402	AB1-081 E O1	5.74
930862	AB1-132 E O1	9.14
931232	AB1-173 E	1.57
931242	AB1-173AE	1.57
932041	AC2-012 C	17.46
932042	AC2-012 E	28.49
932581	AC2-078 C O1	5.17
932582	AC2-078 E O1	8.44
932591	AC2-079 C O1	8.83
932592	AC2-079 E O1	14.4
932631	AC2-084 C	13.41
932632	AC2-084 E	6.6
932761	AC2-100 C	7.23
932762	AC2-100 E	3.53
933291	AC2-141 C	55.59
933292	AC2-141 E	23.73
933731	AC2-196 C	0.53
933732	AC2-196 E	2.06
933991	AD1-023 C	21.24
933992	AD1-023 E	11.56
934011	AD1-025 C	19.88
934012	AD1-025 E	11.78

Bus #	Bus	MW Impact
934061	AD1-033 C	13.01
934062	AD1-033 E	8.67
934201	AD1-047 C	11.99
934202	AD1-047 E	7.99
934231	AD1-050 C	6.51
934232	AD1-050 E	3.56
934311	AD1-055 C	3.38
934312	AD1-055 E	0.87
934331	AD1-057 C O1	15.07
934332	AD1-057 E O1	8.04
934341	AD1-058 C	7.88
934342	AD1-058 E	2.0
934521	AD1-076 C	88.51
934522	AD1-076 E	45.07
934571	AD1-082 C	11.07
934572	AD1-082 E	6.31
934611	AD1-087 C O1	12.77
934612	AD1-087 E O1	6.0
934621	AD1-088 C	17.21
934622	AD1-088 E	8.08
934991	AD1-131 C	2.58
934992	AD1-131 E	1.72
935112	AD1-144 E	1.54
935161	AD1-151 C O1	18.41
935162	AD1-151 E O1	12.27
935171	AD1-152 C O1	12.69
935172	AD1-152 E O1	8.46
935212	AD1-156 E	1.73
936041	AD2-007	2.11
936051	AD2-008 C	3.46
936052	AD2-008 E	7.53
936331	AD2-043 C	6.33
936332	AD2-043 E	7.49
936361	AD2-046 C O1	11.9
936362	AD2-046 E O1	5.47
936391	AD2-049 C	2.65
936392	AD2-049 E	2.65
936401	AD2-051 C O1	13.76
936402	AD2-051 E O1	5.91
936481	AD2-063 C O1	17.9
936482	AD2-063 E O1	11.93
936531	AD2-068 C	7.89
936532	AD2-068 E	4.07
936661	AD2-085 C	5.28
936662	AD2-085 E	8.61
936701	AD2-089 C	11.02
936702	AD2-089 E	7.35
936711	AD2-090 C O1	11.44
936712	AD2-090 E O1	7.62
937221	AD2-160 C O1	10.1
937222	AD2-160 E O1	5.29
937251	AD2-164	6.91

Bus #	Bus	MW Impact
937481	AD2-202 C O1	3.52
937482	AD2-202 E O1	1.77
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
937571	AD2-169 C	14.99
937572	AD2-169 E	9.99
938171	AE1-026 C1 O	45.12
938172	AE1-026 C2 O	6.53
938173	AE1-026 E O2	13.63
938181	AE1-027 C	4.05
938182	AE1-027 E	2.13
938191	AE1-028 C	2.35
938192	AE1-028 E	1.36
938221	AE1-035 C	3.56
938222	AE1-035 E	1.76
938461	AE1-065 C O2	48.97
938462	AE1-065 E O2	197.6
938471	AE1-066 C O2	50.33
938472	AE1-066 E O2	196.25
938481	AE1-067 C O2	45.76
938482	AE1-067 E O2	200.81
938491	AE1-068 C O2	118.32
938492	AE1-068 E O2	65.35
938501	AE1-069 C O2	93.92
938502	AE1-069 E O2	53.7
938531	AE1-072 C O2	30.17
938532	AE1-072 E O2	15.73
AA2-074	AA2-074	8.9
AB2-013	AB2-013	5.7
AE1-033	AE1-033	5.95
AE1-042	AE1-042	14.39
CARR	CARR	1.71
CBM-S1	CBM-S1	22.0
CBM-S2	CBM-S2	25.63
CBM-W1	CBM-W1	20.05
CBM-W2	CBM-W2	142.21
CIN	CIN	9.32
CPL	CPL	13.08
G-007	G-007	5.64
IPL	IPL	5.82
LGEE	LGEE	2.72
MEC	MEC	21.16
MECS	MECS	7.5
O-066	O-066	18.81
RENSSELAER	RENSSELAER	1.35
WEC	WEC	2.47
Z1-043	Z1-043	9.73

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
40352	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	117.42	118.3	DC	47.35

Bus #	Bus	MW Impact
314421	6WINCHST	0.28
314507	3THOMPSN	0.61
315058	1CHESTF3	19.14
315059	1CHESTF4	31.03
315074	1HOPCGN1	10.62
315075	1HOPCGN2	10.48
315090	1YORKTN1	52.26
315091	1YORKTN2	54.23
315092	1YORKTN3	44.78
315098	1CHESPKA	0.8
315099	1CHESPKB	1.99
315108	1ELIZAR1	5.88
315109	1ELIZAR2	5.78
315110	1ELIZAR3	5.96
315131	1EDGECEMA	11.19
315132	1EDGECEMB	11.19
315233	1SURRY 2	53.45
315260	1GOSPORTA	0.64
315261	1GOSPORTB	0.82
315262	1GOSPORTC	0.69
916191	Z1-068 C	0.08
919151	AA1-139 C	4.44
919701	AA2-057 C	8.85
923801	AB2-015 C O1	13.1
923911	AB2-031 C O1	2.83
923941	AB2-035 C	0.43
924241	AB2-068 O1	618.81
924391	AB2-088 C	0.55
924491	AB2-098 C	0.77
924501	AB2-099 C	0.82
924511	AB2-100 C	14.55
925051	AB2-160 C O1	6.26
925061	AB2-161 C O1	4.95
925171	AB2-174 C O1	8.85
925281	AB2-186 C	1.01
925291	AB2-188 C O1	3.67
925331	AB2-190 C	28.91
925521	AC1-027 C	0.6
925591	AC1-034 C	8.24
925861	AC1-065 C	5.38

Bus #	Bus	MW Impact
926071	AC1-086 C	26.65
926201	AC1-098 C	7.98
926211	AC1-099 C	2.68
926291	AC1-107 O1	934.05
926661	AC1-147 C	0.68
926751	AC1-161 C O1	56.87
926781	AC1-164 C	68.74
927021	AC1-189 C	11.42
927141	AC1-208 C	11.51
927221	AC1-216 C O1	14.39
932041	AC2-012 C	17.77
932581	AC2-078 C O1	5.39
932591	AC2-079 C O1	8.91
932631	AC2-084 C	11.38
932831	AC2-110 C	2.15
933061	AC2-130	3.18
933071	AC2-131 1	2.16
933081	AC2-131 2	0.98
933111	AC2-132 1	1.13
933121	AC2-132 2	0.58
933291	AC2-141 C	56.87
933731	AC2-196 C	0.54
933991	AD1-023 C	19.56
934011	AD1-025 C	24.73
934061	AD1-033 C	13.09
934141	AD1-041 C	8.5
934201	AD1-047 C	10.14
934331	AD1-057 C O1	12.43
934521	AD1-076 C	82.15
934571	AD1-082 C	11.29
935161	AD1-151 C O1	23.23
936041	AD2-007	2.63
936051	AD2-008 C	4.31
936151	AD2-021	0.34
936241	AD2-030 C	3.71
936301	AD2-039 C	2.15
936341	AD2-044 C	0.3
936391	AD2-049 C	3.16
936401	AD2-051 C O1	12.27
936531	AD2-068 C	6.42
936591	AD2-074 C	7.5
936661	AD2-085 C	5.33
936701	AD2-089 C	9.12
936711	AD2-090 C O1	10.68
937221	AD2-160 C O1	10.12
937251	AD2-164	8.65
937541	AD2-215 C	2.97
937571	AD2-169 C	12.7
938031	AE1-004 C	2.15
938171	AE1-026 C1 O	41.37
938172	AE1-026 C2 O	5.98
938181	AE1-027 C	4.07

Bus #	Bus	MW Impact
938191	AE1-028 C	2.36
938221	AE1-035 C	3.21
938461	AE1-065 C O2	49.51
938471	AE1-066 C O2	50.88
938481	AE1-067 C O2	46.27
938491	AE1-068 C O2	78.12
938501	AE1-069 C O2	61.98
938531	AE1-072 C O2	30.14
AA2-074	AA2-074	6.28
AE1-042	AE1-042	8.65
CARR	CARR	1.25
CBM-S1	CBM-S1	12.69
CBM-S2	CBM-S2	17.39
CBM-W1	CBM-W1	8.96
CBM-W2	CBM-W2	79.72
CIN	CIN	4.3
CPLE	CPLE	9.23
IPL	IPL	2.64
LGEE	LGEE	1.25
MEC	MEC	10.78
MECS	MECS	2.24
RENSSELAER	RENSSELAER	0.99
WEC	WEC	1.14

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
40603	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	97.77	98.3	DC	37.09

Bus #	Bus	MW Impact
314236	6NRTHEST	0.24
314250	6ROCKVILLE	0.43
314309	6IRON208	0.57
314314	3LOCKS	0.37
315053	1BELMED1	21.19
315054	1BELMED2	21.19
315055	1BELMED3	17.59
315058	1CHESTF3	21.97
315059	1CHESTF4	35.61
315065	1CHESTF6	25.77
315074	1HOPCGN1	10.18
315075	1HOPCGN2	10.05
315083	1SPRUNCA	13.14
315084	1SPRUNCB	13.14
315085	1SPRUNCC	9.74
315086	1SPRUNCD	9.74
315090	1YORKTN1	34.77
315091	1YORKTN2	36.08
315108	1ELIZAR1	4.15
315109	1ELIZAR2	4.08
315110	1ELIZAR3	4.2
315225	1N ANNA1	64.21
315226	1N ANNA2	64.36
315233	1SURRY 2	32.15
923801	AB2-015 C O1	10.2
923911	AB2-031 C O1	2.55
924241	AB2-068 O1	231.57
924501	AB2-099 C	0.67
924511	AB2-100 C	13.4
925051	AB2-160 C O1	6.69
925061	AB2-161 C O1	4.14
925171	AB2-174 C O1	8.02
925281	AB2-186 C	0.74
925291	AB2-188 C O1	2.78
925331	AB2-190 C	24.6
925821	AC1-061	0.01
925861	AC1-065 C	4.0
926071	AC1-086 C	23.42
926291	AC1-107 O1	349.54
926751	AC1-161 C O1	37.5

Bus #	Bus	MW Impact
926781	AC1-164 C	47.96
927041	AC1-191 C O1	11.13
927221	AC1-216 C O1	12.04
932041	AC2-012 C	12.55
932581	AC2-078 C O1	4.99
932591	AC2-079 C O1	7.0
932831	AC2-110 C	1.6
933011	AC2-125	2.88
933021	AC2-126	2.9
933031	AC2-127	1.58
933041	AC2-128	1.53
933051	AC2-129	1.43
933061	AC2-130	2.9
933071	AC2-131 1	1.96
933081	AC2-131 2	0.89
933111	AC2-132 1	1.03
933121	AC2-132 2	0.53
933291	AC2-141 C	37.5
933501	AC2-165 C	11.05
933991	AD1-023 C	15.24
934011	AD1-025 C	20.69
934061	AD1-033 C	9.22
934141	AD1-041 C	6.28
934201	AD1-047 C	9.12
934521	AD1-076 C	63.42
934571	AD1-082 C	9.42
935161	AD1-151 C O1	19.77
935211	AD1-156 C	0.45
936041	AD2-007	2.2
936051	AD2-008 C	3.6
936151	AD2-021	0.28
936241	AD2-030 C	2.73
936301	AD2-039 C	1.6
936391	AD2-049 C	2.18
936401	AD2-051 C O1	9.98
936591	AD2-074 C	6.22
936661	AD2-085 C	4.2
936711	AD2-090 C O1	8.44
937221	AD2-160 C O1	7.16
937251	AD2-164	5.83
937541	AD2-215 C	2.13
937571	AD2-169 C	11.35
938031	AE1-004 C	1.6
938081	AE1-010	3.66
938171	AE1-026 C1 O	32.4
938172	AE1-026 C2 O	4.69
938181	AE1-027 C	2.87
938191	AE1-028 C	1.66
938221	AE1-035 C	2.57
938461	AE1-065 C O2	34.91
938471	AE1-066 C O2	35.88
938481	AE1-067 C O2	32.63

Bus #	Bus	MW Impact
938491	AE1-068 C O2	69.99
938501	AE1-069 C O2	55.5
938531	AE1-072 C O2	21.41
938551	AE1-074 C	3.1
938561	AE1-075 C	2.46
AA2-074	AA2-074	5.92
AE1-042	AE1-042	9.23
CARR	CARR	1.8
CBM-S1	CBM-S1	13.81
CBM-S2	CBM-S2	17.09
CBM-W1	CBM-W1	9.41
CBM-W2	CBM-W2	85.64
CIN	CIN	4.83
CPL	CPL	8.71
IPL	IPL	2.97
LGEE	LGEE	1.45
MEC	MEC	11.66
MECS	MECS	1.83
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.23

Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40535	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	99.94	100.47	DC	36.73

Bus #	Bus	MW Impact
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.43
314309	6IRON208	0.56
314314	3LOCKS	0.37
315053	1BELMED1	20.98
315054	1BELMED2	20.98
315055	1BELMED3	17.41
315058	1CHESTF3	21.74
315059	1CHESTF4	35.24
315065	1CHESTF6	25.5
315074	1HOPCGN1	10.08
315075	1HOPCGN2	9.95
315083	1SPRUNCA	13.01
315084	1SPRUNCB	13.01
315085	1SPRUNCC	9.65
315086	1SPRUNCD	9.65
315090	1YORKTN1	34.4
315091	1YORKTN2	35.69
315108	1ELIZAR1	4.1
315109	1ELIZAR2	4.03
315110	1ELIZAR3	4.15
315225	1N ANNA1	62.98
315226	1N ANNA2	63.12
315233	1SURRY 2	31.81
923801	AB2-015 C O1	10.1
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	229.21
924501	AB2-099 C	0.66
924511	AB2-100 C	13.27
925021	AB2-158 C	2.4
925051	AB2-160 C O1	6.62
925061	AB2-161 C O1	4.09
925171	AB2-174 C O1	7.95
925281	AB2-186 C	0.73
925291	AB2-188 C O1	2.76
925331	AB2-190 C	24.34
925821	AC1-061	0.01
925861	AC1-065 C	3.96
926001	AC1-076 C	6.66
926071	AC1-086 C	23.2

Bus #	Bus	MW Impact
926291	AC1-107 O1	345.98
926731	AC1-158 C	193.77
926751	AC1-161 C O1	37.09
926781	AC1-164 C	47.46
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.91
932041	AC2-012 C	12.41
932581	AC2-078 C O1	4.94
932591	AC2-079 C O1	6.93
932831	AC2-110 C	1.58
933011	AC2-125	2.84
933021	AC2-126	2.86
933031	AC2-127	1.56
933041	AC2-128	1.51
933051	AC2-129	1.41
933061	AC2-130	2.87
933071	AC2-131 1	1.94
933081	AC2-131 2	0.88
933111	AC2-132 1	1.02
933121	AC2-132 2	0.52
933291	AC2-141 C	37.09
933501	AC2-165 C	11.13
933991	AD1-023 C	15.09
934011	AD1-025 C	20.47
934061	AD1-033 C	9.12
934141	AD1-041 C	6.22
934201	AD1-047 C	9.05
934521	AD1-076 C	62.8
934541	AD1-078 C	4.08
934571	AD1-082 C	9.32
935161	AD1-151 C O1	19.56
935211	AD1-156 C	0.45
936041	AD2-007	2.17
936051	AD2-008 C	3.56
936151	AD2-021	0.28
936241	AD2-030 C	2.7
936301	AD2-039 C	1.58
936391	AD2-049 C	2.16
936401	AD2-051 C O1	9.89
936591	AD2-074 C	6.15
936661	AD2-085 C	4.16
936711	AD2-090 C O1	8.36
937221	AD2-160 C O1	7.08
937251	AD2-164	5.77
937541	AD2-215 C	2.11
937571	AD2-169 C	11.26
938031	AE1-004 C	1.58
938081	AE1-010	9.24
938171	AE1-026 C1 O	32.09
938172	AE1-026 C2 O	4.64
938181	AE1-027 C	2.84
938191	AE1-028 C	1.65

Bus #	Bus	MW Impact
938221	AE1-035 C	2.54
938461	AE1-065 C O2	34.54
938471	AE1-066 C O2	35.49
938481	AE1-067 C O2	32.28
938491	AE1-068 C O2	69.23
938501	AE1-069 C O2	54.89
938531	AE1-072 C O2	21.18
938551	AE1-074 C	3.07
938561	AE1-075 C	2.47
AA2-074	AA2-074	5.89
AE1-042	AE1-042	9.22
CARR	CARR	1.81
CBM-S1	CBM-S1	13.82
CBM-S2	CBM-S2	17.01
CBM-W1	CBM-W1	9.48
CBM-W2	CBM-W2	85.74
CIN	CIN	4.86
CPLE	CPLE	8.65
IPL	IPL	2.99
LGEE	LGEE	1.46
MEC	MEC	11.7
MECS	MECS	1.88
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.24

Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40856	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	153.34	163.07	DC	46.5

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.07
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.78
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECEMA	8.55
315132	1EDGECEMB	8.55
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315292	1DOMTR78	1.86
315293	1DOMTR9	1.52
315294	1DOMTR10	2.75
900672	V4-068 E	0.24
901082	W1-029 E	24.71
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.86
917122	Z2-027 E	0.52
917331	Z2-043 C	0.38
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	2.58
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	1.2
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.93
918512	AA1-065 E OP	5.52

Bus #	Bus	MW Impact
918531	AA1-067 C	0.58
918532	AA1-067 E	1.45
918561	AA1-072 C	0.06
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.12
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.8
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.53
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.71
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	3.39
924152	AB2-059 E O1	3.09
924391	AB2-088 C	0.57
924392	AB2-088 E	0.28
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.1
924512	AB2-100 E	3.0
925121	AB2-169 C	1.68
925122	AB2-169 E	8.75
925171	AB2-174 C O1	3.83
925172	AB2-174 E O1	3.46
925281	AB2-186 C	0.37
925282	AB2-186 E	0.16
925291	AB2-188 C O1	2.2
925292	AB2-188 E O1	0.99
925591	AC1-034 C	3.89
925592	AC1-034 E	2.93
926071	AC1-086 C	15.86
926072	AC1-086 E	7.22
926201	AC1-098 C	4.52
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.23
927022	AC1-189 E	7.58
927141	AC1-208 C	5.87
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59

Bus #	Bus	MW Impact
931242	AB1-173AE	0.59
932631	AC2-084 C	6.44
932632	AC2-084 E	3.17
933991	AD1-023 C	14.77
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.51
934332	AD1-057 E O1	4.54
934521	AD1-076 C	58.83
934522	AD1-076 E	29.96
936401	AD2-051 C O1	9.45
936402	AD2-051 E O1	4.06
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.54
936702	AD2-089 E	6.36
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.84
937571	AD2-169 C	5.83
937572	AD2-169 E	3.89
938171	AE1-026 C1 O	32.14
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O2	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
AC1-133	AC1-133	24.59
BAYOU	BAYOU	2.84
BIG_CAJUN1	BIG_CAJUN1	4.49
BIG_CAJUN2	BIG_CAJUN2	9.03
BLUEG	BLUEG	7.76
CALDERWOOD	CALDERWOOD	1.66
CANNELTON	CANNELTON	0.53
CATAWBA	CATAWBA	1.62
CBM-N	CBM-N	0.22
CHEOAH	CHEOAH	1.55
CHILHOWEE	CHILHOWEE	0.54
CHOCTAW	CHOCTAW	3.06
COFFEEN	COFFEEN	0.92
COTTONWOOD	COTTONWOOD	11.11
DEARBORN	DEARBORN	0.96
DUCKCREEK	DUCKCREEK	1.88
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.03
GIBSON	GIBSON	0.34
HAMLET	HAMLET	6.97
NEWTON	NEWTON	2.39
NYISO	NYISO	0.94
O-066A	O-066A	0.47
PRAIRIE	PRAIRIE	5.05

Bus #	Bus	MW Impact
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.45
TATANKA	TATANKA	1.13
TILTON	TILTON	0.98
TRIMBLE	TRIMBLE	0.85
TVA	TVA	4.68
UNIONPOWER	UNIONPOWER	2.32
VFT	VFT	2.72

Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40261	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	DVP_P1-2: LN 2092	single	571.52	74.62	102.61	DC	160.01

Bus #	Bus	MW Impact
315292	1DOMTR78	5.09
315293	1DOMTR9	4.15
315294	1DOMTR10	7.53
916041	Z1-036 C	5.09
920691	AA2-178 C	7.3
925121	AB2-169 C	2.8
925291	AB2-188 C O1	10.45
933991	AD1-023 C	63.15
934521	AD1-076 C	242.91
938171	AE1-026 C1 O	139.78
938172	AE1-026 C2 O	20.22
CARR	CARR	0.05
CBM-S1	CBM-S1	0.34
CBM-S2	CBM-S2	0.61
CBM-W1	CBM-W1	0.15
CBM-W2	CBM-W2	2.1
CIN	CIN	0.08
CPL	CPL	0.38
DEARBORN	DEARBORN	0.01
IPL	IPL	0.05
LGEE	LGEE	0.02
MEC	MEC	0.24
RENSSELAER	RENSSELAER	0.04
WEC	WEC	0.02

Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40089	314614	3TRWBRDG2	DVP	314596	3POPLR C	DVP	1	DVP_P4-2: 203462	breaker	329.0	87.23	107.65	DC	67.17

Bus #	Bus	MW Impact
314566	3CRESWEL	3.21
314594	6PLYMOTH	1.36
314648	6SUNBURY	0.31
314651	6WINFALL	1.04
315292	1DOMTR78	3.35
315293	1DOMTR9	2.73
315294	1DOMTR10	4.95
901082	W1-029 E	24.33
913392	Y1-086 E	0.9
916041	Z1-036 C	0.97
916042	Z1-036 E	37.64
917122	Z2-027 E	0.5
920691	AA2-178 C	2.21
920692	AA2-178 E	5.51
923832	AB2-022 E	0.51
925121	AB2-169 C	1.01
925122	AB2-169 E	5.26
925281	AB2-186 C	0.42
925282	AB2-186 E	0.18
925291	AB2-188 C O1	3.17
925292	AB2-188 E O1	1.42
933991	AD1-023 C	21.75
933992	AD1-023 E	11.84
934521	AD1-076 C	89.76
934522	AD1-076 E	45.7
938171	AE1-026 C1 O	46.43
938172	AE1-026 C2 O	6.72
938173	AE1-026 E O2	14.02
BAYOU	BAYOU	0.6
BIG_CAJUN1	BIG_CAJUN1	0.95
BIG_CAJUN2	BIG_CAJUN2	1.92
BLUEG	BLUEG	1.72
CALDERWOOD	CALDERWOOD	0.35
CANNELTON	CANNELTON	0.12
CATAWBA	CATAWBA	0.34
CBM-N	CBM-N	0.04
CHEOAH	CHEOAH	0.33
CHILHOWEE	CHILHOWEE	0.12
CHOCTAW	CHOCTAW	0.65
COFFEEN	COFFEEN	0.2

Bus #	Bus	MW Impact
COTTONWOOD	COTTONWOOD	2.37
DEARBORN	DEARBORN	0.22
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.18
ELMERSMITH	ELMERSMITH	0.21
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	0.21
GIBSON	GIBSON	0.07
HAMLET	HAMLET	1.42
NEWTON	NEWTON	0.52
NYISO	NYISO	0.18
O-066A	O-066A	0.09
PRAIRIE	PRAIRIE	1.1
SANTEETLA	SANTEETLA	0.1
SMITHLAND	SMITHLAND	0.1
TATANKA	TATANKA	0.25
TILTON	TILTON	0.22
TRIMBLE	TRIMBLE	0.19
TVA	TVA	1.0
UNIONPOWER	UNIONPOWER	0.49
VFT	VFT	0.55

Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40033	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 246T2034	breaker	897.0	99.52	117.33	DC	159.81

Bus #	Bus	MW Impact
314566	3CRESWEL	10.13
314574	6EVERETS	3.32
314594	6PLYMOTH	3.37
315292	1DOMTR78	4.66
315293	1DOMTR9	3.8
315294	1DOMTR10	6.89
916041	Z1-036 C	5.51
916042	Z1-036 E	214.63
917511	Z2-088 C OP1	1.05
917512	Z2-088 E OP1	2.62
918511	AA1-065 C OP	0.95
918512	AA1-065 E OP	2.72
918531	AA1-067 C	0.24
918532	AA1-067 E	0.59
920691	AA2-178 C	6.98
920692	AA2-178 E	17.37
924491	AB2-098 C	0.46
924492	AB2-098 E	0.2
925121	AB2-169 C	2.75
925122	AB2-169 E	14.34
925281	AB2-186 C	2.97
925282	AB2-186 E	1.27
925291	AB2-188 C O1	9.99
925292	AB2-188 E O1	4.49
927021	AC1-189 C	6.2
927022	AC1-189 E	3.09
933991	AD1-023 C	51.74
933992	AD1-023 E	28.17
934521	AD1-076 C	213.54
934522	AD1-076 E	108.73
938171	AE1-026 C1 O	110.47
938172	AE1-026 C2 O	15.98
938173	AE1-026 E O2	33.36
938221	AE1-035 C	1.38
938222	AE1-035 E	0.68
CARR	CARR	0.1
CBM-S1	CBM-S1	2.31
CBM-S2	CBM-S2	2.87
CBM-W1	CBM-W1	2.24
CBM-W2	CBM-W2	15.11

Bus #	Bus	MW Impact
CIN	CIN	1.01
CPL	CPL	1.66
G-007	G-007	0.34
IPL	IPL	0.63
LGEE	LGEE	0.29
MEC	MEC	2.29
MECS	MECS	0.92
O-066	O-066	1.15
RENSSELAER	RENSSELAER	0.08
WEC	WEC	0.27

Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41240	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P4_#11112_05J.FERR 765_A1	breaker	402.0	143.76	145.16	DC	12.48

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.35
314557	3BETHEL	0.34
314572	3EMPORIA	0.13
314574	6EVERETS	1.55
314578	3HORNRTN	1.17
314582	3KELFORD	1.22
314594	6PLYMOTH	0.25
314603	3SCOT NK	1.2
314617	3TUNIS	0.27
314620	6CASHIE	0.26
314623	3WITAKRS	0.58
315131	1EDGECEMA	4.1
315132	1EDGECEMB	4.1
315150	1BUGGS 1	4.53
315151	1BUGGS 2	4.53
900672	V4-068 E	0.09
917332	Z2-043 E	0.35
917342	Z2-044 E	0.25
917512	Z2-088 E OP1	1.53
918492	AA1-063AE OP	1.36
918512	AA1-065 E OP	1.43
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.29
919701	AA2-057 C	2.92
919702	AA2-057 E	1.46
920042	AA2-088 E OP	3.14
920592	AA2-165 E	0.19
920672	AA2-174 E	0.15
923911	AB2-031 C O1	0.74
923912	AB2-031 E O1	0.36
923941	AB2-035 C	0.14
923942	AB2-035 E	0.06
923992	AB2-040 E O1	1.98
924022	AB2-043 E O1	1.89
924152	AB2-059 E O1	2.4
924162	AB2-060 E O1	1.55
924302	AB2-077 E O1	0.49
924312	AB2-078 E O1	0.49
924322	AB2-079 E O1	0.49
924391	AB2-088 C	0.18

Bus #	Bus	MW Impact
924392	AB2-088 E	0.09
924401	AB2-089 C	0.88
924402	AB2-089 E	0.45
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.19
924502	AB2-099 E	0.08
925122	AB2-169 E	1.94
925171	AB2-174 C O1	2.28
925172	AB2-174 E O1	2.06
925591	AC1-034 C	3.02
925592	AC1-034 E	2.28
925612	AC1-036 E	0.51
925781	AC1-054 C O1	2.91
925782	AC1-054 E O1	1.34
926051	AC1-083 C O1	3.92
926052	AC1-083 E O1	6.39
926071	AC1-086 C	7.0
926072	AC1-086 E	3.19
926201	AC1-098 C	2.32
926202	AC1-098 E	1.38
926211	AC1-099 C	0.78
926212	AC1-099 E	0.46
926271	AC1-105 C O1	2.27
926272	AC1-105 E O1	1.13
927021	AC1-189 C	3.36
927022	AC1-189 E	1.67
927141	AC1-208 C	3.48
927142	AC1-208 E	1.54
927251	AC1-221 C	1.55
927252	AC1-221 E	1.55
927261	AC1-222 C	1.45
927262	AC1-222 E	1.38
930402	AB1-081 E O1	1.69
930862	AB1-132 E O1	2.04
931232	AB1-173 E	0.35
931242	AB1-173AE	0.35
932631	AC2-084 C	3.31
932632	AC2-084 E	1.63
932761	AC2-100 C	3.57
932762	AC2-100 E	1.74
933941	AD1-017 C	0.78
933942	AD1-017 E	1.28
933991	AD1-023 C	4.0
933992	AD1-023 E	2.18
934201	AD1-047 C	2.64
934202	AD1-047 E	1.76
934231	AD1-050 C	1.93
934232	AD1-050 E	1.06
934311	AD1-055 C	1.01
934312	AD1-055 E	0.26
934331	AD1-057 C O1	3.96

Bus #	Bus	MW Impact
934332	AD1-057 E O1	2.11
934341	AD1-058 C	3.89
934342	AD1-058 E	0.99
934521	AD1-076 C	16.18
934522	AD1-076 E	8.24
934611	AD1-087 C O1	3.23
934612	AD1-087 E O1	1.52
934621	AD1-088 C	3.76
934622	AD1-088 E	1.77
934991	AD1-131 C	1.28
934992	AD1-131 E	0.85
935171	AD1-152 C O1	3.21
935172	AD1-152 E O1	2.14
936161	AD2-022 C O1	10.55
936162	AD2-022 E O1	6.33
936171	AD2-023 C O1	6.07
936172	AD2-023 E O1	3.3
936261	AD2-033 C	4.36
936262	AD2-033 E	2.91
936331	AD2-043 C	1.88
936332	AD2-043 E	2.23
936361	AD2-046 C O1	3.67
936362	AD2-046 E O1	1.69
936401	AD2-051 C O1	2.89
936402	AD2-051 E O1	1.24
936481	AD2-063 C O1	5.27
936482	AD2-063 E O1	3.52
936531	AD2-068 C	2.24
936532	AD2-068 E	1.16
936701	AD2-089 C	3.02
936702	AD2-089 E	2.01
937481	AD2-202 C O1	0.89
937482	AD2-202 E O1	0.45
937492	AD2-205 E	0.2
937571	AD2-169 C	3.33
937572	AD2-169 E	2.22
938171	AE1-026 C1 O	8.63
938172	AE1-026 C2 O	1.25
938173	AE1-026 E O2	2.61
938221	AE1-035 C	0.73
938222	AE1-035 E	0.36
AA2-074	AA2-074	3.75
BLUEG	BLUEG	4.06
CANNELTON	CANNELTON	0.12
CBM-N	CBM-N	0.03
CBM-S1	CBM-S1	2.92
CBM-S2	CBM-S2	10.5
CBM-W2	CBM-W2	13.51
COFFEEN	COFFEEN	0.18
CPL	CPL	5.51
DEARBORN	DEARBORN	0.82
DUCKCREEK	DUCKCREEK	0.56

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.29
ELMERSMITH	ELMERSMITH	0.16
G-007A	G-007A	0.44
GIBSON	GIBSON	0.12
NEWTON	NEWTON	0.53
NYISO	NYISO	0.13
O-066A	O-066A	0.2
TATANKA	TATANKA	0.13
TILTON	TILTON	0.41
TRIMBLE	TRIMBLE	0.47
VFT	VFT	1.15

Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40023	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 246T2034	breaker	897.0	100.89	118.7	DC	159.81

Bus #	Bus	MW Impact
314566	3CRESWEL	10.13
314574	6EVERETS	3.32
314594	6PLYMOTH	3.37
315292	1DOMTR78	4.66
315293	1DOMTR9	3.8
315294	1DOMTR10	6.89
916041	Z1-036 C	5.51
916042	Z1-036 E	214.63
917511	Z2-088 C OP1	1.05
917512	Z2-088 E OP1	2.62
918511	AA1-065 C OP	0.95
918512	AA1-065 E OP	2.72
918531	AA1-067 C	0.24
918532	AA1-067 E	0.59
920691	AA2-178 C	6.98
920692	AA2-178 E	17.37
924491	AB2-098 C	0.46
924492	AB2-098 E	0.2
925121	AB2-169 C	2.75
925122	AB2-169 E	14.34
925291	AB2-188 C O1	9.99
925292	AB2-188 E O1	4.49
927021	AC1-189 C	6.2
927022	AC1-189 E	3.09
933991	AD1-023 C	51.74
933992	AD1-023 E	28.17
934521	AD1-076 C	213.54
934522	AD1-076 E	108.73
938171	AE1-026 C1 O	110.47
938172	AE1-026 C2 O	15.98
938173	AE1-026 E O2	33.36
938221	AE1-035 C	1.38
938222	AE1-035 E	0.68
CARR	CARR	0.1
CBM-S1	CBM-S1	2.31
CBM-S2	CBM-S2	2.87
CBM-W1	CBM-W1	2.24
CBM-W2	CBM-W2	15.11
CIN	CIN	1.01
CPL	CPL	1.66

Bus #	Bus	MW Impact
G-007	G-007	0.34
IPL	IPL	0.63
LGEE	LGEE	0.29
MEC	MEC	2.29
MECS	MECS	0.92
O-066	O-066	1.15
RENSSELAER	RENSSELAER	0.08
WEC	WEC	0.27

Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40382	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	115.43	120.42	DC	18.67

Bus #	Bus	MW Impact
314589	3MURPHYS	0.06
314704	3LAWRENC	0.18
315115	1S HAMPT1	0.76
315126	1ROARAP2	1.14
315128	1ROARAP4	1.1
315131	1EDGECEMA	24.76
315132	1EDGECEMB	24.76
315136	1ROSEMG1	2.97
315137	1ROSEMS1	1.84
315138	1ROSEMG2	1.39
315139	1GASTONA	3.56
315141	1GASTONB	3.56
315292	1DOMTR78	0.83
315293	1DOMTR9	0.67
315294	1DOMTR10	1.22
901081	W1-029 C	0.35
916041	Z1-036 C	0.41
917331	Z2-043 C	0.32
917341	Z2-044 C	0.29
917511	Z2-088 C OP1	2.06
918491	AA1-063AC OP	1.11
918511	AA1-065 C OP	1.02
918531	AA1-067 C	0.21
918561	AA1-072 C	0.05
919691	AA2-053 C	1.17
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.65
920591	AA2-165 C	0.19
920671	AA2-174 C	0.05
920691	AA2-178 C	0.77
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.17
923911	AB2-031 C O1	1.61
923941	AB2-035 C	0.66
923991	AB2-040 C O1	0.91
924151	AB2-059 C O1	2.91
924391	AB2-088 C	0.84
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4

Bus #	Bus	MW Impact
924511	AB2-100 C	8.4
925121	AB2-169 C	0.69
925171	AB2-174 C O1	4.94
925281	AB2-186 C	0.2
925291	AB2-188 C O1	1.1
925591	AC1-034 C	10.94
925781	AC1-054 C O1	2.84
926071	AC1-086 C	23.26
926201	AC1-098 C	5.92
926211	AC1-099 C	1.99
927021	AC1-189 C	9.73
927141	AC1-208 C	9.06
930401	AB1-081 C O1	2.47
930861	AB1-132 C O1	2.72
931231	AB1-173 C	0.28
931241	AB1-173AC	0.28
932631	AC2-084 C	8.45
933991	AD1-023 C	7.41
934201	AD1-047 C	5.78
934231	AD1-050 C	1.61
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.81
936401	AD2-051 C O1	6.15
936701	AD2-089 C	14.06
936711	AD2-090 C O1	3.7
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.31
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.49
BAYOU	BAYOU	2.02
BIG_CAJUN1	BIG_CAJUN1	3.18
BIG_CAJUN2	BIG_CAJUN2	6.39
BLUEG	BLUEG	5.85
CALDERWOOD	CALDERWOOD	1.19
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.16
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.11
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.16
COFFEEN	COFFEEN	0.68
COTTONWOOD	COTTONWOOD	7.89
DEARBORN	DEARBORN	0.74
DUCKCREEK	DUCKCREEK	1.4
EDWARDS	EDWARDS	0.62
ELMERSMITH	ELMERSMITH	0.7
FARMERCITY	FARMERCITY	0.49
G-007A	G-007A	0.68
GIBSON	GIBSON	0.25
HAMLET	HAMLET	4.6
NEWTON	NEWTON	1.77
NYISO	NYISO	0.57

Bus #	Bus	MW Impact
O-066A	O-066A	0.31
PRAIRIE	PRAIRIE	3.7
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.83
TILTON	TILTON	0.74
TRIMBLE	TRIMBLE	0.64
TVA	TVA	3.34
UNIONPOWER	UNIONPOWER	1.65
VFT	VFT	1.79

Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40488	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	104.66	108.9	DC	19.04

Bus #	Bus	MW Impact
314589	3MURPHYS	0.06
314704	3LAWRENC	0.18
315115	1S HAMPT1	0.78
315126	1ROARAP2	1.16
315128	1ROARAP4	1.12
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	3.03
315137	1ROSEMS1	1.88
315138	1ROSEMG2	1.42
315139	1GASTONA	3.63
315141	1GASTONB	3.63
315292	1DOMTR78	0.84
315293	1DOMTR9	0.69
315294	1DOMTR10	1.25
901081	W1-029 C	0.35
916041	Z1-036 C	0.42
917331	Z2-043 C	0.33
917341	Z2-044 C	0.29
917511	Z2-088 C OP1	2.11
918491	AA1-063AC OP	1.13
918511	AA1-065 C OP	1.04
918531	AA1-067 C	0.21
918561	AA1-072 C	0.05
919691	AA2-053 C	1.19
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.66
920591	AA2-165 C	0.19
920671	AA2-174 C	0.05
920691	AA2-178 C	0.78
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.18
923911	AB2-031 C O1	1.65
923941	AB2-035 C	0.67
923991	AB2-040 C O1	0.93
924151	AB2-059 C O1	2.96
924391	AB2-088 C	0.86
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41

Bus #	Bus	MW Impact
924511	AB2-100 C	8.57
925121	AB2-169 C	0.7
925171	AB2-174 C O1	5.04
925281	AB2-186 C	0.2
925291	AB2-188 C O1	1.12
925591	AC1-034 C	11.16
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.72
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	2.52
930861	AB1-132 C O1	2.77
931231	AB1-173 C	0.29
931241	AB1-173AC	0.29
932631	AC2-084 C	8.61
933991	AD1-023 C	7.56
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.21
934521	AD1-076 C	29.39
936401	AD2-051 C O1	6.27
936701	AD2-089 C	14.34
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.55
938171	AE1-026 C1 O	16.64
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.52
BAYOU	BAYOU	2.05
BIG_CAJUN1	BIG_CAJUN1	3.24
BIG_CAJUN2	BIG_CAJUN2	6.52
BLUEG	BLUEG	5.97
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.18
CBM-N	CBM-N	0.14
CHEOAH	CHEOAH	1.13
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.21
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	8.05
DEARBORN	DEARBORN	0.75
DUCKCREEK	DUCKCREEK	1.43
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5
G-007A	G-007A	0.69
GIBSON	GIBSON	0.26
HAMLET	HAMLET	4.69
NEWTON	NEWTON	1.81
NYISO	NYISO	0.58

Bus #	Bus	MW Impact
O-066A	O-066A	0.31
PRAIRIE	PRAIRIE	3.77
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.85
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.41
UNIONPOWER	UNIONPOWER	1.69
VFT	VFT	1.83

Index 18

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39927	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P4-2: 562T563	breaker	684.0	124.37	125.35	DC	14.75

Bus #	Bus	MW Impact
314541	3WATKINS	0.23
314554	3BTLEBRO	0.4
314557	3BETHEL	0.39
314572	3EMPORIA	0.33
314574	6EVERETS	1.77
314578	3HORNRTN	1.92
314582	3KELFORD	1.62
314603	3SCOT NK	1.61
314617	3TUNIS	0.36
314620	6CASHIE	0.31
314623	3WITAKRS	0.69
314704	3LAWRENC	0.24
315102	1BRUNSWICKG1	4.72
315103	1BRUNSWICKG2	4.72
315104	1BRUNSWICKG3	4.72
315105	1BRUNSWICKS1	9.8
315131	1EDGECEMA	4.73
315132	1EDGECEMB	4.73
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.92
315138	1ROSEMG2	0.7
315139	1GASTONA	2.15
315141	1GASTONB	2.15
315150	1BUGGS 1	5.14
315151	1BUGGS 2	5.14
900672	V4-068 E	0.13
916301	Z1-086 C	28.75
916302	Z1-086 E	5.23
917332	Z2-043 E	0.46
917342	Z2-044 E	0.3
917512	Z2-088 E OP1	1.76
918492	AA1-063AE OP	2.11
918512	AA1-065 E OP	1.81
918532	AA1-067 E	0.31
918562	AA1-072 E	0.08
919692	AA2-053 E	2.08
919701	AA2-057 C	3.67
919702	AA2-057 E	1.83
920042	AA2-088 E OP	4.28
920592	AA2-165 E	0.24

Bus #	Bus	MW Impact
920672	AA2-174 E	0.24
923851	AB2-025 C	0.5
923852	AB2-025 E	1.3
923911	AB2-031 C O1	1.6
923912	AB2-031 E O1	0.79
923941	AB2-035 C	0.16
923942	AB2-035 E	0.07
923991	AB2-040 C O1	0.9
923992	AB2-040 E O1	4.29
924022	AB2-043 E O1	2.32
924152	AB2-059 E O1	2.75
924162	AB2-060 E O1	1.9
924302	AB2-077 E O1	0.6
924312	AB2-078 E O1	0.6
924322	AB2-079 E O1	0.6
924391	AB2-088 C	0.21
924392	AB2-088 E	0.1
924401	AB2-089 C	1.07
924402	AB2-089 E	0.55
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.26
924502	AB2-099 E	0.11
924511	AB2-100 C	10.63
924512	AB2-100 E	5.23
925122	AB2-169 E	2.2
925171	AB2-174 C O1	5.2
925172	AB2-174 E O1	4.7
925591	AC1-034 C	3.46
925592	AC1-034 E	2.61
925612	AC1-036 E	0.6
925781	AC1-054 C O1	3.69
925782	AC1-054 E O1	1.7
926071	AC1-086 C	14.05
926072	AC1-086 E	6.4
926201	AC1-098 C	3.12
926202	AC1-098 E	1.86
926211	AC1-099 C	1.04
926212	AC1-099 E	0.61
926271	AC1-105 C O1	2.36
926272	AC1-105 E O1	1.18
927021	AC1-189 C	3.85
927022	AC1-189 E	1.92
927141	AC1-208 C	4.79
927142	AC1-208 E	2.13
927251	AC1-221 C	0.93
927252	AC1-221 E	0.93
927261	AC1-222 C	1.47
927262	AC1-222 E	1.4
930402	AB1-081 E O1	1.94
930861	AB1-132 C O1	1.64
930862	AB1-132 E O1	4.09

Bus #	Bus	MW Impact
931231	AB1-173 C	0.28
931232	AB1-173 E	0.75
931241	AB1-173AC	0.28
931242	AB1-173AE	0.75
932631	AC2-084 C	4.44
932632	AC2-084 E	2.19
932761	AC2-100 C	2.14
932762	AC2-100 E	1.04
933991	AD1-023 C	4.64
933992	AD1-023 E	2.53
934201	AD1-047 C	5.72
934202	AD1-047 E	3.81
934231	AD1-050 C	2.36
934232	AD1-050 E	1.29
934311	AD1-055 C	1.02
934312	AD1-055 E	0.26
934331	AD1-057 C O1	5.86
934332	AD1-057 E O1	3.13
934341	AD1-058 C	2.33
934342	AD1-058 E	0.59
934521	AD1-076 C	18.16
934522	AD1-076 E	9.25
934611	AD1-087 C O1	3.67
934612	AD1-087 E O1	1.73
934621	AD1-088 C	4.84
934622	AD1-088 E	2.27
934991	AD1-131 C	0.76
934992	AD1-131 E	0.51
935171	AD1-152 C O1	3.65
935172	AD1-152 E O1	2.43
935212	AD1-156 E	0.63
936261	AD2-033 C	5.16
936262	AD2-033 E	3.44
936331	AD2-043 C	1.92
936332	AD2-043 E	2.27
936361	AD2-046 C O1	4.25
936362	AD2-046 E O1	1.95
936401	AD2-051 C O1	3.84
936402	AD2-051 E O1	1.65
936481	AD2-063 C O1	6.37
936482	AD2-063 E O1	4.25
936531	AD2-068 C	2.27
936532	AD2-068 E	1.17
936701	AD2-089 C	3.47
936702	AD2-089 E	2.31
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	1.01
937482	AD2-202 E O1	0.51
937571	AD2-169 C	6.85
937572	AD2-169 E	4.57
938171	AE1-026 C1 O	10.19

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O2	3.08
938221	AE1-035 C	0.92
938222	AE1-035 E	0.45
938491	AE1-068 C O2	33.01
938492	AE1-068 E O2	18.23
938501	AE1-069 C O2	26.19
938502	AE1-069 E O2	14.97
AA2-074	AA2-074	2.63
CARR	CARR	0.31
CBM-S1	CBM-S1	6.67
CBM-S2	CBM-S2	7.56
CBM-W1	CBM-W1	6.64
CBM-W2	CBM-W2	43.74
CIN	CIN	3.01
CPL	CPL	3.87
G-007	G-007	1.05
IPL	IPL	1.89
LGEE	LGEE	0.87
MEC	MEC	6.7
MECS	MECS	2.78
O-066	O-066	3.49
RENSSELAER	RENSSELAER	0.24
WEC	WEC	0.81

Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39947	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P4-2: 562T563	breaker	684.0	121.35	122.32	DC	14.75

Bus #	Bus	MW Impact
314541	3WATKINS	0.23
314554	3BTLEBRO	0.4
314557	3BETHELC	0.39
314572	3EMPORIA	0.33
314574	6EVERETS	1.77
314578	3HORNRTN	1.92
314582	3KELFORD	1.62
314603	3SCOT NK	1.61
314617	3TUNIS	0.36
314620	6CASHIE	0.31
314623	3WITAKRS	0.69
314704	3LAWRENC	0.24
315102	1BRUNSWICKG1	4.72
315103	1BRUNSWICKG2	4.72
315104	1BRUNSWICKG3	4.72
315105	1BRUNSWICKS1	9.8
315131	1EDGECEMA	4.73
315132	1EDGECEMB	4.73
315136	1ROSEMG1	1.49
315137	1ROSEMS1	0.92
315138	1ROSEMG2	0.7
315139	1GASTONA	2.15
315141	1GASTONB	2.15
315150	1BUGGS 1	5.14
315151	1BUGGS 2	5.14
900672	V4-068 E	0.13
916301	Z1-086 C	28.75
916302	Z1-086 E	5.23
917332	Z2-043 E	0.46
917342	Z2-044 E	0.3
917512	Z2-088 E OP1	1.76
918492	AA1-063AE OP	2.11
918512	AA1-065 E OP	1.81
918532	AA1-067 E	0.31
918562	AA1-072 E	0.08
919692	AA2-053 E	2.08
919701	AA2-057 C	3.67
919702	AA2-057 E	1.83
920042	AA2-088 E OP	4.28
920592	AA2-165 E	0.24

Bus #	Bus	MW Impact
920672	AA2-174 E	0.24
923851	AB2-025 C	0.5
923852	AB2-025 E	1.3
923911	AB2-031 C O1	1.6
923912	AB2-031 E O1	0.79
923941	AB2-035 C	0.16
923942	AB2-035 E	0.07
923991	AB2-040 C O1	0.9
923992	AB2-040 E O1	4.29
924022	AB2-043 E O1	2.32
924152	AB2-059 E O1	2.75
924162	AB2-060 E O1	1.9
924302	AB2-077 E O1	0.6
924312	AB2-078 E O1	0.6
924322	AB2-079 E O1	0.6
924391	AB2-088 C	0.21
924392	AB2-088 E	0.1
924401	AB2-089 C	1.07
924402	AB2-089 E	0.55
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.26
924502	AB2-099 E	0.11
924511	AB2-100 C	10.63
924512	AB2-100 E	5.23
925122	AB2-169 E	2.2
925171	AB2-174 C O1	5.2
925172	AB2-174 E O1	4.7
925591	AC1-034 C	3.46
925592	AC1-034 E	2.61
925612	AC1-036 E	0.6
925781	AC1-054 C O1	3.69
925782	AC1-054 E O1	1.7
926071	AC1-086 C	14.05
926072	AC1-086 E	6.4
926201	AC1-098 C	3.12
926202	AC1-098 E	1.86
926211	AC1-099 C	1.04
926212	AC1-099 E	0.61
926271	AC1-105 C O1	2.36
926272	AC1-105 E O1	1.18
927021	AC1-189 C	3.85
927022	AC1-189 E	1.92
927141	AC1-208 C	4.79
927142	AC1-208 E	2.13
927251	AC1-221 C	0.93
927252	AC1-221 E	0.93
927261	AC1-222 C	1.47
927262	AC1-222 E	1.4
930402	AB1-081 E O1	1.94
930861	AB1-132 C O1	1.64
930862	AB1-132 E O1	4.09

Bus #	Bus	MW Impact
931231	AB1-173 C	0.28
931232	AB1-173 E	0.75
931241	AB1-173AC	0.28
931242	AB1-173AE	0.75
932631	AC2-084 C	4.44
932632	AC2-084 E	2.19
932761	AC2-100 C	2.14
932762	AC2-100 E	1.04
933991	AD1-023 C	4.64
933992	AD1-023 E	2.53
934201	AD1-047 C	5.72
934202	AD1-047 E	3.81
934231	AD1-050 C	2.36
934232	AD1-050 E	1.29
934311	AD1-055 C	1.02
934312	AD1-055 E	0.26
934331	AD1-057 C O1	5.86
934332	AD1-057 E O1	3.13
934341	AD1-058 C	2.33
934342	AD1-058 E	0.59
934521	AD1-076 C	18.16
934522	AD1-076 E	9.25
934611	AD1-087 C O1	3.67
934612	AD1-087 E O1	1.73
934621	AD1-088 C	4.84
934622	AD1-088 E	2.27
934991	AD1-131 C	0.76
934992	AD1-131 E	0.51
935171	AD1-152 C O1	3.65
935172	AD1-152 E O1	2.43
935212	AD1-156 E	0.63
936261	AD2-033 C	5.16
936262	AD2-033 E	3.44
936331	AD2-043 C	1.92
936332	AD2-043 E	2.27
936361	AD2-046 C O1	4.25
936362	AD2-046 E O1	1.95
936401	AD2-051 C O1	3.84
936402	AD2-051 E O1	1.65
936481	AD2-063 C O1	6.37
936482	AD2-063 E O1	4.25
936531	AD2-068 C	2.27
936532	AD2-068 E	1.17
936701	AD2-089 C	3.47
936702	AD2-089 E	2.31
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	1.01
937482	AD2-202 E O1	0.51
937571	AD2-169 C	6.85
937572	AD2-169 E	4.57
938171	AE1-026 C1 O	10.19

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O2	3.08
938221	AE1-035 C	0.92
938222	AE1-035 E	0.45
938491	AE1-068 C O2	33.01
938492	AE1-068 E O2	18.23
938501	AE1-069 C O2	26.19
938502	AE1-069 E O2	14.97
AA2-074	AA2-074	2.63
CARR	CARR	0.31
CBM-S1	CBM-S1	6.67
CBM-S2	CBM-S2	7.56
CBM-W1	CBM-W1	6.64
CBM-W2	CBM-W2	43.74
CIN	CIN	3.01
CPL	CPL	3.87
G-007	G-007	1.05
IPL	IPL	1.89
LGEE	LGEE	0.87
MEC	MEC	6.7
MECS	MECS	2.78
O-066	O-066	3.49
RENSSELAER	RENSSELAER	0.24
WEC	WEC	0.81

Index 20

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40243	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	138.58	139.8	DC	11.71

Bus #	Bus	MW Impact
314314	3LOCKS	0.19
315065	1CHESTF6	29.63
315074	1HOPCGN1	6.05
315075	1HOPCGN2	5.97
315076	1HOPPOLC	1.19
315077	1HOPHCF1	1.87
315078	1HOPHCF2	1.87
315079	1HOPHCF3	1.87
315080	1HOPHCF4	2.83
315116	1SURRY 1	11.5
315117	1GRAVELC	0.4
315119	1GRAVEL3	1.17
315120	1GRAVEL4	1.18
315121	1GRAVEL5	1.17
315122	1GRAVEL6	1.18
315136	1ROSEMG1	1.01
315137	1ROSEMS1	0.63
315138	1ROSEMG2	0.47
315139	1GASTONA	1.45
315141	1GASTONB	1.45
919701	AA2-057 C	2.66
923801	AB2-015 C O1	3.38
923851	AB2-025 C	0.28
923911	AB2-031 C O1	1.04
923991	AB2-040 C O1	0.59
924501	AB2-099 C	0.23
924511	AB2-100 C	6.45
924811	AB2-134 C O1	1.25
925051	AB2-160 C O1	3.51
925061	AB2-161 C O1	1.97
925171	AB2-174 C O1	3.34
925281	AB2-186 C	0.21
925291	AB2-188 C O1	0.84
925331	AB2-190 C	11.74
925821	AC1-061	0.0
926071	AC1-086 C	9.48
926201	AC1-098 C	2.36
926211	AC1-099 C	0.79
927141	AC1-208 C	3.5
927221	AC1-216 C O1	5.53

Bus #	Bus	MW Impact
930861	AB1-132 C O1	1.11
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932041	AC2-012 C	3.41
932581	AC2-078 C O1	3.0
932591	AC2-079 C O1	2.78
932631	AC2-084 C	3.37
933991	AD1-023 C	4.77
934011	AD1-025 C	9.51
934201	AD1-047 C	3.73
934331	AD1-057 C O1	4.04
934521	AD1-076 C	19.56
934571	AD1-082 C	4.48
935161	AD1-151 C O1	9.43
935211	AD1-156 C	0.35
936041	AD2-007	1.01
936051	AD2-008 C	1.66
936401	AD2-051 C O1	3.34
936661	AD2-085 C	1.69
936711	AD2-090 C O1	2.84
937541	AD2-215 C	0.6
937571	AD2-169 C	4.54
938171	AE1-026 C1 O	10.23
938172	AE1-026 C2 O	1.48
938221	AE1-035 C	0.84
938461	AE1-065 C O2	9.38
938471	AE1-066 C O2	9.64
938481	AE1-067 C O2	8.77
938491	AE1-068 C O2	19.98
938501	AE1-069 C O2	15.85
AA2-074	AA2-074	1.69
CARR	CARR	0.32
CBM-S1	CBM-S1	3.59
CBM-S2	CBM-S2	4.7
CBM-W1	CBM-W1	2.8
CBM-W2	CBM-W2	22.8
CIN	CIN	1.32
CPL	CPL	2.48
IPL	IPL	0.82
LGEE	LGEE	0.38
MEC	MEC	3.19
MECS	MECS	0.85
RENSSELAER	RENSSELAER	0.25
WEC	WEC	0.35

Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40379	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	133.5	134.51	DC	9.97

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40368	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	137.12	138.14	DC	9.97

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40462	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	118.4	119.42	DC	9.97

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPLE	CPLE	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40102	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 246T247	breaker	830.0	102.06	104.32	DC	41.31

Bus #	Bus	MW Impact
314541	3WATKINS	0.45
314554	3BTLEBRO	0.92
314557	3BETHEL	0.93
314566	3CRESWEL	1.73
314572	3EMPORIA	1.04
314574	6EVERETS	4.59
314578	3HORNRTN	5.39
314582	3KELFORD	4.54
314594	6PLYMOTH	0.72
314603	3SCOT NK	4.36
314617	3TUNIS	0.99
314620	6CASHIE	0.86
314623	3WITAKRS	1.64
314704	3LAWRENC	0.72
315131	1EDGECEMA	10.97
315132	1EDGECEMB	10.97
315136	1ROSEMG1	4.49
315137	1ROSEMS1	2.78
315138	1ROSEMG2	2.1
315139	1GASTONA	6.64
315141	1GASTONB	6.64
315150	1BUGGS 1	8.75
315151	1BUGGS 2	8.75
900672	V4-068 E	0.33
917332	Z2-043 E	1.29
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.39
918492	AA1-063AE OP	6.04
918512	AA1-065 E OP	5.47
918532	AA1-067 E	0.81
918562	AA1-072 E	0.22
919692	AA2-053 E	5.92
919701	AA2-057 C	9.07
919702	AA2-057 E	4.54
920042	AA2-088 E OP	10.18
920592	AA2-165 E	0.6
920672	AA2-174 E	0.68
920692	AA2-178 E	2.97
923851	AB2-025 C	1.77
923852	AB2-025 E	4.63

Bus #	Bus	MW Impact
923911	AB2-031 C O1	4.9
923912	AB2-031 E O1	2.41
923941	AB2-035 C	0.39
923942	AB2-035 E	0.17
923991	AB2-040 C O1	2.77
923992	AB2-040 E O1	13.15
924022	AB2-043 E O1	4.39
924152	AB2-059 E O1	6.3
924162	AB2-060 E O1	3.57
924302	AB2-077 E O1	1.12
924312	AB2-078 E O1	1.12
924322	AB2-079 E O1	1.12
924391	AB2-088 C	0.5
924392	AB2-088 E	0.24
924401	AB2-089 C	2.31
924402	AB2-089 E	1.19
924491	AB2-098 C	0.63
924492	AB2-098 E	0.27
924501	AB2-099 C	0.72
924502	AB2-099 E	0.31
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	5.72
925171	AB2-174 C O1	16.14
925172	AB2-174 E O1	14.6
925291	AB2-188 C O1	1.71
925292	AB2-188 E O1	0.77
925591	AC1-034 C	7.92
925592	AC1-034 E	5.98
925612	AC1-036 E	1.02
925781	AC1-054 C O1	8.29
925782	AC1-054 E O1	3.82
926071	AC1-086 C	43.36
926072	AC1-086 E	19.74
926201	AC1-098 C	8.26
926202	AC1-098 E	4.92
926211	AC1-099 C	2.77
926212	AC1-099 E	1.63
927021	AC1-189 C	9.71
927022	AC1-189 E	4.84
927141	AC1-208 C	12.61
927142	AC1-208 E	5.6
930402	AB1-081 E O1	4.45
930861	AB1-132 C O1	5.07
930862	AB1-132 E O1	12.62
931231	AB1-173 C	0.85
931232	AB1-173 E	2.3
931241	AB1-173AC	0.85
931242	AB1-173AE	2.3
932631	AC2-084 C	11.78
932632	AC2-084 E	5.8
933991	AD1-023 C	12.73

Bus #	Bus	MW Impact
933992	AD1-023 E	6.93
934201	AD1-047 C	17.54
934202	AD1-047 E	11.69
934231	AD1-050 C	5.09
934232	AD1-050 E	2.78
934331	AD1-057 C O1	15.91
934332	AD1-057 E O1	8.49
934521	AD1-076 C	47.62
934522	AD1-076 E	24.25
936261	AD2-033 C	9.03
936262	AD2-033 E	6.02
936361	AD2-046 C O1	8.41
936362	AD2-046 E O1	3.87
936401	AD2-051 C O1	11.13
936402	AD2-051 E O1	4.78
936481	AD2-063 C O1	11.63
936482	AD2-063 E O1	7.76
936531	AD2-068 C	4.73
936532	AD2-068 E	2.44
936701	AD2-089 C	8.36
936702	AD2-089 E	5.57
936711	AD2-090 C O1	5.49
936712	AD2-090 E O1	3.66
937571	AD2-169 C	20.69
937572	AD2-169 E	13.79
938171	AE1-026 C1 O	28.55
938172	AE1-026 C2 O	4.13
938173	AE1-026 E O2	8.62
938221	AE1-035 C	2.78
938222	AE1-035 E	1.37
AA2-074	AA2-074	2.59
CARR	CARR	0.24
CBM-S1	CBM-S1	5.83
CBM-S2	CBM-S2	6.85
CBM-W1	CBM-W1	5.91
CBM-W2	CBM-W2	38.34
CIN	CIN	2.67
CPL	CPL	3.81
G-007	G-007	0.82
IPL	IPL	1.67
LGEE	LGEE	0.77
MEC	MEC	5.91
MECS	MECS	2.52
O-066	O-066	2.74
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.71

Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40840	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	275.89	280.13	DC	15.29

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHELC	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.88
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECEMA	13.53
315132	1EDGECEMB	13.53
315136	1ROSEMG1	1.78
315137	1ROSEMS1	1.1
315138	1ROSEMG2	0.83
315139	1GASTONA	2.2
315141	1GASTONB	2.2
900672	V4-068 E	0.15
917331	Z2-043 C	0.33
917332	Z2-043 E	0.82
917341	Z2-044 C	0.5
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	1.17
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.92
918532	AA1-067 E	0.31
918561	AA1-072 C	0.05
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.33
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.31
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2

Bus #	Bus	MW Impact
923912	AB2-031 E O1	0.59
923941	AB2-035 C	0.36
923942	AB2-035 E	0.16
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	4.08
924152	AB2-059 E O1	12.22
924391	AB2-088 C	0.47
924392	AB2-088 E	0.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.32
924512	AB2-100 E	2.62
925122	AB2-169 E	2.22
925171	AB2-174 C O1	3.61
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.35
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.67
926212	AC1-099 E	1.57
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.52
927142	AC1-208 E	5.56
930401	AB1-081 C O1	3.46
930402	AB1-081 E O1	8.63
930861	AB1-132 C O1	1.68
930862	AB1-132 E O1	4.18
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.34
932632	AC2-084 E	5.58
933991	AD1-023 C	4.79
933992	AD1-023 E	2.61
934201	AD1-047 C	4.3
934202	AD1-047 E	2.87
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.97
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.84
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.57

Bus #	Bus	MW Impact
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O2	3.19
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
AC1-133	AC1-133	9.48
BAYOU	BAYOU	1.36
BIG_CAJUN1	BIG_CAJUN1	2.15
BIG_CAJUN2	BIG_CAJUN2	4.33
BLUEG	BLUEG	3.95
CALDERWOOD	CALDERWOOD	0.8
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.78
CBM-N	CBM-N	0.08
CHEOAH	CHEOAH	0.75
CHILHOWEE	CHILHOWEE	0.26
CHOCTAW	CHOCTAW	1.46
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	5.34
DEARBORN	DEARBORN	0.5
DUCKCREEK	DUCKCREEK	0.94
EDWARDS	EDWARDS	0.42
ELMERSMITH	ELMERSMITH	0.47
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.41
GIBSON	GIBSON	0.17
HAMLET	HAMLET	3.15
NEWTON	NEWTON	1.2
NYISO	NYISO	0.33
O-066A	O-066A	0.19
PRAIRIE	PRAIRIE	2.5
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.56
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.43
TVA	TVA	2.26
UNIONPOWER	UNIONPOWER	1.12
VFT	VFT	1.08

Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39866	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	144.76	147.53	DC	10.92

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314572	3EMPORIA	0.18
314578	3HORNRTN	2.81
314582	3KELFORD	9.44
314589	3MURPHYS	0.17
314603	3SCOT NK	6.48
314617	3TUNIS	2.15
314623	3WITAKRS	0.69
315115	1S HAMPT1	1.23
315126	1ROARAP2	1.16
315128	1ROARAP4	1.12
900672	V4-068 E	0.55
907092	X1-038 E	3.65
917331	Z2-043 C	1.08
917332	Z2-043 E	2.68
917342	Z2-044 E	0.3
918491	AA1-063AC OP	2.71
918492	AA1-063AE OP	7.42
918561	AA1-072 C	0.16
918562	AA1-072 E	0.45
919691	AA2-053 C	2.09
919692	AA2-053 E	5.21
919701	AA2-057 C	5.23
919702	AA2-057 E	2.61
920041	AA2-088 C OP	1.22
920042	AA2-088 E OP	11.54
920591	AA2-165 C	0.12
920592	AA2-165 E	0.34
920671	AA2-174 C	0.1
920672	AA2-174 E	0.6
923801	AB2-015 C O1	6.0
923802	AB2-015 E O1	4.92
923911	AB2-031 C O1	1.29
923912	AB2-031 E O1	0.63
923992	AB2-040 E O1	3.46
924401	AB2-089 C	0.89
924402	AB2-089 E	0.46
924501	AB2-099 C	1.76
924502	AB2-099 E	0.76

Bus #	Bus	MW Impact
925171	AB2-174 C O1	3.68
925172	AB2-174 E O1	3.33
925781	AC1-054 C O1	3.34
925782	AC1-054 E O1	1.54
926201	AC1-098 C	9.29
926202	AC1-098 E	5.53
926211	AC1-099 C	3.11
926212	AC1-099 E	1.83
927141	AC1-208 C	9.21
927142	AC1-208 E	4.09
931232	AB1-173 E	0.61
931242	AB1-173AE	0.61
932631	AC2-084 C	13.24
932632	AC2-084 E	6.52
934201	AD1-047 C	4.61
934202	AD1-047 E	3.07
934231	AD1-050 C	1.97
934232	AD1-050 E	1.08
936401	AD2-051 C O1	29.7
936402	AD2-051 E O1	12.75
936711	AD2-090 C O1	6.31
936712	AD2-090 E O1	4.2
937571	AD2-169 C	6.32
937572	AD2-169 E	4.21
938174	AE1-026 CBAT	1.16
938175	AE1-026 EBAT	4.63
CARR	CARR	0.02
CBM-S1	CBM-S1	0.07
CBM-S2	CBM-S2	0.03
CBM-W1	CBM-W1	0.03
CBM-W2	CBM-W2	0.38
CIN	CIN	0.02
DEARBORN	DEARBORN	0.0
G-007	G-007	0.07
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
O-066	O-066	0.25
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.0

Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
39994	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	123.45	125.36	DC	7.54

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314578	3HORNRTN	2.4
314582	3KELFORD	9.59
314589	3MURPHYS	0.17
314603	3SCOT NK	6.48
314617	3TUNIS	2.18
314623	3WITAKRS	0.63
315115	1S HAMPT1	1.21
315126	1ROARAP2	0.97
315128	1ROARAP4	0.93
900672	V4-068 E	0.55
907092	X1-038 E	3.64
917331	Z2-043 C	1.09
917332	Z2-043 E	2.73
917342	Z2-044 E	0.27
918491	AA1-063AC OP	2.64
918492	AA1-063AE OP	7.23
918561	AA1-072 C	0.16
918562	AA1-072 E	0.45
919691	AA2-053 C	1.96
919692	AA2-053 E	4.89
919701	AA2-057 C	4.87
919702	AA2-057 E	2.43
920041	AA2-088 C OP	1.19
920042	AA2-088 E OP	11.24
920591	AA2-165 C	0.11
920592	AA2-165 E	0.32
920671	AA2-174 C	0.09
920672	AA2-174 E	0.57
923801	AB2-015 C O1	5.93
923802	AB2-015 E O1	4.86
923911	AB2-031 C O1	0.99
923912	AB2-031 E O1	0.49
923992	AB2-040 E O1	2.66
924501	AB2-099 C	1.8
924502	AB2-099 E	0.77
925171	AB2-174 C O1	2.75
925172	AB2-174 E O1	2.49
925781	AC1-054 C O1	2.75

Bus #	Bus	MW Impact
925782	AC1-054 E O1	1.27
926201	AC1-098 C	9.13
926202	AC1-098 E	5.44
926211	AC1-099 C	3.06
926212	AC1-099 E	1.8
927141	AC1-208 C	8.65
927142	AC1-208 E	3.84
931232	AB1-173 E	0.47
931242	AB1-173AE	0.47
932631	AC2-084 C	13.01
932632	AC2-084 E	6.41
934201	AD1-047 C	3.55
934202	AD1-047 E	2.37
936401	AD2-051 C O1	30.42
936402	AD2-051 E O1	13.06
936711	AD2-090 C O1	6.19
936712	AD2-090 E O1	4.12
937571	AD2-169 C	4.99
937572	AD2-169 E	3.33
938174	AE1-026 CBAT	0.8
938175	AE1-026 EBAT	3.2
CARR	CARR	0.02
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.02
CBM-W2	CBM-W2	0.19
CIN	CIN	0.0
DEARBORN	DEARBORN	0.01
G-007	G-007	0.06
IPL	IPL	0.0
LGEE	LGEE	0.0
MEC	MEC	0.02
O-066	O-066	0.2
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.0

Index 28

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40250	314569	GEARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	112.46	124.19	DC	67.01

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.99
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.12
925121	AB2-169 C	2.11
925171	AB2-174 C O1	5.21

Bus #	Bus	MW Impact
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.85
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.09
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.15
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.73
936401	AD2-051 C O1	15.92
936531	AD2-068 C	6.56
936701	AD2-089 C	9.29
937571	AD2-169 C	8.21
938171	AE1-026 C1 O	58.54
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	6.01
CBM-S2	CBM-S2	7.06
CBM-W1	CBM-W1	6.24
CBM-W2	CBM-W2	39.71
CIN	CIN	2.8
CPL	CPL	4.01
IPL	IPL	1.76
LGEE	LGEE	0.81
MEC	MEC	6.17
MECS	MECS	2.74
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 29

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40276	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.78	118.5	DC	67.0

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
916041	Z1-036 C	2.32
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.98
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	2.11

Bus #	Bus	MW Impact
925171	AB2-174 C O1	5.2
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.82
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.53
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.72
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.19
CBM-W2	CBM-W2	39.52
CIN	CIN	2.78
CPL	CPL	4.0
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 30

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
39894	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P4-2: 203462	breaker	239.0	117.7	145.8	DC	67.17

Bus #	Bus	MW Impact
314566	3CRESWEL	3.21
314594	6PLYMOTH	1.36
314648	6SUNBURY	0.31
314651	6WINFALL	1.04
315292	1DOMTR78	3.35
315293	1DOMTR9	2.73
315294	1DOMTR10	4.95
901082	W1-029 E	24.33
913392	Y1-086 E	0.9
916041	Z1-036 C	0.97
916042	Z1-036 E	37.64
917122	Z2-027 E	0.5
920691	AA2-178 C	2.21
920692	AA2-178 E	5.51
923832	AB2-022 E	0.51
925121	AB2-169 C	1.01
925122	AB2-169 E	5.26
925281	AB2-186 C	0.42
925282	AB2-186 E	0.18
925291	AB2-188 C O1	3.17
925292	AB2-188 E O1	1.42
933991	AD1-023 C	21.75
933992	AD1-023 E	11.84
934521	AD1-076 C	89.76
934522	AD1-076 E	45.7
938171	AE1-026 C1 O	46.43
938172	AE1-026 C2 O	6.72
938173	AE1-026 E O2	14.02
BAYOU	BAYOU	0.6
BIG_CAJUN1	BIG_CAJUN1	0.95
BIG_CAJUN2	BIG_CAJUN2	1.92
BLUEG	BLUEG	1.72
CALDERWOOD	CALDERWOOD	0.35
CANNELTON	CANNELTON	0.12
CATAWBA	CATAWBA	0.34
CBM-N	CBM-N	0.04
CHEOAH	CHEOAH	0.33
CHILHOWEE	CHILHOWEE	0.12
CHOCTAW	CHOCTAW	0.65
COFFEEN	COFFEEN	0.2

Bus #	Bus	MW Impact
COTTONWOOD	COTTONWOOD	2.37
DEARBORN	DEARBORN	0.22
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.18
ELMERSMITH	ELMERSMITH	0.21
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	0.21
GIBSON	GIBSON	0.07
HAMLET	HAMLET	1.42
NEWTON	NEWTON	0.52
NYISO	NYISO	0.18
O-066A	O-066A	0.09
PRAIRIE	PRAIRIE	1.1
SANTEETLA	SANTEETLA	0.1
SMITHLAND	SMITHLAND	0.1
TATANKA	TATANKA	0.25
TILTON	TILTON	0.22
TRIMBLE	TRIMBLE	0.19
TVA	TVA	1.0
UNIONPOWER	UNIONPOWER	0.49
VFT	VFT	0.55

Index 31

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
39861	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	136.73	147.65	DC	71.87

Bus #	Bus	MW Impact
314557	3BETHEL C	0.6
314566	3CRESWEL	6.39
314574	6EVERETS	4.25
314582	3KELFORD	3.05
314594	6PLYMOTH	1.92
314603	3SCOT NK	2.52
314617	3TUNIS	0.64
314620	6CASHIE	1.49
314638	6ELIZ CT	1.01
314639	6TANGLEW	1.78
314651	6WINFALL	6.71
315292	1DOMTR78	2.78
315293	1DOMTR9	2.27
315294	1DOMTR10	4.11
901081	W1-029 C	4.51
901082	W1-029 E	175.16
913392	Y1-086 E	9.58
916041	Z1-036 C	4.05
916042	Z1-036 E	157.46
917122	Z2-027 E	4.42
917331	Z2-043 C	0.35
917332	Z2-043 E	0.87
917511	Z2-088 C OP1	1.38
917512	Z2-088 E OP1	3.44
918491	AA1-063AC OP	1.03
918492	AA1-063AE OP	2.82
918511	AA1-065 C OP	1.79
918512	AA1-065 E OP	5.12
918531	AA1-067 C	0.3
918532	AA1-067 E	0.75
918561	AA1-072 C	0.05
918562	AA1-072 E	0.14
919691	AA2-053 C	0.94
919692	AA2-053 E	2.34
920671	AA2-174 C	0.04
920672	AA2-174 E	0.27
920691	AA2-178 C	4.4
920692	AA2-178 E	10.96
923831	AB2-022 C	1.73
923832	AB2-022 E	5.41

Bus #	Bus	MW Impact
923941	AB2-035 C	0.25
923942	AB2-035 E	0.11
924391	AB2-088 C	0.32
924392	AB2-088 E	0.16
924491	AB2-098 C	0.58
924492	AB2-098 E	0.25
924501	AB2-099 C	0.51
924502	AB2-099 E	0.22
925121	AB2-169 C	1.83
925122	AB2-169 E	9.56
925281	AB2-186 C	2.25
925282	AB2-186 E	0.96
925291	AB2-188 C O1	6.3
925292	AB2-188 E O1	2.83
926201	AC1-098 C	4.29
926202	AC1-098 E	2.55
926211	AC1-099 C	1.44
926212	AC1-099 E	0.84
927021	AC1-189 C	8.05
927022	AC1-189 E	4.01
927141	AC1-208 C	5.57
927142	AC1-208 E	2.47
932631	AC2-084 C	6.11
932632	AC2-084 E	3.01
933991	AD1-023 C	25.21
933992	AD1-023 E	13.72
934521	AD1-076 C	118.86
934522	AD1-076 E	60.52
936401	AD2-051 C O1	8.54
936402	AD2-051 E O1	3.67
936531	AD2-068 C	3.85
936532	AD2-068 E	1.98
936701	AD2-089 C	5.39
936702	AD2-089 E	3.59
938171	AE1-026 C1 O	49.68
938172	AE1-026 C2 O	7.19
938173	AE1-026 E O2	15.0
938221	AE1-035 C	2.6
938222	AE1-035 E	1.28
AA2-074	AA2-074	1.56
CARR	CARR	0.13
CBM-S1	CBM-S1	3.29
CBM-S2	CBM-S2	4.0
CBM-W1	CBM-W1	3.29
CBM-W2	CBM-W2	21.67
CIN	CIN	1.48
CPL	CPL	2.29
G-007	G-007	0.45
IPL	IPL	0.93
LGEE	LGEE	0.43
MEC	MEC	3.31
MECS	MECS	1.39

Bus #	Bus	MW Impact
O-066	O-066	1.49
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.4

Index 32

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
40406	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	118.42	119.05	DC	32.98

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHEST	0.22
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.4
315038	1LDYSMT2	5.39
315039	1LDYSMT3	5.71
315040	1LDYSMT4	5.72
315041	1LDYSMT5	5.74
315043	1FOUR RIVERA	4.28
315044	1FOUR RIVERB	3.32
315045	1FOUR RIVERC	4.28
315046	1FOUR RIVERD	3.32
315047	1FOUR RIVERE	3.32
315048	1FOUR RIVERF	4.28
315053	1BELMED1	19.56
315054	1BELMED2	19.56
315055	1BELMED3	16.23
315058	1CHESTF3	20.52
315059	1CHESTF4	33.26
315067	1DARBY 1	3.06
315068	1DARBY 2	3.07
315069	1DARBY 3	3.08
315070	1DARBY 4	3.08
315074	1HOPCGN1	9.41
315075	1HOPCGN2	9.29
315083	1SPRUNCA	11.98
315084	1SPRUNCB	11.98
315085	1SPRUNCC	8.88
315086	1SPRUNCD	8.88
315090	1YORKTN1	31.93
315091	1YORKTN2	33.14
315225	1N ANNA1	43.91
315226	1N ANNA2	44.0
919211	AA1-145	12.37
923801	AB2-015 C O1	9.1
923911	AB2-031 C O1	2.25
924061	AB2-050	0.73
924241	AB2-068 O1	227.03
924501	AB2-099 C	0.6
924511	AB2-100 C	11.86

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.11
925061	AB2-161 C O1	3.72
925171	AB2-174 C O1	7.09
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.56
925861	AC1-065 C	3.77
926001	AC1-076 C	4.94
926071	AC1-086 C	20.72
926291	AC1-107 O1	342.69
926411	AC1-112 C	0.39
926551	AC1-134	1.82
926731	AC1-158 C	93.45
926751	AC1-161 C O1	33.57
926781	AC1-164 C	45.65
927041	AC1-191 C O1	10.8
927221	AC1-216 C O1	11.02
930121	AB1-027 C	0.51
932041	AC2-012 C	11.24
932501	AC2-070 C	0.33
932581	AC2-078 C O1	4.51
932591	AC2-079 C O1	6.28
932831	AC2-110 C	1.51
933011	AC2-125	3.09
933021	AC2-126	3.11
933031	AC2-127	1.7
933041	AC2-128	1.64
933051	AC2-129	1.54
933061	AC2-130	2.72
933071	AC2-131 1	1.84
933081	AC2-131 2	0.84
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.41
933291	AC2-141 C	33.57
933501	AC2-165 C	9.63
933991	AD1-023 C	13.56
934011	AD1-025 C	18.95
934061	AD1-033 C	8.25
934141	AD1-041 C	5.93
934201	AD1-047 C	8.07
934211	AD1-048 C	0.48
934521	AD1-076 C	56.45
934541	AD1-078 C	3.05
934571	AD1-082 C	8.48
934781	AD1-105 C	7.81
935161	AD1-151 C O1	18.13
936041	AD2-007	2.01
936051	AD2-008 C	3.3
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51

Bus #	Bus	MW Impact
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.86
936581	AD2-073 C	2.23
936591	AD2-074 C	5.95
936661	AD2-085 C	3.77
936711	AD2-090 C O1	7.52
937221	AD2-160 C O1	6.4
937251	AD2-164	5.34
937541	AD2-215 C	1.92
937571	AD2-169 C	10.04
938031	AE1-004 C	1.51
938081	AE1-010	6.85
938171	AE1-026 C1 O	28.81
938172	AE1-026 C2 O	4.17
938181	AE1-027 C	2.57
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O2	31.26
938471	AE1-066 C O2	32.12
938481	AE1-067 C O2	29.21
938491	AE1-068 C O2	59.59
938501	AE1-069 C O2	47.24
938531	AE1-072 C O2	19.15
938551	AE1-074 C	2.75
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.47
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.16
CBM-W1	CBM-W1	9.54
CBM-W2	CBM-W2	80.31
CIN	CIN	4.81
CPL	CPL	7.65
IPL	IPL	2.98
LGEE	LGEE	1.44
MEC	MEC	11.27
MECS	MECS	2.35
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.23

Index 33

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
40212	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	149.09	150.11	DC	54.01

Bus #	Bus	MW Impact
314229	6MT RD221	0.24
314236	6NRTHST	0.37
314309	6IRON208	0.87
315053	1BELMED1	31.59
315054	1BELMED2	31.59
315055	1BELMED3	26.22
315058	1CHESTF3	33.55
315059	1CHESTF4	54.39
315060	1CHESTF5	19.83
315061	1CHESTG7	7.77
315062	1CHESTS7	3.53
315063	1CHESTG8	7.62
315064	1CHESTS8	3.93
315067	1DARBY 1	5.07
315068	1DARBY 2	5.08
315069	1DARBY 3	5.09
315070	1DARBY 4	5.1
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.12
315084	1SPRUNCB	19.12
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.34
315091	1YORKTN2	55.35
315092	1YORKTN3	45.58
315233	1SURREY 2	49.5
923801	AB2-015 C O1	14.87
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.72
924501	AB2-099 C	0.97
924511	AB2-100 C	19.06
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.43
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.16
925861	AC1-065 C	6.04
926071	AC1-086 C	33.58

Bus #	Bus	MW Impact
926291	AC1-107 O1	647.12
926411	AC1-112 C	0.66
926751	AC1-161 C O1	55.63
926781	AC1-164 C	77.8
927041	AC1-191 C O1	17.07
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.85
932041	AC2-012 C	18.51
932501	AC2-070 C	0.56
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.41
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.69
933291	AC2-141 C	55.63
933991	AD1-023 C	22.21
934011	AD1-025 C	31.22
934061	AD1-033 C	13.58
934141	AD1-041 C	9.42
934201	AD1-047 C	13.02
934211	AD1-048 C	0.79
934521	AD1-076 C	92.51
934571	AD1-082 C	13.84
935161	AD1-151 C O1	29.86
936041	AD2-007	3.31
936051	AD2-008 C	5.44
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.41
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.46
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.54
937251	AD2-164	8.91
937541	AD2-215 C	3.16
937571	AD2-169 C	16.22
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.18
938172	AE1-026 C2 O	6.83
938181	AE1-027 C	4.23
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O2	51.46
938471	AE1-066 C O2	52.89
938481	AE1-067 C O2	48.09
938491	AE1-068 C O2	92.72
938501	AE1-069 C O2	73.48

Bus #	Bus	MW Impact
938531	AE1-072 C O2	31.51
938551	AE1-074 C	4.28
AA2-074	AA2-074	8.69
AB2-013	AB2-013	8.01
AE1-033	AE1-033	8.34
AE1-042	AE1-042	17.0
CARR	CARR	2.56
CBM-S1	CBM-S1	27.03
CBM-S2	CBM-S2	26.21
CBM-W1	CBM-W1	28.48
CBM-W2	CBM-W2	177.6
CIN	CIN	13.28
CPLE	CPLE	12.77
IPL	IPL	8.37
LGEE	LGEE	3.91
MEC	MEC	28.22
MECS	MECS	11.98
RENSSELAER	RENSSELAER	2.03
WEC	WEC	3.49
Z1-043	Z1-043	13.73

Index 34

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
40499	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	107.88	108.45	DC	33.47

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHST	0.23
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.54
315038	1LDYSMT2	5.53
315039	1LDYSMT3	5.86
315040	1LDYSMT4	5.87
315041	1LDYSMT5	5.88
315043	1FOUR RIVERA	4.37
315044	1FOUR RIVERB	3.38
315045	1FOUR RIVERC	4.37
315046	1FOUR RIVERD	3.38
315047	1FOUR RIVERE	3.38
315048	1FOUR RIVERF	4.36
315053	1BELMED1	19.88
315054	1BELMED2	19.88
315055	1BELMED3	16.5
315058	1CHESTF3	20.88
315059	1CHESTF4	33.84
315067	1DARBY 1	3.12
315068	1DARBY 2	3.12
315069	1DARBY 3	3.13
315070	1DARBY 4	3.14
315074	1HOPCGN1	9.57
315075	1HOPCGN2	9.45
315083	1SPRUNCA	12.17
315084	1SPRUNCB	12.17
315085	1SPRUNCC	9.02
315086	1SPRUNCD	9.02
315090	1YORKTN1	32.48
315091	1YORKTN2	33.7
315225	1N ANNA1	44.6
315226	1N ANNA2	44.69
919211	AA1-145	12.63
923801	AB2-015 C O1	9.23
923911	AB2-031 C O1	2.28
924061	AB2-050	0.74
924241	AB2-068 O1	231.31
924501	AB2-099 C	0.6
924511	AB2-100 C	12.03

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.21
925061	AB2-161 C O1	3.78
925171	AB2-174 C O1	7.19
925281	AB2-186 C	0.67
925291	AB2-188 C O1	2.52
925331	AB2-190 C	22.94
925861	AC1-065 C	3.84
926071	AC1-086 C	21.01
926291	AC1-107 O1	349.15
926411	AC1-112 C	0.4
926551	AC1-134	1.86
926751	AC1-161 C O1	34.12
926781	AC1-164 C	46.48
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.21
930121	AB1-027 C	0.51
932041	AC2-012 C	11.42
932501	AC2-070 C	0.34
932581	AC2-078 C O1	4.59
932591	AC2-079 C O1	6.39
932831	AC2-110 C	1.54
933011	AC2-125	3.17
933021	AC2-126	3.19
933031	AC2-127	1.75
933041	AC2-128	1.68
933051	AC2-129	1.58
933061	AC2-130	2.76
933071	AC2-131 1	1.87
933081	AC2-131 2	0.85
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933261	AC2-137 C	0.41
933291	AC2-141 C	34.12
933501	AC2-165 C	9.61
933991	AD1-023 C	13.76
934011	AD1-025 C	19.26
934061	AD1-033 C	8.38
934141	AD1-041 C	6.04
934201	AD1-047 C	8.18
934211	AD1-048 C	0.48
934521	AD1-076 C	57.28
934571	AD1-082 C	8.62
934781	AD1-105 C	7.98
935161	AD1-151 C O1	18.43
936041	AD2-007	2.05
936051	AD2-008 C	3.35
936151	AD2-021	0.27
936241	AD2-030 C	2.62
936301	AD2-039 C	1.54
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.98

Bus #	Bus	MW Impact
936581	AD2-073 C	2.28
936591	AD2-074 C	6.07
936661	AD2-085 C	3.83
936711	AD2-090 C O1	7.63
937221	AD2-160 C O1	6.5
937251	AD2-164	5.44
937541	AD2-215 C	1.95
937571	AD2-169 C	10.18
938031	AE1-004 C	1.54
938081	AE1-010	3.16
938171	AE1-026 C1 O	29.24
938172	AE1-026 C2 O	4.23
938181	AE1-027 C	2.61
938191	AE1-028 C	1.51
938221	AE1-035 C	2.31
938461	AE1-065 C O2	31.76
938471	AE1-066 C O2	32.64
938481	AE1-067 C O2	29.68
938491	AE1-068 C O2	60.44
938501	AE1-069 C O2	47.91
938531	AE1-072 C O2	19.46
938551	AE1-074 C	2.8
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.26
AE1-042	AE1-042	8.5
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.28
CBM-W1	CBM-W1	9.43
CBM-W2	CBM-W2	80.24
CIN	CIN	4.77
CPL	CPL	7.73
IPL	IPL	2.95
LGEE	LGEE	1.43
MEC	MEC	11.21
MECS	MECS	2.26
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.22

Index 35

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
40237	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	119.74	120.67	DC	49.66

Bus #	Bus	MW Impact
314507	3THOMPSN	0.56
315053	1BELMED1	25.08
315054	1BELMED2	25.08
315055	1BELMED3	20.82
315058	1CHESTF3	25.15
315059	1CHESTF4	40.77
315074	1HOPCGN1	12.12
315075	1HOPCGN2	11.97
315083	1SPRUNCA	16.05
315084	1SPRUNCB	16.05
315085	1SPRUNCC	11.9
315086	1SPRUNCD	11.9
315090	1YORKTN1	42.52
315091	1YORKTN2	44.12
315098	1CHESPKA	0.74
315099	1CHESPKB	1.84
315102	1BRUNSWICKG1	14.59
315103	1BRUNSWICKG2	14.59
315104	1BRUNSWICKG3	14.59
315105	1BRUNSWICKS1	30.3
315108	1ELIZAR1	5.42
315109	1ELIZAR2	5.33
315110	1ELIZAR3	5.49
315131	1EDGECEMA	13.55
315132	1EDGECEMB	13.55
315150	1BUGGS 1	15.65
315151	1BUGGS 2	15.65
315260	1GOSPORTA	0.59
315261	1GOSPORTB	0.75
315262	1GOSPORTC	0.64
916191	Z1-068 C	0.07
916301	Z1-086 C	88.78
919151	AA1-139 C	4.13
919701	AA2-057 C	10.54
923801	AB2-015 C O1	13.51
923911	AB2-031 C O1	3.44
923941	AB2-035 C	0.5
924241	AB2-068 O1	245.81
924391	AB2-088 C	0.64
924401	AB2-089 C	3.07

Bus #	Bus	MW Impact
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	18.02
925051	AB2-160 C O1	8.21
925061	AB2-161 C O1	5.31
925171	AB2-174 C O1	10.82
925281	AB2-186 C	0.97
925291	AB2-188 C O1	3.7
925331	AB2-190 C	30.04
925521	AC1-027 C	0.55
925591	AC1-034 C	9.98
925781	AC1-054 C O1	10.43
925861	AC1-065 C	4.35
926071	AC1-086 C	31.67
926201	AC1-098 C	9.26
926211	AC1-099 C	3.1
926291	AC1-107 O1	371.04
926661	AC1-147 C	0.62
926751	AC1-161 C O1	49.19
926761	AC1-162 C	38.62
926781	AC1-164 C	52.75
927021	AC1-189 C	12.99
927141	AC1-208 C	13.56
927221	AC1-216 C O1	14.75
932041	AC2-012 C	16.39
932581	AC2-078 C O1	6.33
932591	AC2-079 C O1	9.07
932631	AC2-084 C	13.2
932831	AC2-110 C	1.74
933061	AC2-130	3.31
933071	AC2-131 1	2.24
933081	AC2-131 2	1.02
933111	AC2-132 1	1.18
933121	AC2-132 2	0.6
933291	AC2-141 C	49.19
933501	AC2-165 C	14.56
933731	AC2-196 C	0.5
933991	AD1-023 C	20.39
934011	AD1-025 C	25.35
934061	AD1-033 C	12.08
934141	AD1-041 C	6.82
934201	AD1-047 C	12.32
934231	AD1-050 C	6.76
934331	AD1-057 C O1	14.92
934521	AD1-076 C	84.7
934571	AD1-082 C	12.11
934611	AD1-087 C O1	12.18
934621	AD1-088 C	18.68
935161	AD1-151 C O1	24.14
935171	AD1-152 C O1	12.1
936041	AD2-007	2.69
936051	AD2-008 C	4.41

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936241	AD2-030 C	2.95
936301	AD2-039 C	1.74
936361	AD2-046 C O1	12.52
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.43
936481	AD2-063 C O1	20.3
936531	AD2-068 C	7.6
936661	AD2-085 C	5.44
936701	AD2-089 C	10.72
936711	AD2-090 C O1	11.22
937221	AD2-160 C O1	9.39
937251	AD2-164	7.18
937481	AD2-202 C O1	3.35
937541	AD2-215 C	2.76
937571	AD2-169 C	15.33
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.38
938172	AE1-026 C2 O	6.28
938181	AE1-027 C	3.76
938191	AE1-028 C	2.18
938221	AE1-035 C	3.45
938461	AE1-065 C O2	45.69
938471	AE1-066 C O2	46.96
938481	AE1-067 C O2	42.7
938491	AE1-068 C O2	101.91
938501	AE1-069 C O2	80.83
938531	AE1-072 C O2	28.12
938551	AE1-074 C	4.01
938561	AE1-075 C	3.3
AA2-074	AA2-074	8.52
AB2-013	AB2-013	6.5
AE1-033	AE1-033	6.77
AE1-042	AE1-042	15.07
CARR	CARR	2.04
CBM-S1	CBM-S1	23.48
CBM-S2	CBM-S2	25.07
CBM-W1	CBM-W1	22.95
CBM-W2	CBM-W2	152.87
CIN	CIN	10.71
CPL	CPL	12.53
IPL	IPL	6.71
LGEE	LGEE	3.14
MEC	MEC	23.49
MECS	MECS	9.09
RENSSELAER	RENSSELAER	1.62
WEC	WEC	2.82
Z1-043	Z1-043	11.11

Index 36

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
40287	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	106.76	118.49	DC	67.0

Bus #	Bus	MW Impact
314589	3MURPHYS	0.1
314704	3LAWRENC	0.19
315126	1ROARAP2	1.36
315128	1ROARAP4	1.3
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	2.38
315137	1ROSEMS1	1.47
315138	1ROSEMG2	1.11
315139	1GASTONA	3.34
315141	1GASTONB	3.34
315159	1KERR 2	0.74
315164	1KERR 7	0.73
315292	1DOMTR78	2.84
315293	1DOMTR9	2.32
315294	1DOMTR10	4.21
916041	Z1-036 C	2.32
917331	Z2-043 C	0.65
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	2.35
918491	AA1-063AC OP	1.9
918511	AA1-065 C OP	3.36
918531	AA1-067 C	0.51
918561	AA1-072 C	0.1
919691	AA2-053 C	1.72
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.7
920591	AA2-165 C	0.18
920671	AA2-174 C	0.08
920691	AA2-178 C	3.33
923911	AB2-031 C O1	1.74
923941	AB2-035 C	0.43
923991	AB2-040 C O1	0.98
924151	AB2-059 C O1	1.81
924391	AB2-088 C	0.56
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	2.11

Bus #	Bus	MW Impact
925171	AB2-174 C O1	5.2
925291	AB2-188 C O1	4.76
925591	AC1-034 C	6.82
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.54
930861	AB1-132 C O1	2.55
931231	AB1-173 C	0.3
931241	AB1-173AC	0.3
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.53
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
AA2-074	AA2-074	2.72
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.19
CBM-W2	CBM-W2	39.52
CIN	CIN	2.78
CPL	CPL	4.0
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

Index 37

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
40312	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	126.03	133.76	DC	29.0

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
315115	1S HAMPT1	0.72
315126	1ROARAP2	1.4
315128	1ROARAP4	1.34
315131	1EDGECEMA	10.43
315132	1EDGECEMB	10.43
315136	1ROSEMG1	4.62
315137	1ROSEMS1	2.87
315138	1ROSEMG2	2.17
315139	1GASTONA	6.88
315141	1GASTONB	6.88
315159	1KERR 2	0.49
315163	1KERR 6	0.48
315164	1KERR 7	0.48
315292	1DOMTR78	1.18
315293	1DOMTR9	0.96
315294	1DOMTR10	1.74
916041	Z1-036 C	0.38
917331	Z2-043 C	0.42
917341	Z2-044 C	0.24
917511	Z2-088 C OP1	1.63
918491	AA1-063AC OP	1.48
918511	AA1-065 C OP	1.75
918531	AA1-067 C	0.3
918561	AA1-072 C	0.06
919691	AA2-053 C	1.5
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.71
920591	AA2-165 C	0.17
920671	AA2-174 C	0.07
920691	AA2-178 C	0.98
923801	AB2-015 C O1	3.47
923941	AB2-035 C	0.37
924151	AB2-059 C O1	1.92
924391	AB2-088 C	0.47
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
924511	AB2-100 C	42.5
925121	AB2-169 C	0.98

Bus #	Bus	MW Impact
925291	AB2-188 C O1	1.4
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13
927021	AC1-189 C	8.97
927141	AC1-208 C	9.23
930401	AB1-081 C O1	1.63
930861	AB1-132 C O1	5.25
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.01
936401	AD2-051 C O1	9.31
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.68
938171	AE1-026 C1 O	25.33
938172	AE1-026 C2 O	3.66
938221	AE1-035 C	2.54
AA2-074	AA2-074	2.19
CARR	CARR	0.18
CBM-S1	CBM-S1	4.76
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.79
CBM-W2	CBM-W2	31.34
CIN	CIN	2.16
CPL	CPL	3.22
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.81
MECS	MECS	2.04
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

Affected Systems – Option 2

LG&E

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

MISO

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

TVA

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

Duke Energy Progress

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

NYISO

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

Contingency Definitions

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 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: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END
DVP_P1-2: LN 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 568	CONTINGENCY 'DVP_P1-2: LN 568' OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: WT2171	CONTINGENCY 'DVP_P4-2: WT2171' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END
DVP_P4-2: 203462	CONTINGENCY 'DVP_P4-2: 203462' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314569 TO BUS 314620 CKT 1 /* 6EARLEYS 230.00 - 6CASHIE 230.00 OPEN BRANCH FROM BUS 938170 TO BUS 314620 CKT 1 /* AE1-026 TAP 230.00 - 6CASHIE 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BUS 314620 /* ISLAND: 6CASHIE 230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 246T2034	CONTINGENCY 'DVP_P4-2: 246T2034' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314620 CKT 1 /* 6EARLEYS 230.00 - 6CASHIE 230.00 OPEN BRANCH FROM BUS 938170 TO BUS 314620 CKT 1 /* AE1-026 TAP 230.00 - 6CASHIE 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BUS 314620 /* ISLAND: 6CASHIE 230.00 END
DVP_P4-2: 201262	CONTINGENCY 'DVP_P4-2: 201262' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2020	CONTINGENCY 'DVP_P1-2: LN 2020' OPEN BRANCH FROM BUS 313851 TO BUS 314638 CKT 1 /* 6ECITYDP2 230.00 - 6ELIZ CT 230.00 OPEN BRANCH FROM BUS 313851 TO BUS 314639 CKT 1 /* 6ECITYDP2 230.00 - 6TANGLEW 230.00 OPEN BRANCH FROM BUS 314639 TO BUS 314651 CKT 1 /* 6TANGLEW 230.00 - 6WINFALL 230.00 OPEN BUS 313851 /* ISLAND: 6ECITYDP2 230.00 OPEN BUS 314639 /* ISLAND: 6TANGLEW 230.00 OPEN BUS 917122 /* ISLAND: Z2-027 E 230.00 END
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_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

Contingency Name	Contingency Definition
DVP_P4-2: H1T581	CONTINGENCY 'DVP_P4-2: H1T581' /* LADYSMITH 500 KV 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 OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END
DVP_P1-3: 6EARLEYS-TX#4	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#4' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 247	CONTINGENCY 'DVP_P1-2: LN 247' OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END
DVP_P1-2: LN 1029-B	CONTINGENCY 'DVP_P1-2: LN 1029-B' OPEN BRANCH FROM BUS 925170 TO BUS 314615 CKT 1 /* AB2-174 TAP 115.00 - 3TREGOTP 115.00 END
DVP_P4-2: 24642	CONTINGENCY 'DVP_P4-2: 24642' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
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_P4-2: 246T247	CONTINGENCY 'DVP_P4-2: 246T247' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END
DVP_P7-1: LN 198-581	CONTINGENCY 'DVP_P7-1: LN 198-581' OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00 OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00 OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00 OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00 OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00 OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00 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: 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_P1-3: 6EARLEYS-TX#3	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#3' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: 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
AEP_P4_#11111_05J.FERR 765_B1	CONTINGENCY 'AEP_P4_#11111_05J.FERR 765_B1' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242514 TO BUS 242684 CKT 2 / 242514 05J.FERR 765 242684 05J.FERR 138 2 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
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
AEP_P1-2_#1377	CONTINGENCY 'AEP_P1-2_#1377' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
DVP_P1-2: LN 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 238	CONTINGENCY 'DVP_P1-2: LN 238' OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 314563 CKT 1 /* 6SAPONY 230.00 - 6CLUBHSE 230.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTAN 500.00 - 8NO ANNA 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

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: H1T568	CONTINGENCY 'DVP_P4-2: H1T568' /* POSSUM POINT 500 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314074 TO BUS 314922 CKT 1 /* 6POSSUM 230.00 - 8POSSUM 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	
DVP_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: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_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

Contingency Name	Contingency Definition
DVP_P4-2: 217162	CONTINGENCY 'DVP_P4-2: 217162' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 230.00 END
DVP_P1-2: LN 2034-C	CONTINGENCY 'DVP_P1-2: LN 2034-C' OPEN BRANCH FROM BUS 314569 TO BUS 314620 CKT 1 /* 6EARLEYS 230.00 - 6CASHIE 230.00 OPEN BRANCH FROM BUS 938170 TO BUS 314620 CKT 1 /* AE1-026 TAP 230.00 - 6CASHIE 230.00 OPEN BUS 314620 /* ISLAND: 6CASHIE 230.00 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
AEP_P4_#11112_05J.FERR 765_A1	CONTINGENCY 'AEP_P4_#11112_05J.FERR 765_A1' OPEN BRANCH FROM BUS 242511 TO BUS 242514 CKT 1 / 242511 05BROADF 765 242514 05J.FERR 765 1 OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 OPEN BRANCH FROM BUS 242566 TO BUS 242567 CKT ZB / 242566 05BROADF 138 242567 05BROADX 138 ZB 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

Short Circuit – Option 2

Short Circuit

The following Breakers are overduty:

None

Attachment 1 – AE1-024/AE1-025/AE1-026 One Line Diagram