



**Generation Interconnection  
Feasibility Study Report  
for  
Queue Project AE2-123  
BIRDNECK-LANDSTOWN 230 KV  
163.3 MW Capacity / 800.1 MW Energy**

July, 2019

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## 1 Introduction

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

## 2 Preface

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

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

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

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

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

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

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

### 3 General

The Interconnection Customer (IC), has proposed a Offshore Wind generating facility located in Virginia Beach, Virginia. The installed facilities will have a total capability of 800.1 MW with 163.3 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 12/31/2027. This study does not imply a TO commitment to this in-service date.

|                                 |                                  |
|---------------------------------|----------------------------------|
| <b>Queue Number</b>             | <b>AE2-123</b>                   |
| <b>Project Name</b>             | <b>BIRDNECK-LANDSTOWN 230 KV</b> |
| <b>Interconnection Customer</b> |                                  |
| <b>State</b>                    | Virginia                         |
| <b>County</b>                   | City of Virginia Beach           |
| <b>Transmission Owner</b>       | Dominion                         |
| <b>MFO</b>                      | 800.1                            |
| <b>MWE</b>                      | 800.1                            |
| <b>MWC</b>                      | 163.3                            |
| <b>Fuel</b>                     | Offshore Wind                    |
| <b>Basecase Study Year</b>      | 2022                             |

#### 3.1 Primary Point of Interconnection

AE2-123 “Birdneck – Landstown 230 kV” will interconnect with the Dominion’s transmission system through a new three breaker 230 kV switching station which will be adjacent to the transmission right-of-way. This is the primary Point of Interconnection (POI) chose by the IC with the ITO’s transmission system. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the solar facility site to the proposed new switching station. Attachment 1 shows a one-line diagram of the proposed

interconnection facilities. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

### 3.2 Secondary Point of Interconnection

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

### 3.3 Cost Summary

The AE2-123 project will be responsible for the following costs:

| Description                            | Total Cost          |
|----------------------------------------|---------------------|
| Attachment Facilities                  | \$ 2,100,000        |
| Direct Connection Network Upgrade      | \$ 8,300,000        |
| Non Direct Connection Network Upgrades | \$ 0                |
| <b>Total Costs</b>                     | <b>\$10,400,000</b> |

In addition, the AE2-123 project may be responsible for a contribution to the following costs

| Description     | Total Cost    |
|-----------------|---------------|
| System Upgrades | \$575,946,000 |

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

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

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

## 4 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AE2-123 was evaluated as a 163.3 MW Capacity (800.1 MW energy) injection at the AE2-123 230 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2022 AE2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: <http://www.dominionenergy.com>.

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

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AE2-123 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are shown in Attachment 1.

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

## 5 Attachment Facilities

To accommodate the proposed AE2-123 Project, Dominion Energy will install one span of overhead 230 kV line to the point of interconnection ("POI") including 230 kV interconnection metering. The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

| Description                            | Total Cost          |
|----------------------------------------|---------------------|
| Substation (Metering)                  | \$ 600,000          |
| Transmission (one span)                | \$ 1,500,000        |
| <b>Total Attachment Facility Costs</b> | <b>\$ 2,100,000</b> |

It is estimated to take 18-24 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. See Attachment 1.

## 6 Direct Connection Cost Estimate

To accommodate the proposed AE2-123 Project, Dominion Energy will build a new three breaker 230 kV Switching Station and re-arrange the existing section of line between Landstown and Birdneck Substations to allow for the proposed interconnection. The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

| Description                                   | Total Cost          |
|-----------------------------------------------|---------------------|
| Three Breaker Ring and Associated Equipment   | \$ 6,500,000        |
| Transmission (one span)                       | \$ 1,800,000        |
| <b>Total Direct Connection Facility Costs</b> | <b>\$ 8,300,000</b> |

It is estimated to take 24-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. See Attachment 1.

## 7 Non-Direct Connection Cost Estimate

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

| Description                                                            | Total Cost   |
|------------------------------------------------------------------------|--------------|
| Rebuild 16.71 miles of 230 kV Line 2068 from AD1-087 Tap to Sedge Hill | \$25,065,000 |
| Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont     | \$85,932,000 |

| Description                                                                                                                              | Total Cost           |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna and replace Wavetraps at Milothian and North Anna 500kV substations | \$127,503,000        |
| Add additional 230/115 kV transformer at Chesapeake substation.                                                                          | \$6,000,000          |
| Rebuild 1.55 miles of 230 kV Line 2154 from Skiffes Creek to Kings Mill                                                                  | \$3,875,000          |
| Rebuild 37.41 miles of 500 kV Line 563 from Carson to Midlothian                                                                         | \$115,971,000        |
| For DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP                                                   | \$4,500,000          |
| Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap                                                                       | \$26,250,000         |
| Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania                                                                   | \$43,462,000         |
| Rebuild 3 miles of 230 kV Line 211 from Hopewell to Chesterfield                                                                         | \$7,500,000          |
| Replace Wavetraps at Ox and Clifton 500 kV substations.                                                                                  | \$300,000            |
| Replace Terminal Equipment at Surry and Chickahominy Substations                                                                         | \$4,000,000          |
| Rebuild 18.75 miles of 500 kV Line 594 from Spotsylvania to Morrisville                                                                  | \$58,125,000         |
| Rebuild 14.53 miles of 500 kV Line 575 from North Anna to Ladysmith                                                                      | \$45,043,000         |
| Replace Wavetraps and relay change outs at Ladysmith and Possum Pt 500 kV substations.                                                   | \$420,000            |
| Add additional 500/230 kV transformer at Elmont Substation                                                                               | \$22,000,000         |
|                                                                                                                                          |                      |
| <b>Total Non-Direct Connection Facility Costs</b>                                                                                        | <b>\$575,946,000</b> |

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

## 8 Schedule

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

## 9 Transmission Owner Analysis

### 9.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2022 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system. At the Primary POI, the AE2-123 project contributes to overloads on the Dominion transmission system as shown in the “Network Impact – Option 1” section of the report. The estimated cost of system reinforcements necessary to mitigate these overloads is also provided. At the Secondary POI, the AE2-123 project contributes to overloads on the Dominion transmission system as shown in the “Network Impacts – Option 2” section of the report. Cost estimates are not provided for the secondary POI.

### 9.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by Dominion. The connection of AE2-123 project to the system does not result in any newly overdutied circuit breakers on the Dominion transmission system and does not have a significant fault current contribution to existing overdutied circuit breakers

### 9.3 Stability Analysis

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

## 10 Interconnection Customer Requirements

### 10.1 System Protection

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

### 10.2 Compliance Issues and Interconnection Customer Requirements

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

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC’s GSU transformer(s).
2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection noted above. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of supervisory control and data acquisition (“SCADA”) equipment to provide information in a compatible format to the Dominion Transmission System Control Center.
4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

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

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

### **10.3 Power Factor Requirements**

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

## **11 Revenue Metering and SCADA Requirements**

### **11.1 PJM Requirements**

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

#### **11.1.1 Meteorological Data Reporting Requirement**

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

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

### **1.1 Dominion Requirements**

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

## **12 Network Impacts – Primary Point of Interconnection**

The Queue Project AE2-123 was evaluated as a 800.1 MW (Capacity 163.3 MW) injection tapping the Landstown to Birdneck 230 kV line in the Dominion area. Project AE2-123 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-123 was studied with a commercial probability of 53%. Potential network impacts were as follows:

## Summer Peak Load Flow

## 12.1 Generation Deliverability

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

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840956 | 314209    | 6SKIFF CREEK | DVP           | 314413  | 6WALR285   | DVP         | 1      | DVP_P1-2: LN 557 | single | 678.68     | 93.83                 | 95.46                  | DC    | 11.15     |
| 1840447 | 314415    | 6WALR209     | DVP           | 314391  | 6LIGH209   | DVP         | 1      | DVP_P1-2: LN 567 | single | 441.8      | 96.85                 | 99.91                  | DC    | 13.51     |
| 1840503 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN   | DVP         | 1      | DVP_P1-2: LN 574 | single | 3218.56    | 94.74                 | 96.03                  | DC    | 41.66     |
| 1840121 | 314914    | 8MDLTHAN     | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | Base Case        | single | 2442.12    | 99.35                 | 100.75                 | DC    | 34.27     |
| 1840820 | 314918    | 8NO ANNA     | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 594 | single | 3218.56    | 99.69                 | 100.37                 | DC    | 22.07     |
| 1840689 | 314924    | 8SURRY       | DVP           | 314903  | 8CHCKAHM   | DVP         | 1      | DVP_P1-2: LN 563 | single | 2442.12    | 90.12                 | 92.05                  | DC    | 47.5      |

## 12.2 Multiple Facility Contingency

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

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME              | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|-------------|-------------|--------|------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839868 | 314303    | 6HOPEWLL    | DVP           | 314287  | 6CHESTF B   | DVP         | 1      | DVP_P4-2: 56372        | breaker | 549.0      | 99.57                 | 104.31                 | DC    | 56.7      |
| 1839699 | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2026     | breaker | 830.0      | 68.0                  | 97.44                  | DC    | 427.17    |
| 1839700 | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2105     | breaker | 830.0      | 61.4                  | 83.28                  | DC    | 370.85    |
| 1839701 | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231S2        | breaker | 830.0      | 63.0                  | 84.12                  | DC    | 380.06    |
| 1841190 | 314481    | 6LANDSTN    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P7-1: LN 147-2118  | tower   | 830.0      | 59.61                 | 86.76                  | DC    | 225.27    |
| 1841191 | 314481    | 6LANDSTN    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P7-1: LN 78-2118   | tower   | 830.0      | 53.99                 | 81.13                  | DC    | 225.24    |
| 1839966 | 314911    | 8LADYSMITH  | DVP           | 314922  | 8POSSUM     | DVP         | 1      | DVP_P4-2: 545T594      | breaker | 3637.0     | 93.34                 | 95.07                  | DC    | 137.35    |
| 1839955 | 314918    | 8NO ANNA    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P4-2: SPOTS H1T594 | breaker | 3938.0     | 96.25                 | 97.6                   | DC    | 114.56    |
| 1839928 | 314919    | 8OX         | DVP           | 314904  | 8CLIFTON    | DVP         | 1      | DVP_P4-2: 541T569      | breaker | 3144.0     | 99.74                 | 101.42                 | DC    | 118.98    |
| 1839852 | 314924    | 8SURRY      | DVP           | 314903  | 8CHCKAHM    | DVP         | 1      | DVP_P4-2: 56372        | breaker | 3144.0     | 98.34                 | 104.74                 | DC    | 244.85    |
| 1839853 | 314924    | 8SURRY      | DVP           | 314903  | 8CHCKAHM    | DVP         | 1      | DVP_P4-2: 563T576      | breaker | 3144.0     | 90.97                 | 97.5                   | DC    | 237.15    |
| 1839659 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES    | DVP         | 1      | DVP_P4-2: 231T2026     | breaker | 830.0      | 63.36                 | 96.22                  | DC    | 427.17    |
| 1839660 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES    | DVP         | 1      | DVP_P4-2: 231S2        | breaker | 830.0      | 60.83                 | 86.17                  | DC    | 380.06    |

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME          | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|----------|-------------|--------|--------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839661 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES | DVP         | 1      | DVP_P4-2: 231T2105 | breaker | 830.0      | 59.33                 | 85.3                   | DC    | 370.85    |

### 12.3 Contribution to Previously Identified Overloads

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

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|-------------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1840188 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 171.95                | 174.64                 | DC    | 11.92     |
| 1840190 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M    | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 123.35                | 126.42                 | DC    | 13.51     |
| 1839472 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P4-2: H2T557      | breaker | 1050.6     | 159.27                | 165.01                 | DC    | 131.98    |
| 1840303 | 314296    | 6PENNIMAN    | DVP           | 314415  | 6WALR209    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 160.56                | 163.25                 | DC    | 11.92     |
| 1840305 | 314296    | 6PENNIMAN    | DVP           | 314415  | 6WALR209    | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 111.94                | 115.01                 | DC    | 13.51     |
| 1840230 | 314386    | 6KINGS M     | DVP           | 314296  | 6PENNIMAN   | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 164.19                | 166.87                 | DC    | 11.92     |
| 1840232 | 314386    | 6KINGS M     | DVP           | 314296  | 6PENNIMAN   | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 115.59                | 118.65                 | DC    | 13.51     |
| 1840445 | 314415    | 6WALR209     | DVP           | 314391  | 6LIGH209    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 145.47                | 148.15                 | DC    | 11.92     |
| 1839781 | 314449    | 6CHESAPK     | DVP           | 314448  | 3CHESAPK    | DVP         | 1      | DVP_P4-2: 215822-5    | breaker | 293.9      | 113.3                 | 117.15                 | DC    | 25.12     |
| 1839822 | 314449    | 6CHESAPK     | DVP           | 314448  | 3CHESAPK    | DVP         | 2      | DVP_P4-2: 215822-6    | breaker | 293.9      | 105.43                | 109.01                 | DC    | 23.37     |
| 1840360 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570      | single  | 449.32     | 135.35                | 137.34                 | DC    | 8.97      |
| 1840362 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 2167     | single  | 449.32     | 119.13                | 120.99                 | DC    | 8.37      |
| 7901347 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single  | 449.32     | 135.35                | 137.34                 | DC    | 8.97      |
| 7901348 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single  | 449.32     | 135.35                | 137.34                 | DC    | 8.97      |
| 1840882 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570      | single  | 814.98     | 106.72                | 108.09                 | DC    | 11.19     |
| 7901942 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single  | 814.98     | 106.72                | 108.09                 | DC    | 11.19     |
| 7901943 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single  | 814.98     | 106.71                | 108.08                 | DC    | 11.19     |
| 1839726 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P4-2: 557T574     | breaker | 3938.0     | 123.07                | 125.6                  | DC    | 246.13    |
| 1839727 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P4-2: H2T557      | breaker | 3938.0     | 116.34                | 118.85                 | DC    | 237.69    |
| 1840499 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 3218.56    | 119.67                | 121.11                 | DC    | 47.28     |
| 1839581 | 314903    | 8CHCKAHM     | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P4-2: 563T576     | breaker | 3144.0     | 140.14                | 143.63                 | DC    | 260.08    |

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME              | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|------------|-------------|--------|------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839582 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P4-2: 56372        | breaker | 3144.0     | 138.16                | 141.76                 | DC    | 255.18    |
| 1840157 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P1-2: LN 563       | single  | 2442.12    | 150.48                | 152.55                 | DC    | 50.64     |
| 1840161 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P1-2: LN 576       | single  | 2442.12    | 145.09                | 147.15                 | DC    | 50.77     |
| 1840166 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | Base Case              | single  | 2442.12    | 118.64                | 120.3                  | DC    | 40.64     |
| 1839795 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P4-2: H1T594       | breaker | 3351.0     | 114.6                 | 116.03                 | DC    | 157.09    |
| 1839796 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P4-2: 573T594      | breaker | 3351.0     | 113.78                | 115.26                 | DC    | 156.63    |
| 1840370 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2442.12    | 131.3                 | 131.9                  | DC    | 31.98     |
| 1840371 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P1-2: LN 573       | single  | 2442.12    | 127.5                 | 128.1                  | DC    | 31.39     |
| 1839515 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P4-2: WT576        | breaker | 3351.0     | 148.83                | 152.35                 | DC    | 258.26    |
| 1839516 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P4-2: 57602        | breaker | 3351.0     | 148.84                | 152.35                 | DC    | 258.26    |
| 1840036 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 576       | single  | 2442.12    | 164.95                | 165.94                 | DC    | 52.72     |
| 1840037 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 563       | single  | 2442.12    | 153.98                | 154.82                 | DC    | 45.33     |
| 1840044 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | Base Case              | single  | 2442.12    | 112.67                | 113.32                 | DC    | 34.67     |
| 1839776 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P4-2: SPOTS H1T594 | breaker | 3351.0     | 118.93                | 120.33                 | DC    | 158.46    |
| 1839777 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P4-2: 57302        | breaker | 3351.0     | 117.63                | 119.16                 | DC    | 160.12    |
| 1839778 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P4-2: XT573        | breaker | 3351.0     | 117.63                | 119.16                 | DC    | 160.12    |
| 1840490 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P1-2: LN 573       | single  | 2738.22    | 120.59                | 121.14                 | DC    | 32.5      |
| 1840491 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2738.22    | 118.23                | 118.76                 | DC    | 31.31     |
| 1840662 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM    | DVP         | 1      | DVP_P1-2: LN 581       | single  | 2442.12    | 116.66                | 117.17                 | DC    | 26.88     |
| 1840663 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM    | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2442.12    | 116.0                 | 116.5                  | DC    | 26.54     |
| 1839669 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P4-2: 557T574      | breaker | 3637.0     | 134.44                | 135.65                 | DC    | 253.88    |
| 1840112 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P1-2: LN 574       | single  | 2442.12    | 156.15                | 158.05                 | DC    | 46.83     |
| 1840114 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P1-2: LN 557       | single  | 2442.12    | 146.91                | 148.71                 | DC    | 45.74     |
| 1839824 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P4-2: 568T575      | breaker | 3938.0     | 109.1                 | 110.71                 | DC    | 149.19    |
| 1840594 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P1-2: LN 568       | single  | 3218.56    | 117.12                | 118.14                 | DC    | 32.9      |
| 1840595 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P1-2: LN 581       | single  | 3218.56    | 117.6                 | 118.1                  | DC    | 35.72     |
| 1839816 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P4-2: 568T575      | breaker | 3938.0     | 108.35                | 110.11                 | DC    | 148.81    |
| 1839817 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P4-2: 57502        | breaker | 3938.0     | 107.33                | 108.94                 | DC    | 140.18    |
| 1840560 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P1-2: LN 552       | single  | 3218.56    | 119.25                | 119.75                 | DC    | 35.33     |
| 1840561 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P1-2: LN 568       | single  | 3218.56    | 118.04                | 119.05                 | DC    | 32.69     |

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME             | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|--------------|-------------|--------|-----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1841180 | 314934    | 8SPOTSYL    | DVP           | 314916  | 8MORRSVL     | DVP         | 1      | DVP_P7-1: LN 198-581  | tower  | 3938.0     | 112.79                | 113.67                 | DC    | 172.55    |
| 1840813 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL | DVP         | 1      | DVP_P1-2: LN 570      | single | 814.98     | 112.34                | 113.71                 | DC    | 11.19     |
| 7901873 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single | 814.98     | 112.34                | 113.71                 | DC    | 11.19     |
| 7901874 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single | 814.98     | 112.32                | 113.69                 | DC    | 11.19     |
| 1840421 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILE T | CPL         | 1      | DVP_P1-2: LN 570      | single | 478.0      | 131.05                | 132.92                 | DC    | 8.97      |
| 7901387 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILE T | CPL         | 1      | DVP_P1-2: LN 6002_FSA | single | 478.0      | 131.07                | 132.94                 | DC    | 8.97      |
| 7901389 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILE T | CPL         | 1      | DVP_P1-2: LN 570_FSA  | single | 478.0      | 131.05                | 132.92                 | DC    | 8.97      |

## 12.4 Potential Congestion due to Local Energy Deliverability

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

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

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME        | Type      | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|-----------|-------------|--------|------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840187 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 441.8      | 170.2                 | 176.2                  | DC    | 58.38     |
| 1840955 | 314209    | 6SKIFF CREEK | DVP           | 314413  | 6WALR285  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 678.68     | 91.54                 | 95.2                   | DC    | 54.61     |
| 1840761 | 314214    | 6CHCKAHM     | DVP           | 314903  | 8CHCKAHM  | DVP         | 1      | DVP_P1-2: LN 567 | operation | 828.8      | 102.82                | 107.94                 | DC    | 93.48     |
| 1840690 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT   | DVP         | 2      | DVP_P1-2: LN 557 | operation | 879.84     | 113.29                | 117.67                 | DC    | 84.39     |
| 1840756 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT   | DVP         | 1      | DVP_P1-2: LN 557 | operation | 920.92     | 109.79                | 114.0                  | DC    | 84.78     |
| 1840845 | 314225    | 6CHARCTY     | DVP           | 314227  | 6LAKESIDE | DVP         | 1      | DVP_P1-2: LN 557 | operation | 984.18     | 104.76                | 107.21                 | DC    | 52.89     |
| 7902139 | 314227    | 6LAKESIDE    | DVP           | 314218  | 6ELMONT   | DVP         | 1      | DVP_P1-2: LN 557 | operation | 740.72     | 84.96                 | 88.11                  | DC    | 51.71     |
| 1840804 | 314287    | 6CHESTF B    | DVP           | 314225  | 6CHARCTY  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 984.18     | 108.47                | 110.92                 | DC    | 52.89     |

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME           | Type      | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|-------------|-------------|--------|---------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840080 | 314295    | 6BIRDNECK  | DVP           | 314490  | 6VA BCH     | DVP         | 1      | DVP_P1-2: LN 2118-B | operation | 799.94     | 100.02                | 198.41                 | DC    | 800.09    |
| 1840302 | 314296    | 6PENNIMAN  | DVP           | 314415  | 6WALR209    | DVP         | 1      | DVP_P1-2: LN 557    | operation | 441.8      | 158.82                | 164.82                 | DC    | 58.38     |
| 1840229 | 314386    | 6KINGS M   | DVP           | 314296  | 6PENNIMAN   | DVP         | 1      | DVP_P1-2: LN 557    | operation | 441.8      | 162.44                | 168.44                 | DC    | 58.38     |
| 1840973 | 314391    | 6LIGH209   | DVP           | 314388  | 6LANEXA     | DVP         | 1      | DVP_P1-2: LN 557    | operation | 663.64     | 88.73                 | 92.73                  | DC    | 58.38     |
| 1840444 | 314415    | 6WALR209   | DVP           | 314391  | 6LIGH209    | DVP         | 1      | DVP_P1-2: LN 557    | operation | 441.8      | 143.72                | 149.72                 | DC    | 58.38     |
| 1840535 | 314481    | 6LANDSTN   | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P1-2: LN 2118-A | operation | 598.78     | 71.24                 | 107.1                  | DC    | 214.72    |
| 1840699 | 314481    | 6LANDSTN   | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P1-2: LN 231    | operation | 678.68     | 77.17                 | 102.73                 | DC    | 380.08    |
| 1840942 | 314481    | 6LANDSTN   | DVP           | 314502  | 6STUMPY     | DVP         | 1      | DVP_P1-2: LN 271-A  | operation | 984.18     | 52.55                 | 75.82                  | DC    | 398.53    |
| 1840352 | 314490    | 6VA BCH    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P1-2: LN 2118-B | operation | 740.72     | 94.83                 | 166.5                  | DC    | 702.43    |
| 1840496 | 314902    | 8CARSON    | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P1-2: LN 557    | operation | 3218.56    | 139.83                | 142.86                 | DC    | 231.64    |
| 1840502 | 314902    | 8CARSON    | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | Base Case           | operation | 3218.56    | 99.63                 | 104.16                 | DC    | 166.6     |
| 1840155 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 172.88                | 177.32                 | DC    | 248.09    |
| 1840162 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT     | DVP         | 1      | Base Case           | operation | 2442.12    | 138.99                | 142.71                 | DC    | 199.11    |
| 1840367 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER    | DVP         | 1      | DVP_P1-2: LN 594    | operation | 2442.12    | 156.04                | 158.08                 | DC    | 156.69    |
| 1840375 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER    | DVP         | 1      | Base Case           | operation | 2442.12    | 93.4                  | 95.26                  | DC    | 100.09    |
| 1840033 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P1-2: LN 576    | operation | 2442.12    | 204.09                | 208.91                 | DC    | 258.31    |
| 1840041 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | Base Case           | operation | 2442.12    | 131.48                | 134.64                 | DC    | 169.85    |
| 1840487 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE     | DVP         | 1      | DVP_P1-2: LN 573    | operation | 2738.22    | 142.91                | 144.92                 | DC    | 159.24    |
| 1840658 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM     | DVP         | 1      | DVP_P1-2: LN 581    | operation | 2442.12    | 129.58                | 132.06                 | DC    | 131.72    |
| 1840110 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA    | DVP         | 1      | DVP_P1-2: LN 574    | operation | 2442.12    | 180.2                 | 183.11                 | DC    | 229.45    |
| 1840117 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA    | DVP         | 1      | Base Case           | operation | 2442.12    | 123.89                | 128.14                 | DC    | 167.91    |
| 1840590 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL    | DVP         | 1      | DVP_P1-2: LN 581    | operation | 3218.56    | 134.34                | 135.7                  | DC    | 175.02    |
| 1840599 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL    | DVP         | 1      | Base Case           | operation | 3218.56    | 102.75                | 103.53                 | DC    | 131.29    |
| 1840817 | 314918    | 8NO ANNA   | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P1-2: LN 573    | operation | 3218.56    | 110.77                | 112.43                 | DC    | 114.27    |

| 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 |
|---------|-----------|-------------|---------------|---------|-----------|-------------|--------|---------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840948 | 314923    | 8SEPTA      | DVP           | 314924  | 8SURREY   | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 94.57                 | 97.08                  | DC    | 135.36    |
| 1840684 | 314924    | 8SURREY     | DVP           | 314903  | 8CHCKAHM  | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 114.77                | 123.02                 | DC    | 232.72    |
| 1840556 | 314934    | 8SPOTSYL    | DVP           | 314916  | 8MORRSVL  | DVP         | 1      | DVP_P1-2: LN 552    | operation | 3218.56    | 136.99                | 138.02                 | DC    | 173.12    |
| 1840565 | 314934    | 8SPOTSYL    | DVP           | 314916  | 8MORRSVL  | DVP         | 1      | Base Case           | operation | 3218.56    | 107.06                | 107.62                 | DC    | 130.18    |
| 1840633 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES  | DVP         | 1      | DVP_P1-2: LN 231    | operation | 678.68     | 74.53                 | 105.24                 | DC    | 380.08    |
| 7902144 | 940640    | AE2-051 TAP | DVP           | 314902  | 8CARSON   | DVP         | 1      | DVP_P1-2: LN 557    | operation | 2442.12    | 77.27                 | 81.34                  | DC    | 220.09    |
| 1840045 | 941280    | AE2-122 TAP | DVP           | 314481  | 6LANDSTN  | DVP         | 1      | DVP_P1-2: LN 2118-A | operation | 749.18     | 106.8                 | 213.58                 | DC    | 800.1     |
| 1840050 | 941280    | AE2-122 TAP | DVP           | 314481  | 6LANDSTN  | DVP         | 1      | Base Case           | operation | 749.18     | 68.27                 | 125.19                 | DC    | 511.43    |
| 1840051 | 941280    | AE2-122 TAP | DVP           | 314295  | 6BIRDNECK | DVP         | 1      | DVP_P1-2: LN 2118-B | operation | 749.18     | 106.8                 | 213.58                 | DC    | 800.1     |

## 12.5 System Reinforcements

| ID                                      | Index | Facility                                              | Upgrade Description                                                                                                                                                                                                                                                                                                                                        | Cost          |
|-----------------------------------------|-------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 7901873,7901874,1840813                 | 27    | AD1-087 TAP 230.0 kV -<br>6SEEDGE HILL 230.0 kV Ckt 1 | dom-081 (179) : Rebuild 16.71 miles of 230 kV Line 2068 from AD1-087 Tap to Sedge Hill with 2-795 ACSR.<br>Project Type : FAC<br>Cost : \$25,065,000<br>Time Estimate : 36-40 Months                                                                                                                                                                       | \$25,065,000  |
| 1840161,1840157,1839582,1839581,1840166 | 21    | 8CHCKAHM 500.0 kV -<br>8ELMONT 500.0 kV Ckt 1         | dom-021 (82) : Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont with 3-1351.5 113C ACSR.<br>Project Type : FAC<br>Cost : \$85,932,000<br>Time Estimate : 48-60 Months                                                                                                                                                                    | \$85,932,000  |
| 1840114,1840112,1839669,1840121         | 4     | 8MDLTHAN 500.0 kV -<br>8NO ANNA 500.0 kV Ckt 1        | dom-023 (84) : Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna with 3-1351.5 125C ACSR.<br>Project Type : FAC<br>Cost : \$127,503,000<br>Time Estimate : 48-60 Months<br><br>dom-024 (86) : Replace Wavetraps at Milothian and North Anna 500kV substations<br>Project Type : FAC<br>Cost : \$300,000<br>Time Estimate : 16-18 Months | \$127,503,000 |
| 1840882,7901943,7901942                 | 20    | 6CLOVER 230.0 kV - AD1-087 TAP 230.0 kV Ckt 1         | No Reinforcement Needed. Not a valid violation                                                                                                                                                                                                                                                                                                             | \$0           |
| 1839822                                 | 18    | 6CHESAPK 230.0 kV -<br>3CHESAPK 115.0 kV Ckt 2        | dom-102 (209) : Add additional 230/115 kV transformer at Chesapeake substation.<br>Project Type : CON<br>Cost : \$6,000,000<br>Time Estimate : 16-18 Months                                                                                                                                                                                                | \$6,000,000   |
| 1839781                                 | 17    | 6CHESAPK 230.0 kV -<br>3CHESAPK 115.0 kV Ckt 1        |                                                                                                                                                                                                                                                                                                                                                            |               |
| 1839659,1839661,1839660                 | 12    | AD1-033 TAP 230.0 kV -<br>6FENTRES 230.0 kV Ckt 1     | No Reinforcement Needed. Not a valid violation                                                                                                                                                                                                                                                                                                             | \$0           |
| 1840190,1840188                         | 13    | 6SKIFF CREEK 230.0 kV -<br>6KINGS M 230.0 kV Ckt 1    | dom-066 (157) : Rebuild 1.55 miles of 230 kV Line 2154 from Skiffes Creek to Kings Mill with 2-636 ACSR.<br>Project Type : FAC<br>Cost : \$3,875,000<br>Time Estimate : 30-36 Months                                                                                                                                                                       | \$3,875,000   |
| 1840499,1839727,1840503,1839726         | 3     | 8CARSON 500.0 kV -<br>8MDLTHAN 500.0 kV Ckt 1         | dom-029 (92) : Rebuild 37.41 miles of 500 kV Line 563 from Carson to Midlothian with 3-1351.5 125C ACSR.<br>Project Type : FAC<br>Cost : \$115,971,000<br>Time Estimate : 48-60 Months                                                                                                                                                                     | \$115,971,000 |

| ID                                      | Index | Facility                                               | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Cost         |
|-----------------------------------------|-------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1840230,1840232                         | 16    | 6KINGS M 230.0 kV -<br>6PENNIMAN 230.0 kV Ckt 1        | b3057 (278) : 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.<br>Project Type : CON<br>Cost : \$0<br>Time Estimate : N/A | \$0          |
| 1840956                                 | 1     | 6SKIFF CREEK 230.0 kV -<br>6WALR285 230.0 kV Ckt 1     | No Reinforcement Needed. Not a valid violation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | \$0          |
| 1840491,1840490,1839776,1839777,1839778 | 24    | 8LADYSMITH 500.0 kV -<br>8CHANCE 500.0 kV Ckt 1        | b3021 (276) : 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.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | \$0          |
| 7901389,7901387,1840421                 | 28    | AD2-068 TAP 230.0 kV -<br>6GREENVILLE T 230.0 kV Ckt 1 | <u>DVP</u><br>dom-004 (57) : For DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP with 2-636 ACSR.<br>Project Type : FAC<br>Cost : \$4,500,000<br>Time Estimate : 30-36 Months<br><br><u>CPLE</u><br>NonPJM Area (170) : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                                                                                                                                                                                                                         | \$4,500,000  |
| 7901347,1840362,1840360,7901348         | 19    | 6EVERETS 230.0 kV - AD2-068 TAP 230.0 kV Ckt 1         | dom-070 (163) : Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap with 2-636 ACSR.<br>Project Type : FAC<br>Cost : \$26,250,000<br>Time Estimate : 36-40 Months                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | \$26,250,000 |
| 1840370,1840371,1839796,1839795         | 22    | 8CHANCE 500.0 kV -<br>8BRISTER 500.0 kV Ckt 1          | b3019 (275) : 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.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | \$0          |

| ID                      | Index | Facility                                        | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Cost         |
|-------------------------|-------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1840594,1840595,1839824 | 25    | 8NO ANNA 500.0 kV -<br>8SPOTSYL 500.0 kV Ckt 1  | dom-045 (119) : Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania with 3-1351.5 113C ACSR.<br>Project Type : FAC<br>Cost : \$43,462,000<br>Time Estimate : 48-60 Months                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | \$43,462,000 |
| 1840303,1840305         | 15    | 6PENNIMAN 230.0 kV -<br>6WALR209 230.0 kV Ckt 1 | b3057 (278) : 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.<br>Project Type : CON<br>Cost : \$0<br>Time Estimate : N/A | \$0          |
| 1841191,1841190         | 9     | 6LANDSTN 230.0 kV -<br>6LYNHAVN 230.0 kV Ckt 1  | No Reinforcement Needed. Not a valid violation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | \$0          |
| 1840447,1840445         | 2     | 6WALR209 230.0 kV -<br>6LIGH209 230.0 kV Ckt 1  | b3056 (279) : 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.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | \$0          |
| 1839868                 | 7     | 6HOPEWLL 230.0 kV -<br>6CHESTF B 230.0 kV Ckt 1 | dom-075 (171) : Rebuild 3 miles of 230 kV Line 211 from Hopewell to Chesterfield with 2-636 ACSR.<br>Project Type : FAC<br>Cost : \$7,500,000<br>Time Estimate : 30-36 Months<br><br>b2922 (280) : PJM Baseline Upgrade b2922. Rebuild 8 of 11 miles of 230kV Lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR. The baseline project has an projected in-service date of 12/01/2020.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                                                                                                                            | \$7,500,000  |
| 1839928                 | 11    | 8OX 500.0 kV - 8CLIFTON<br>500.0 kV Ckt 1       | dom-039 (109) : Replace Wavetraps at Ox and Clifton 500 kV substations.<br>Project Type : FAC<br>Cost : \$300,000<br>Time Estimate : 16-18 Months                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | \$300,000    |

| ID                                      | Index | Facility                                          | Upgrade Description                                                                                                                                                                                                                                                                                                            | Cost          |
|-----------------------------------------|-------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1839853,1839852,1840689                 | 6     | 8SURRY 500.0 kV -<br>8CHCKAHM 500.0 kV Ckt 1      | dom-040 (111) : Replace Terminal Equipment at Surry and Chickahominy Substations<br>Project Type : FAC<br>Cost : \$4,000,000<br>Time Estimate : 16-18 Months                                                                                                                                                                   | \$4,000,000   |
| 1841180,1839817,1839816,1840561,1840560 | 26    | 8SPOTSYL 500.0 kV -<br>8MORRSVL 500.0 kV Ckt 1    | dom-019 (79) : Rebuild 18.75 miles of 500 kV Line 594 from Spotsylvania to Morrisville with 3-1351.5 113C ACSR.<br>Project Type : FAC<br>Cost : \$58,125,000<br>Time Estimate : 48-60 Months                                                                                                                                   | \$58,125,000  |
| 1839701,1839700,1839699                 | 8     | 6LANDSTN 230.0 kV -<br>AD1-033 TAP 230.0 kV Ckt 1 | No Reinforcement Needed. Not a valid violation                                                                                                                                                                                                                                                                                 | \$0           |
| 1840820,1839955                         | 5     | 8NO ANNA 500.0 kV -<br>8LADYSMITH 500.0 kV Ckt 1  | dom-044 (117) : Rebuild 14.53 miles of 500 kV Line 575 from North Anna to Ladysmith with 3-1351.5 113C ACSR.<br>Project Type : FAC<br>Cost : \$45,043,000<br>Time Estimate : 48-60 Months                                                                                                                                      | \$45,043,000  |
| 1840662,1840663,1839966                 | 10    | 8LADYSMITH 500.0 kV -<br>8POSSUM 500.0 kV Ckt 1   | dom-032 (97) : Replace Wavetraps at Ladysmith and Possum Pt 500 kV substations.<br>Project Type : FAC<br>Cost : \$300,000<br>Time Estimate : 16-18 Months<br><br>dom-033 (98) : Relay Change Outs (CT) at Ladysmith and Possum Pt 500 kV substations.<br>Project Type : FAC<br>Cost : \$120,000<br>Time Estimate : 6-12 Months | \$420,000     |
| 1839472                                 | 14    | 6ELMONT 230.0 kV -<br>8ELMONT 500.0 kV Ckt 1      | dom-013 (71) : Add additional 500/230 kV transformer at Elmont Substation<br>Project Type : CON<br>Cost : \$22,000,000<br>Time Estimate : 16-18 Months                                                                                                                                                                         | \$22,000,000  |
| 1839515,1839516,1840037,1840036,1840044 | 23    | 8ELMONT 500.0 kV -<br>8LADYSMITH 500.0 kV Ckt 1   | b3020 (274) : 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.<br>Project Type : FAC<br>Cost : \$0<br>Time Estimate : N/A                                                                                       | \$0           |
|                                         |       |                                                   | TOTAL COST                                                                                                                                                                                                                                                                                                                     | \$575,946,000 |

## 12.6 Flow Gate Details

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

### 12.6.1 Contingency Descriptions

| Contingency Name          | Contingency Definition                                                                                                                                                                                                                                                                     |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P1-2: LN 567</b>   | CONTINGENCY 'DVP_P1-2: LN 567'<br>OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURREY 500.00<br>END                                                                                                                                                               |
| <b>DVP_P4-2: 215822-5</b> | CONTINGENCY 'DVP_P4-2: 215822-5' /* PORTSMOUTH PS 230 KV<br>OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00<br>OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 2 /* 3CHESAPK 115.00 - 6CHESAPK 230.00<br>OPEN BUS 313887 /* 6CHESAPK_STC230.00 KV<br>END |
| <b>DVP_P1-2: LN 563</b>   | CONTINGENCY 'DVP_P1-2: LN 563'<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>END                                                                                                                                                               |
| <b>DVP_P4-2: XT573</b>    | CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END                                                  |
| <b>DVP_P4-2: 215822-6</b> | CONTINGENCY 'DVP_P4-2: 215822-6' /* PORTSMOUTH PS 230 KV<br>OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00<br>OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 1 /* 3CHESAPK 115.00 - 6CHESAPK 230.00<br>END                                             |
| <b>DVP_P4-2: 57302</b>    | CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END                                                  |

| Contingency Name      | Contingency Definition                                                                                                                                                                                                                        |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P4-2: 545T594     | CONTINGENCY 'DVP_P4-2: 545T594' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314900 TO BUS 314916 CKT 1 /* 8BRISTER 500.00 - 8MORRSVL 500.00<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>END  |
| DVP_P1-2: LN 568      | CONTINGENCY 'DVP_P1-2: LN 568'<br>OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00<br>END                                                                                                                |
| DVP_P7-1: LN 78-2118  | CONTINGENCY 'DVP_P7-1: LN 78-2118'<br>OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND                                                                                                                                                |
| DVP_P4-2: 568T575     | CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV<br>OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00<br>OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00<br>END |
| DVP_P4-2: 57502       | CONTINGENCY 'DVP_P4-2: 57502' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END   |
| DVP_P4-2: WT576       | CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END     |
| DVP_P7-1: LN 147-2118 | CONTINGENCY 'DVP_P7-1: LN 147-2118'<br>OPEN BRANCH FROM BUS 314479 TO BUS 314492 CKT 1 /* 3LANDSTN 115.00 - 3P ANNE 115.00<br>OPEN BRANCH FROM BUS 314482 TO BUS 314491 CKT 1 /* 3LONDONB 115.00 - 3PEND                                      |
| DVP_P1-2: LN 594      | CONTINGENCY 'DVP_P1-2: LN 594'<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>END                                                                                                                 |
| DVP_P1-2: LN 2167     | CONTINGENCY 'DVP_P1-2: LN 2167'<br>OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM 230.00<br>END                                                                                                               |

| Contingency Name             | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P7-1: LN 198-581</b>  | CONTINGENCY 'DVP_P7-1: LN 198-581'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00<br>OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00<br>OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00<br>OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00<br>OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00<br>OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00<br>OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00<br>OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00<br>OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00<br>END |
| <b>DVP_P4-2: 56372</b>       | CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>DVP_P4-2: 23152</b>       | CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00<br>OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DVP_P4-2: 231T2105</b>    | CONTINGENCY 'DVP_P4-2: 231T2105' /* THRASHER 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314508 TO BUS 314514 CKT 1 /* 6THRASHER 230.00 - 6YADKIN 230.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DVP_P1-2: LN 6002_FSA</b> | CONTINGENCY 'DVP_P1-2: LN 6002_FSA'<br>OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>DVP_P1-2: LN 2118-A</b>   | CONTINGENCY 'DVP_P1-2: LN 2118-A'<br>OPEN BRANCH FROM BUS 314295 TO BUS 941280 CKT 1 /* 6BIRDNECK 230.00 - AE2-122 TAP 230.00<br>OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00<br>OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00<br>OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00<br>OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Contingency Name    | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P4-2: 541T569   | CONTINGENCY 'DVP_P4-2: 541T569' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314929 CKT 1 /* 8MORRSVL 500.00 - 8FRONT<br>ROYAL500.00<br>OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL<br>500.00<br>END                                                                                                                                 |
| DVP_P1-2: LN 2118-B | CONTINGENCY 'DVP_P1-2: LN 2118-B'<br>OPEN BRANCH FROM BUS 941280 TO BUS 314481 CKT 1 /* AE2-122 TAP 230.00 - 6LANDSTN<br>230.00<br>END                                                                                                                                                                                                                                                |
| DVP_P4-2: 231T2026  | CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER<br>230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN<br>230.00<br>END |
| DVP_P1-2: LN 552    | CONTINGENCY 'DVP_P1-2: LN 552'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00<br>END                                                                                                                                                                    |
| DVP_P4-2: 573T594   | CONTINGENCY 'DVP_P4-2: 573T594' /* SPOTSYLVANIA 500 KV<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL<br>500.00<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL<br>500.00<br>END                                                                                                                                   |
| DVP_P1-2: LN 557    | CONTINGENCY 'DVP_P1-2: LN 557'<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM<br>500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT<br>500.00<br>END                                                                                                                                                            |
| DVP_P1-2: LN 231    | CONTINGENCY 'DVP_P1-2: LN 231'<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER<br>230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>END                                                                                                                  |

| Contingency Name            | Contingency Definition                                                                                                                                                                                                                                                                                                          |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P1-2: LN 570</b>     | CONTINGENCY 'DVP_P1-2: LN 570'<br>OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00<br>OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00<br>OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00<br>END                                                |
| <b>DVP_P1-2: LN 573</b>     | CONTINGENCY 'DVP_P1-2: LN 573'<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00<br>END                                                                                                                                                                                                   |
| <b>DVP_P1-2: LN 574</b>     | CONTINGENCY 'DVP_P1-2: LN 574'<br>OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00<br>END                                                                                                                                                                                                  |
| <b>DVP_P1-2: LN 576</b>     | CONTINGENCY 'DVP_P1-2: LN 576'<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00<br>END                                                                                                                                                                                                   |
| <b>DVP_P4-2: 557T574</b>    | CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00<br>OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00<br>END |
| <b>DVP_P4-2: 57602</b>      | CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END                                                                                       |
| <b>DVP_P1-2: LN 570_FSA</b> | CONTINGENCY 'DVP_P1-2: LN 570_FSA'<br>OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00<br>END                                                                                                                                                                                         |
| <b>Base Case</b>            |                                                                                                                                                                                                                                                                                                                                 |
| <b>DVP_P4-2: 563T576</b>    | CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00<br>END                                                                                  |

| Contingency Name              | Contingency Definition                                                                                                                                                                                                                                                                                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P4-2: H2T557</b>       | CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00<br>OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00<br>END |
| <b>DVP_P1-2: LN 581</b>       | CONTINGENCY 'DVP_P1-2: LN 581'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00<br>END                                                                                                        |
| <b>DVP_P4-2: H1T594</b>       | CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00<br>OPEN BUS 314897 /* 8MORRS_1 500.00 KV<br>END                                        |
| <b>DVP_P4-2: SPOTS H1T594</b> | CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00<br>END                                                                          |
| <b>DVP_P1-2: LN 271-A</b>     | CONTINGENCY 'DVP_P1-2: LN 271-A'<br>OPEN BRANCH FROM BUS 314466 TO BUS 934060 CKT 1 /* 6FENTRES 230.00 - AD1-033 TAP 230.00<br>END                                                                                                                                                                                          |

## 12.6.2 Index 1

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840956 | 314209    | 6SKIFF CREEK | DVP           | 314413  | 6WALR285 | DVP         | 1      | DVP_P1-2: LN 557 | single | 678.68     | 93.83                 | 95.46                  | DC    | 11.15     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.09      |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.11      |
| 314643 | 3O INLET     | 0.12      |
| 315090 | 1YORKTN1     | 22.32     |
| 315091 | 1YORKTN2     | 23.16     |
| 315092 | 1YORKTN3     | 13.69     |
| 315098 | 1CHESPKA     | 0.12      |
| 315099 | 1CHESPKB     | 0.31      |
| 315108 | 1ELIZAR1     | 0.91      |
| 315109 | 1ELIZAR2     | 0.89      |
| 315110 | 1ELIZAR3     | 0.92      |
| 315116 | 1SURRY 1     | 5.58      |
| 315120 | 1GRAVEL4     | 0.57      |
| 315121 | 1GRAVEL5     | 0.57      |
| 315122 | 1GRAVEL6     | 0.57      |
| 315233 | 1SURRY 2     | 9.43      |
| 315260 | 1GOSPORTA    | 0.1       |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.3       |
| 916041 | Z1-036 C     | 0.28      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.69      |
| 923801 | AB2-015 C O1 | 2.52      |
| 923831 | AB2-022 C    | 0.1       |
| 924241 | AB2-068 O1   | 97.25     |
| 925521 | AC1-027 C    | 0.09      |
| 926291 | AC1-107 O1   | 146.8     |
| 926661 | AC1-147 C    | 0.1       |
| 926751 | AC1-161 C O1 | 13.16     |
| 932041 | AC2-012 C    | 3.87      |
| 933291 | AC2-141 C    | 13.16     |
| 933731 | AC2-196 C    | 0.08      |
| 934061 | AD1-033 C    | 2.88      |
| 934521 | AD1-076 C    | 16.31     |
| 935111 | AD1-144 C    | 0.08      |
| 936391 | AD2-049 C    | 1.09      |
| 937221 | AD2-160 C O1 | 2.21      |
| 937251 | AD2-164      | 3.43      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 937541     | AD2-215 C    | 0.7       |
| 938181     | AE1-027 C    | 0.89      |
| 938191     | AE1-028 C    | 0.52      |
| 938531     | AE1-072 C O1 | 6.58      |
| 938771     | AE1-103 C O1 | 1.09      |
| 939311     | AE1-162 C    | 0.71      |
| 939411     | AE1-173 C    | 25.6      |
| 939421     | AE1-174 C    | 1.23      |
| 940251     | AE2-007      | 65.97     |
| 940471     | AE2-031 C O1 | 10.85     |
| 940491     | AE2-034 C    | 2.66      |
| 940891     | AE2-078 C    | 0.87      |
| 940901     | AE2-079 C    | 0.87      |
| 940911     | AE2-080 C    | 0.87      |
| 941101     | AE2-104 C O1 | 1.19      |
| 941281     | AE2-122 C O1 | 10.84     |
| 941291     | AE2-123 C O1 | 11.15     |
| 941301     | AE2-124 C O1 | 10.14     |
| 941501     | AE2-147 C    | 5.68      |
| 941591     | AE2-156      | 6.81      |
| 942131     | AE2-225 C    | 0.81      |
| 942171     | AE2-229 C    | 0.81      |
| 942401     | AE2-253 C    | 2.33      |
| 942851     | AE2-304 C    | 0.22      |
| 942921     | AE2-311 C O1 | 13.42     |
| CARR       | CARR         | 0.17      |
| CBM-S1     | CBM-S1       | 2.13      |
| CBM-S2     | CBM-S2       | 2.81      |
| CBM-W1     | CBM-W1       | 1.69      |
| CBM-W2     | CBM-W2       | 13.46     |
| CIN        | CIN          | 0.79      |
| CPL        | CPL          | 1.49      |
| IPL        | IPL          | 0.49      |
| LGEE       | LGEE         | 0.23      |
| MEC        | MEC          | 1.91      |
| MECS       | MECS         | 0.53      |
| RENSSELAER | RENSSELAER   | 0.14      |
| WEC        | WEC          | 0.21      |

### 12.6.3 Index 2

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840445 | 314415    | 6WALR209 | DVP           | 314391  | 6LIGH209 | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 145.47                | 148.15                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940471     | AE2-031 C O1 | 11.6      |
| 940491     | AE2-034 C    | 2.86      |
| 940641     | AE2-051 C O1 | 4.65      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O1 | 1.28      |
| 941281     | AE2-122 C O1 | 11.59     |
| 941291     | AE2-123 C O1 | 11.92     |
| 941301     | AE2-124 C O1 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.29      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O1 | 14.4      |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPLE       | CPLE         | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

## 12.6.4 Index 3

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME            | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839726 | 314902    | 8CARSON  | DVP           | 314914  | 8MDLTHAN | DVP         | 1      | DVP_P4-2:<br>557T574 | breaker | 3938.0     | 123.07                | 125.6                  | DC    | 246.13    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314539 | 3UNCAMP      | 3.89      |
| 314541 | 3WATKINS     | 1.1       |
| 314566 | 3CRESWEL     | 3.94      |
| 314594 | 6PLYMOTH     | 1.38      |
| 314648 | 6SUNBURY     | 1.49      |
| 314651 | 6WINFALL     | 2.96      |
| 315102 | 1BRUNSWICKG1 | 11.92     |
| 315103 | 1BRUNSWICKG2 | 11.92     |
| 315104 | 1BRUNSWICKG3 | 11.92     |
| 315105 | 1BRUNSWICKS1 | 24.76     |
| 315108 | 1ELIZAR1     | 4.09      |
| 315109 | 1ELIZAR2     | 4.02      |
| 315110 | 1ELIZAR3     | 4.15      |
| 315233 | 1SURRY 2     | 32.32     |
| 901082 | W1-029 E     | 77.45     |
| 907092 | X1-038 E     | 9.72      |
| 913392 | Y1-086 E     | 3.74      |
| 916042 | Z1-036 E     | 76.13     |
| 916191 | Z1-068 C     | 0.06      |
| 916192 | Z1-068 E     | 3.23      |
| 916301 | Z1-086 C     | 72.75     |
| 916302 | Z1-086 E     | 18.68     |
| 917122 | Z2-027 E     | 1.8       |
| 919151 | AA1-139 C    | 3.13      |
| 919152 | AA1-139 E    | 11.03     |
| 920692 | AA2-178 E    | 6.75      |
| 923801 | AB2-015 C O1 | 13.78     |
| 923802 | AB2-015 E O1 | 11.3      |
| 923832 | AB2-022 E    | 2.11      |
| 924241 | AB2-068 O1   | 333.15    |
| 925521 | AC1-027 C    | 0.42      |
| 925522 | AC1-027 E    | 1.97      |
| 926291 | AC1-107 O1   | 502.86    |
| 926662 | AC1-147 E    | 2.26      |
| 926751 | AC1-161 C O1 | 55.48     |
| 926752 | AC1-161 E O1 | 23.68     |
| 932041 | AC2-012 C    | 17.42     |
| 932042 | AC2-012 E    | 28.43     |
| 932591 | AC2-079 C O1 | 6.4       |
| 932592 | AC2-079 E O1 | 10.43     |
| 933291 | AC2-141 C    | 55.48     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933292 | AC2-141 E    | 23.68     |
| 933731 | AC2-196 C    | 0.38      |
| 933732 | AC2-196 E    | 2.06      |
| 933991 | AD1-023 C    | 21.18     |
| 933992 | AD1-023 E    | 11.53     |
| 934061 | AD1-033 C    | 12.98     |
| 934062 | AD1-033 E    | 8.65      |
| 934521 | AD1-076 C    | 88.28     |
| 934522 | AD1-076 E    | 44.95     |
| 935112 | AD1-144 E    | 1.53      |
| 937221 | AD2-160 C O1 | 10.07     |
| 937222 | AD2-160 E O1 | 5.28      |
| 937541 | AD2-215 C    | 2.84      |
| 937542 | AD2-215 E    | 1.51      |
| 938181 | AE1-027 C    | 4.04      |
| 938182 | AE1-027 E    | 2.13      |
| 938191 | AE1-028 C    | 2.34      |
| 938192 | AE1-028 E    | 1.36      |
| 938491 | AE1-068 C O1 | 119.31    |
| 938492 | AE1-068 E O1 | 65.89     |
| 938501 | AE1-069 C O1 | 93.21     |
| 938502 | AE1-069 E O1 | 53.29     |
| 938531 | AE1-072 C O1 | 30.11     |
| 938532 | AE1-072 E O1 | 15.69     |
| 938771 | AE1-103 C O1 | 5.83      |
| 938772 | AE1-103 E O1 | 8.05      |
| 939411 | AE1-173 C    | 175.24    |
| 939412 | AE1-173 E    | 116.83    |
| 940251 | AE2-007      | 296.94    |
| 940471 | AE2-031 C O1 | 62.25     |
| 940472 | AE2-031 E O1 | 41.5      |
| 940491 | AE2-034 C    | 13.78     |
| 940492 | AE2-034 E    | 5.91      |
| 940641 | AE2-051 C O1 | 34.51     |
| 940642 | AE2-051 E O1 | 23.01     |
| 941031 | AE2-094 C    | 78.36     |
| 941032 | AE2-094 E    | 35.09     |
| 941101 | AE2-104 C O1 | 5.74      |
| 941102 | AE2-104 E O1 | 9.12      |
| 941281 | AE2-122 C O1 | 48.88     |
| 941282 | AE2-122 E O1 | 197.25    |
| 941291 | AE2-123 C O1 | 50.23     |
| 941292 | AE2-123 E O1 | 195.89    |
| 941301 | AE2-124 C O1 | 45.71     |
| 941302 | AE2-124 E O1 | 200.57    |
| 941501 | AE2-147 C    | 26.71     |
| 941502 | AE2-147 E    | 17.8      |
| 941591 | AE2-156      | 30.65     |
| 942131 | AE2-225 C    | 3.62      |
| 942132 | AE2-225 E    | 2.41      |
| 942171 | AE2-229 C    | 3.62      |
| 942172 | AE2-229 E    | 2.41      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942211</b>     | AE2-233 C    | 25.6             |
| <b>942212</b>     | AE2-233 E    | 9.95             |
| <b>942401</b>     | AE2-253 C    | 10.6             |
| <b>942402</b>     | AE2-253 E    | 4.76             |
| <b>942851</b>     | AE2-304 C    | 1.06             |
| <b>942852</b>     | AE2-304 E    | 0.41             |
| <b>942921</b>     | AE2-311 C O1 | 88.58            |
| <b>942922</b>     | AE2-311 E O1 | 59.06            |
| <b>942931</b>     | AE2-313 C    | 70.34            |
| <b>942932</b>     | AE2-313 E    | 46.89            |
| <b>AA2-074</b>    | AA2-074      | 8.87             |
| <b>CARR</b>       | CARR         | 1.73             |
| <b>CBM-S1</b>     | CBM-S1       | 21.71            |
| <b>CBM-S2</b>     | CBM-S2       | 25.47            |
| <b>CBM-W1</b>     | CBM-W1       | 19.62            |
| <b>CBM-W2</b>     | CBM-W2       | 139.1            |
| <b>CIN</b>        | CIN          | 9.13             |
| <b>CPLE</b>       | CPLE         | 13.04            |
| <b>G-007</b>      | G-007        | 5.72             |
| <b>IPL</b>        | IPL          | 5.69             |
| <b>LGEE</b>       | LGEE         | 2.67             |
| <b>MEC</b>        | MEC          | 20.79            |
| <b>MECS</b>       | MECS         | 7.23             |
| <b>O-066</b>      | O-066        | 36.38            |
| <b>RENSSELAER</b> | RENSSELAER   | 1.37             |
| <b>WEC</b>        | WEC          | 2.42             |
| <b>Z1-043</b>     | Z1-043       | 9.52             |

## 12.6.5 Index 4

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840112 | 314914    | 8MDLTHAN | DVP           | 314918  | 8NO ANNA | DVP         | 1      | DVP_P1-2: LN 574 | single | 2442.12    | 156.15                | 158.05                 | DC    | 46.83     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.39      |
| 314638 | 6ELIZ CT     | 0.26      |
| 314639 | 6TANGLEW     | 0.48      |
| 314643 | 3O INLET     | 0.52      |
| 315053 | 1BELMED1     | 25.0      |
| 315054 | 1BELMED2     | 25.0      |
| 315055 | 1BELMED3     | 20.75     |
| 315058 | 1CHESTF3     | 25.07     |
| 315059 | 1CHESTF4     | 40.64     |
| 315074 | 1HOPCGN1     | 12.09     |
| 315075 | 1HOPCGN2     | 11.93     |
| 315083 | 1SPRUNCA     | 16.01     |
| 315084 | 1SPRUNCB     | 16.01     |
| 315085 | 1SPRUNCC     | 11.87     |
| 315086 | 1SPRUNCD     | 11.87     |
| 315090 | 1YORKTN1     | 42.39     |
| 315091 | 1YORKTN2     | 43.99     |
| 315098 | 1CHESPKA     | 0.52      |
| 315099 | 1CHESPKB     | 1.3       |
| 315102 | 1BRUNSWICKG1 | 10.29     |
| 315103 | 1BRUNSWICKG2 | 10.29     |
| 315104 | 1BRUNSWICKG3 | 10.29     |
| 315105 | 1BRUNSWICKS1 | 21.38     |
| 315108 | 1ELIZAR1     | 3.83      |
| 315109 | 1ELIZAR2     | 3.76      |
| 315110 | 1ELIZAR3     | 3.88      |
| 315116 | 1SURRY 1     | 28.17     |
| 315120 | 1GRAVEL4     | 2.9       |
| 315122 | 1GRAVEL6     | 2.9       |
| 315131 | 1EDGECEMA    | 13.5      |
| 315132 | 1EDGECEMB    | 13.5      |
| 315233 | 1SURRY 2     | 28.7      |
| 315260 | 1GOSPORTA    | 0.42      |
| 315261 | 1GOSPORTB    | 0.53      |
| 315262 | 1GOSPORTC    | 0.45      |
| 901081 | W1-029 C     | 1.33      |
| 916041 | Z1-036 C     | 1.31      |
| 916191 | Z1-068 C     | 0.05      |
| 916301 | Z1-086 C     | 62.63     |
| 919151 | AA1-139 C    | 2.92      |
| 919701 | AA2-057 C    | 10.5      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 923801 | AB2-015 C O1 | 13.47     |
| 923831 | AB2-022 C    | 0.45      |
| 923851 | AB2-025 C    | 0.48      |
| 923911 | AB2-031 C O1 | 3.43      |
| 924241 | AB2-068 O1   | 244.96    |
| 924401 | AB2-089 C    | 3.06      |
| 924491 | AB2-098 C    | 0.86      |
| 924501 | AB2-099 C    | 0.9       |
| 924511 | AB2-100 C    | 17.96     |
| 925051 | AB2-160 C O1 | 8.18      |
| 925061 | AB2-161 C O1 | 5.3       |
| 925171 | AB2-174 C O1 | 10.78     |
| 925331 | AB2-190 C    | 29.95     |
| 925521 | AC1-027 C    | 0.39      |
| 925591 | AC1-034 C    | 9.94      |
| 925781 | AC1-054 C O1 | 10.4      |
| 925861 | AC1-065 C    | 4.34      |
| 926071 | AC1-086 C    | 31.57     |
| 926201 | AC1-098 C    | 9.23      |
| 926211 | AC1-099 C    | 3.09      |
| 926291 | AC1-107 O1   | 369.74    |
| 926661 | AC1-147 C    | 0.44      |
| 926751 | AC1-161 C O1 | 49.05     |
| 926781 | AC1-164 C    | 52.57     |
| 927021 | AC1-189 C    | 12.94     |
| 927141 | AC1-208 C    | 13.51     |
| 927221 | AC1-216 C O1 | 14.71     |
| 932041 | AC2-012 C    | 16.34     |
| 932581 | AC2-078 C O1 | 6.31      |
| 932591 | AC2-079 C O1 | 9.05      |
| 932631 | AC2-084 C    | 13.15     |
| 932831 | AC2-110 C    | 1.74      |
| 933061 | AC2-130      | 3.3       |
| 933291 | AC2-141 C    | 49.05     |
| 933501 | AC2-165 C    | 14.51     |
| 933731 | AC2-196 C    | 0.35      |
| 933991 | AD1-023 C    | 20.32     |
| 934011 | AD1-025 C    | 25.28     |
| 934061 | AD1-033 C    | 12.05     |
| 934201 | AD1-047 C    | 12.28     |
| 934231 | AD1-050 C    | 6.74      |
| 934331 | AD1-057 C O1 | 14.87     |
| 934521 | AD1-076 C    | 84.44     |
| 934571 | AD1-082 C    | 12.07     |
| 934611 | AD1-087 C O1 | 12.14     |
| 934621 | AD1-088 C    | 18.61     |
| 935111 | AD1-144 C    | 0.33      |
| 935161 | AD1-151 C O1 | 24.07     |
| 935171 | AD1-152 C O1 | 12.06     |
| 935211 | AD1-156 C    | 0.41      |
| 936041 | AD2-007      | 2.68      |
| 936051 | AD2-008 C    | 4.4       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 936151 | AD2-021      | 0.31      |
| 936301 | AD2-039 C    | 1.74      |
| 936391 | AD2-049 C    | 2.72      |
| 936401 | AD2-051 C O1 | 13.38     |
| 936531 | AD2-068 C    | 7.57      |
| 936661 | AD2-085 C    | 5.43      |
| 936701 | AD2-089 C    | 10.68     |
| 936711 | AD2-090 C O1 | 11.19     |
| 937221 | AD2-160 C O1 | 9.37      |
| 937251 | AD2-164      | 7.16      |
| 937481 | AD2-202 C O1 | 3.34      |
| 937541 | AD2-215 C    | 2.75      |
| 937571 | AD2-169 C    | 15.28     |
| 938031 | AE1-004 C    | 1.74      |
| 938171 | AE1-026 C1 O | 43.23     |
| 938172 | AE1-026 C2 O | 6.25      |
| 938181 | AE1-027 C    | 3.75      |
| 938191 | AE1-028 C    | 2.18      |
| 938221 | AE1-035 C    | 3.44      |
| 938491 | AE1-068 C O1 | 102.49    |
| 938501 | AE1-069 C O1 | 80.25     |
| 938531 | AE1-072 C O1 | 28.04     |
| 938551 | AE1-074 C    | 4.0       |
| 938561 | AE1-075 C    | 3.29      |
| 938631 | AE1-085 C O1 | 16.95     |
| 938661 | AE1-088      | 2.7       |
| 938771 | AE1-103 C O1 | 5.69      |
| 939071 | AE1-135 C O1 | 32.36     |
| 939191 | AE1-149 C O1 | 16.57     |
| 939311 | AE1-162 C    | 3.34      |
| 939411 | AE1-173 C    | 152.3     |
| 939421 | AE1-174 C    | 0.27      |
| 939431 | AE1-175 C    | 3.41      |
| 940061 | AE1-248 C O1 | 25.09     |
| 940071 | AE1-249 C    | 10.79     |
| 940231 | AE2-005 C    | 1.74      |
| 940251 | AE2-007      | 277.69    |
| 940431 | AE2-027 C O1 | 18.86     |
| 940471 | AE2-031 C O1 | 53.99     |
| 940481 | AE2-033 C    | 25.04     |
| 940491 | AE2-034 C    | 13.11     |
| 940521 | AE2-037 C O1 | 12.26     |
| 940541 | AE2-040      | 5.03      |
| 940551 | AE2-041      | 9.18      |
| 940571 | AE2-044 C    | 6.51      |
| 940641 | AE2-051 C O1 | 29.47     |
| 940651 | AE2-052      | 5.55      |
| 940891 | AE2-078 C    | 3.6       |
| 940901 | AE2-079 C    | 3.6       |
| 940911 | AE2-080 C    | 3.6       |
| 941031 | AE2-094 C    | 67.04     |
| 941101 | AE2-104 C O1 | 5.55      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941281     | AE2-122 C O1 | 45.57     |
| 941291     | AE2-123 C O1 | 46.83     |
| 941301     | AE2-124 C O1 | 42.59     |
| 941501     | AE2-147 C    | 25.12     |
| 941541     | AE2-151 C    | 1.66      |
| 941591     | AE2-156      | 28.71     |
| 941601     | AE2-157 C O1 | 16.68     |
| 941791     | AE2-182 C    | 3.37      |
| 941951     | AE2-207      | 4.21      |
| 942001     | AE2-212 C    | 3.24      |
| 942131     | AE2-225 C    | 3.41      |
| 942151     | AE2-227 C O1 | 3.24      |
| 942161     | AE2-228 C O1 | 3.24      |
| 942171     | AE2-229 C    | 3.41      |
| 942211     | AE2-233 C    | 21.91     |
| 942341     | AE2-247 C    | 2.35      |
| 942371     | AE2-250 C O1 | 14.54     |
| 942401     | AE2-253 C    | 9.85      |
| 942471     | AE2-260 C O1 | 22.3      |
| 942531     | AE2-268 C    | 2.2       |
| 942551     | AE2-270      | 40.14     |
| 942711     | AE2-287 C O1 | 19.27     |
| 942851     | AE2-304 C    | 1.0       |
| 942921     | AE2-311 C O1 | 76.29     |
| 942931     | AE2-313 C    | 60.47     |
| 943171     | AE2-346 C    | 2.69      |
| AA2-074    | AA2-074      | 8.49      |
| CARR       | CARR         | 2.07      |
| CBM-S1     | CBM-S1       | 23.16     |
| CBM-S2     | CBM-S2       | 24.91     |
| CBM-W1     | CBM-W1       | 22.47     |
| CBM-W2     | CBM-W2       | 149.64    |
| CIN        | CIN          | 10.49     |
| CPLE       | CPLE         | 12.48     |
| IPL        | IPL          | 6.58      |
| LGEE       | LGEE         | 3.08      |
| MEC        | MEC          | 23.08     |
| MECS       | MECS         | 8.8       |
| RENSSELAER | RENSSELAER   | 1.64      |
| WEC        | WEC          | 2.76      |
| Z1-043     | Z1-043       | 10.88     |

## 12.6.6 Index 5

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840820 | 314918    | 8NO ANNA | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 594 | single | 3218.56    | 99.69                 | 100.37                 | DC    | 22.07     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314429 | 3JTRSVLE     | 0.23      |
| 314643 | 3O INLET     | 0.25      |
| 315102 | 1BRUNSWICKG1 | 6.08      |
| 315103 | 1BRUNSWICKG2 | 6.08      |
| 315104 | 1BRUNSWICKG3 | 6.08      |
| 315105 | 1BRUNSWICKS1 | 12.62     |
| 315108 | 1ELIZAR1     | 1.8       |
| 315109 | 1ELIZAR2     | 1.77      |
| 315110 | 1ELIZAR3     | 1.82      |
| 315153 | 1CLOVER1     | 8.65      |
| 315154 | 1CLOVER2     | 8.54      |
| 315172 | 1LOISA A     | 2.3       |
| 315173 | 1LOISA B     | 2.32      |
| 315174 | 1LOISA C     | 2.32      |
| 315175 | 1LOISA D     | 2.32      |
| 315176 | 1LOISA E     | 4.72      |
| 315177 | 1S ANNAG1    | 1.4       |
| 315178 | 1S ANNAS1    | 0.72      |
| 315179 | 1S ANNAG2    | 1.4       |
| 315180 | 1S ANNAS2    | 0.72      |
| 315225 | 1N ANNA1     | 77.29     |
| 315226 | 1N ANNA2     | 77.46     |
| 916191 | Z1-068 C     | 0.02      |
| 916301 | Z1-086 C     | 37.0      |
| 919151 | AA1-139 C    | 1.38      |
| 923851 | AB2-025 C    | 0.24      |
| 923861 | AB2-026 C    | 0.29      |
| 924031 | AB2-045 C    | 0.23      |
| 924511 | AB2-100 C    | 9.22      |
| 925021 | AB2-158 C    | 3.04      |
| 925171 | AB2-174 C O1 | 5.62      |
| 925521 | AC1-027 C    | 0.18      |
| 925671 | AC1-043 C    | 6.21      |
| 925831 | AC1-062      | 0.03      |
| 926001 | AC1-076 C    | 6.49      |
| 926481 | AC1-120 C O1 | 7.77      |
| 926501 | AC1-121 C O1 | 2.67      |
| 926731 | AC1-158 C    | 225.95    |
| 926751 | AC1-161 C O1 | 23.0      |
| 932041 | AC2-012 C    | 7.66      |
| 932511 | AC2-071 C    | 0.22      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 932781  | AC2-102 C    | 5.71      |
| 933291  | AC2-141 C    | 23.0      |
| 933501  | AC2-165 C    | 9.55      |
| 933731  | AC2-196 C    | 0.17      |
| 934061  | AD1-033 C    | 5.7       |
| 934541  | AD1-078 C    | 3.74      |
| 934611  | AD1-087 C O1 | 7.16      |
| 934621  | AD1-088 C    | 11.57     |
| 934861  | AD1-115 C    | 3.1       |
| 935171  | AD1-152 C O1 | 7.12      |
| 935221  | AD1-157 C    | 0.15      |
| 935231  | AD1-160 C    | 0.9       |
| 937221  | AD2-160 C O1 | 4.44      |
| 937481  | AD2-202 C O1 | 1.97      |
| 938181  | AE1-027 C    | 1.78      |
| 938191  | AE1-028 C    | 1.03      |
| 938371  | AE1-056 C    | 5.3       |
| 938491  | AE1-068 C O1 | 60.59     |
| 938501  | AE1-069 C O1 | 47.42     |
| 938531  | AE1-072 C O1 | 13.31     |
| 938551  | AE1-074 C    | 2.01      |
| 938561  | AE1-075 C    | 2.11      |
| 939071  | AE1-135 C O1 | 16.61     |
| 939221  | AE1-153 C O1 | 12.36     |
| 939231  | AE1-154 C    | 4.09      |
| 939371  | AE1-168 C    | 12.15     |
| 939411  | AE1-173 C    | 83.8      |
| 940251  | AE2-007      | 130.4     |
| 940421  | AE2-026 C    | 7.78      |
| 940471  | AE2-031 C O1 | 28.41     |
| 940481  | AE2-033 C    | 12.76     |
| 940541  | AE2-040      | 2.56      |
| 940641  | AE2-051 C O1 | 16.89     |
| 941031  | AE2-094 C    | 39.68     |
| 941281  | AE2-122 C O1 | 21.47     |
| 941291  | AE2-123 C O1 | 22.07     |
| 941301  | AE2-124 C O1 | 20.08     |
| 941381  | AE2-134      | 4.15      |
| 941591  | AE2-156      | 13.47     |
| 941791  | AE2-182 C    | 2.09      |
| 941831  | AE2-188      | 7.53      |
| 942131  | AE2-225 C    | 1.61      |
| 942171  | AE2-229 C    | 1.61      |
| 942211  | AE2-233 C    | 12.96     |
| 942401  | AE2-253 C    | 4.67      |
| 942461  | AE2-259 C O1 | 8.34      |
| 942471  | AE2-260 C O1 | 11.44     |
| 942921  | AE2-311 C O1 | 41.78     |
| 942931  | AE2-313 C    | 35.81     |
| 943051  | AE2-328 C    | 10.04     |
| AA2-074 | AA2-074      | 4.65      |
| CARR    | CARR         | 1.49      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S1</b>     | CBM-S1     | 11.1             |
| <b>CBM-S2</b>     | CBM-S2     | 13.41            |
| <b>CBM-W1</b>     | CBM-W1     | 8.84             |
| <b>CBM-W2</b>     | CBM-W2     | 69.75            |
| <b>CIN</b>        | CIN        | 4.29             |
| <b>CPL</b>        | CPL        | 6.84             |
| <b>IPL</b>        | IPL        | 2.66             |
| <b>LGEE</b>       | LGEE       | 1.27             |
| <b>MEC</b>        | MEC        | 10.03            |
| <b>MECS</b>       | MECS       | 2.59             |
| <b>RENSSELAER</b> | RENSSELAER | 1.18             |
| <b>WEC</b>        | WEC        | 1.12             |

## 12.6.7 Index 6

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839852 | 314924    | 8SURREY  | DVP           | 314903  | 8CHCKAHM | DVP         | 1      | DVP_P4-2: 56372 | breaker | 3144.0     | 98.34                 | 104.74                 | DC    | 244.85    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314539 | 3UNCAMP      | 3.29      |
| 314541 | 3WATKINS     | 0.91      |
| 314554 | 3BTLEBRO     | 0.84      |
| 314557 | 3BETHEL      | 0.9       |
| 314566 | 3CRESWEL     | 3.48      |
| 314574 | 6EVERETS     | 5.03      |
| 314578 | 3HORNRTN     | 3.34      |
| 314582 | 3KELFORD     | 4.11      |
| 314594 | 6PLYMOTH     | 1.19      |
| 314603 | 3SCOT NK     | 3.71      |
| 314617 | 3TUNIS       | 1.02      |
| 314620 | 6CASHIE      | 1.13      |
| 314623 | 3WITAKRS     | 1.43      |
| 314648 | 6SUNBURY     | 1.42      |
| 314651 | 6WINFALL     | 2.8       |
| 315090 | 1YORKTN1     | 39.38     |
| 315091 | 1YORKTN2     | 40.87     |
| 315108 | 1ELIZAR1     | 4.08      |
| 315109 | 1ELIZAR2     | 4.01      |
| 315110 | 1ELIZAR3     | 4.13      |
| 315131 | 1EDGECEMA    | 9.77      |
| 315132 | 1EDGECEMB    | 9.77      |
| 315233 | 1SURREY 2    | 40.44     |
| 900672 | V4-068 E     | 0.36      |
| 901082 | W1-029 E     | 73.37     |
| 907092 | X1-038 E     | 8.22      |
| 913392 | Y1-086 E     | 3.61      |
| 916042 | Z1-036 E     | 70.49     |
| 916191 | Z1-068 C     | 0.06      |
| 916192 | Z1-068 E     | 3.21      |
| 916302 | Z1-086 E     | 14.12     |
| 917122 | Z2-027 E     | 1.72      |
| 917332 | Z2-043 E     | 1.17      |
| 917342 | Z2-044 E     | 0.61      |
| 917512 | Z2-088 E OP1 | 4.52      |
| 918492 | AA1-063AE OP | 4.35      |
| 918512 | AA1-065 E OP | 5.6       |
| 918532 | AA1-067 E    | 0.89      |
| 918562 | AA1-072 E    | 0.19      |
| 919152 | AA1-139 E    | 10.87     |
| 919692 | AA2-053 E    | 3.92      |
| 919701 | AA2-057 C    | 7.56      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 919702 | AA2-057 E    | 3.78      |
| 920042 | AA2-088 E OP | 12.98     |
| 920592 | AA2-165 E    | 0.5       |
| 920672 | AA2-174 E    | 0.45      |
| 920692 | AA2-178 E    | 5.96      |
| 923801 | AB2-015 C O1 | 11.5      |
| 923802 | AB2-015 E O1 | 9.43      |
| 923832 | AB2-022 E    | 2.04      |
| 924152 | AB2-059 E O1 | 5.74      |
| 924401 | AB2-089 C    | 2.0       |
| 924402 | AB2-089 E    | 1.03      |
| 924491 | AB2-098 C    | 0.69      |
| 924492 | AB2-098 E    | 0.3       |
| 924501 | AB2-099 C    | 0.71      |
| 924502 | AB2-099 E    | 0.31      |
| 925061 | AB2-161 C O1 | 3.39      |
| 925062 | AB2-161 E O1 | 5.54      |
| 925122 | AB2-169 E    | 7.61      |
| 925521 | AC1-027 C    | 0.42      |
| 925522 | AC1-027 E    | 1.95      |
| 925591 | AC1-034 C    | 7.21      |
| 925592 | AC1-034 E    | 5.44      |
| 925781 | AC1-054 C O1 | 6.82      |
| 925782 | AC1-054 E O1 | 3.14      |
| 926071 | AC1-086 C    | 19.38     |
| 926072 | AC1-086 E    | 8.82      |
| 926201 | AC1-098 C    | 6.76      |
| 926202 | AC1-098 E    | 4.03      |
| 926211 | AC1-099 C    | 2.27      |
| 926212 | AC1-099 E    | 1.33      |
| 926271 | AC1-105 C O1 | 5.3       |
| 926272 | AC1-105 E O1 | 2.64      |
| 926662 | AC1-147 E    | 2.25      |
| 926751 | AC1-161 C O1 | 60.92     |
| 926752 | AC1-161 E O1 | 26.01     |
| 927021 | AC1-189 C    | 10.21     |
| 927022 | AC1-189 E    | 5.09      |
| 927141 | AC1-208 C    | 9.6       |
| 927142 | AC1-208 E    | 4.26      |
| 927251 | AC1-221 C    | 2.26      |
| 927252 | AC1-221 E    | 2.26      |
| 927261 | AC1-222 C    | 3.46      |
| 927262 | AC1-222 E    | 3.29      |
| 930402 | AB1-081 E O1 | 4.05      |
| 930862 | AB1-132 E O1 | 5.64      |
| 932041 | AC2-012 C    | 17.3      |
| 932042 | AC2-012 E    | 28.23     |
| 932591 | AC2-079 C O1 | 7.14      |
| 932592 | AC2-079 E O1 | 11.66     |
| 932631 | AC2-084 C    | 9.64      |
| 932632 | AC2-084 E    | 4.75      |
| 932761 | AC2-100 C    | 5.21      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932762 | AC2-100 E    | 2.54      |
| 933291 | AC2-141 C    | 60.92     |
| 933292 | AC2-141 E    | 26.01     |
| 933731 | AC2-196 C    | 0.38      |
| 933732 | AC2-196 E    | 2.06      |
| 933991 | AD1-023 C    | 17.83     |
| 933992 | AD1-023 E    | 9.71      |
| 934061 | AD1-033 C    | 12.94     |
| 934062 | AD1-033 E    | 8.63      |
| 934231 | AD1-050 C    | 4.41      |
| 934232 | AD1-050 E    | 2.41      |
| 934311 | AD1-055 C    | 2.4       |
| 934312 | AD1-055 E    | 0.62      |
| 934331 | AD1-057 C O1 | 10.01     |
| 934332 | AD1-057 E O1 | 5.34      |
| 934341 | AD1-058 C    | 5.67      |
| 934342 | AD1-058 E    | 1.44      |
| 934521 | AD1-076 C    | 75.57     |
| 934522 | AD1-076 E    | 38.48     |
| 934571 | AD1-082 C    | 7.73      |
| 934572 | AD1-082 E    | 4.41      |
| 934611 | AD1-087 C O1 | 9.42      |
| 934612 | AD1-087 E O1 | 4.43      |
| 934621 | AD1-088 C    | 12.79     |
| 934622 | AD1-088 E    | 6.0       |
| 934991 | AD1-131 C    | 1.86      |
| 934992 | AD1-131 E    | 1.24      |
| 935112 | AD1-144 E    | 1.46      |
| 935171 | AD1-152 C O1 | 9.36      |
| 935172 | AD1-152 E O1 | 6.24      |
| 936331 | AD2-043 C    | 4.49      |
| 936332 | AD2-043 E    | 5.31      |
| 936391 | AD2-049 C    | 2.51      |
| 936392 | AD2-049 E    | 2.51      |
| 936401 | AD2-051 C O1 | 10.66     |
| 936402 | AD2-051 E O1 | 4.58      |
| 936531 | AD2-068 C    | 5.94      |
| 936532 | AD2-068 E    | 3.06      |
| 936661 | AD2-085 C    | 4.24      |
| 936662 | AD2-085 E    | 6.91      |
| 936701 | AD2-089 C    | 8.06      |
| 936702 | AD2-089 E    | 5.37      |
| 936711 | AD2-090 C O1 | 9.26      |
| 936712 | AD2-090 E O1 | 6.17      |
| 937221 | AD2-160 C O1 | 9.97      |
| 937222 | AD2-160 E O1 | 5.23      |
| 937251 | AD2-164      | 6.63      |
| 937481 | AD2-202 C O1 | 2.59      |
| 937482 | AD2-202 E O1 | 1.31      |
| 937541 | AD2-215 C    | 2.69      |
| 937542 | AD2-215 E    | 1.43      |
| 937571 | AD2-169 C    | 9.08      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937572 | AD2-169 E    | 6.05      |
| 938171 | AE1-026 C1 O | 37.48     |
| 938172 | AE1-026 C2 O | 5.42      |
| 938173 | AE1-026 E O1 | 11.32     |
| 938181 | AE1-027 C    | 4.02      |
| 938182 | AE1-027 E    | 2.12      |
| 938191 | AE1-028 C    | 2.33      |
| 938192 | AE1-028 E    | 1.35      |
| 938221 | AE1-035 C    | 2.84      |
| 938222 | AE1-035 E    | 1.4       |
| 938491 | AE1-068 C O1 | 90.21     |
| 938492 | AE1-068 E O1 | 49.83     |
| 938501 | AE1-069 C O1 | 70.44     |
| 938502 | AE1-069 E O1 | 40.27     |
| 938531 | AE1-072 C O1 | 29.57     |
| 938532 | AE1-072 E O1 | 15.42     |
| 938661 | AE1-088      | 2.3       |
| 938771 | AE1-103 C O1 | 4.93      |
| 938772 | AE1-103 E O1 | 6.81      |
| 939311 | AE1-162 C    | 2.94      |
| 939312 | AE1-162 E    | 1.96      |
| 939411 | AE1-173 C    | 149.42    |
| 939412 | AE1-173 E    | 99.61     |
| 939421 | AE1-174 C    | 0.17      |
| 939422 | AE1-174 E    | 0.26      |
| 939431 | AE1-175 C    | 2.18      |
| 939432 | AE1-175 E    | 1.08      |
| 940061 | AE1-248 C O1 | 16.07     |
| 940062 | AE1-248 E O1 | 10.72     |
| 940251 | AE2-007      | 295.65    |
| 940471 | AE2-031 C O1 | 58.39     |
| 940472 | AE2-031 E O1 | 38.93     |
| 940491 | AE2-034 C    | 12.17     |
| 940492 | AE2-034 E    | 5.21      |
| 940521 | AE2-037 C O1 | 9.7       |
| 940522 | AE2-037 E O1 | 4.69      |
| 940571 | AE2-044 C    | 4.72      |
| 940572 | AE2-044 E    | 2.02      |
| 940641 | AE2-051 C O1 | 28.0      |
| 940642 | AE2-051 E O1 | 18.67     |
| 940891 | AE2-078 C    | 2.82      |
| 940892 | AE2-078 E    | 1.46      |
| 940901 | AE2-079 C    | 2.82      |
| 940902 | AE2-079 E    | 1.46      |
| 940911 | AE2-080 C    | 2.82      |
| 940912 | AE2-080 E    | 1.46      |
| 941031 | AE2-094 C    | 59.31     |
| 941032 | AE2-094 E    | 26.56     |
| 941101 | AE2-104 C O1 | 5.25      |
| 941102 | AE2-104 E O1 | 8.34      |
| 941281 | AE2-122 C O1 | 48.63     |
| 941282 | AE2-122 E O1 | 196.22    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941291     | AE2-123 C O1 | 49.97     |
| 941292     | AE2-123 E O1 | 194.87    |
| 941301     | AE2-124 C O1 | 45.48     |
| 941302     | AE2-124 E O1 | 199.57    |
| 941501     | AE2-147 C    | 25.3      |
| 941502     | AE2-147 E    | 16.87     |
| 941541     | AE2-151 C    | 1.32      |
| 941542     | AE2-151 E    | 0.71      |
| 941591     | AE2-156      | 30.48     |
| 941601     | AE2-157 C O1 | 9.36      |
| 941602     | AE2-157 E O1 | 6.24      |
| 941791     | AE2-182 C    | 2.31      |
| 941792     | AE2-182 E    | 1.09      |
| 941951     | AE2-207      | 3.05      |
| 942131     | AE2-225 C    | 3.48      |
| 942132     | AE2-225 E    | 2.32      |
| 942171     | AE2-229 C    | 3.48      |
| 942172     | AE2-229 E    | 2.32      |
| 942211     | AE2-233 C    | 19.38     |
| 942212     | AE2-233 E    | 7.53      |
| 942341     | AE2-247 C    | 1.84      |
| 942342     | AE2-247 E    | 2.54      |
| 942401     | AE2-253 C    | 10.48     |
| 942402     | AE2-253 E    | 4.71      |
| 942851     | AE2-304 C    | 0.99      |
| 942852     | AE2-304 E    | 0.39      |
| 942921     | AE2-311 C O1 | 77.95     |
| 942922     | AE2-311 E O1 | 51.96     |
| 942931     | AE2-313 C    | 53.22     |
| 942932     | AE2-313 E    | 35.48     |
| 943171     | AE2-346 C    | 2.14      |
| 943172     | AE2-346 E    | 0.92      |
| AA2-074    | AA2-074      | 6.4       |
| CARR       | CARR         | 1.11      |
| CBM-S1     | CBM-S1       | 13.93     |
| CBM-S2     | CBM-S2       | 17.99     |
| CBM-W1     | CBM-W1       | 11.23     |
| CBM-W2     | CBM-W2       | 88.09     |
| CIN        | CIN          | 5.25      |
| CPLE       | CPLE         | 9.41      |
| G-007      | G-007        | 3.6       |
| IPL        | IPL          | 3.25      |
| LGEE       | LGEE         | 1.53      |
| MEC        | MEC          | 12.58     |
| MECS       | MECS         | 3.61      |
| O-066      | O-066        | 22.92     |
| RENSSELAER | RENSSELAER   | 0.88      |
| WEC        | WEC          | 1.39      |

## 12.6.8 Index 7

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-----------|-------------|--------|-----------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839868 | 314303    | 6HOPEWLL | DVP           | 314287  | 6CHESTF B | DVP         | 1      | DVP_P4-2: 56372 | breaker | 549.0      | 99.57                 | 104.31                 | DC    | 56.7      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 315073 | 1STONECA     | 13.17     |
| 315074 | 1HOPCGN1     | 15.88     |
| 315075 | 1HOPCGN2     | 15.67     |
| 315076 | 1HOPPOLC     | 2.22      |
| 315077 | 1HOPHCF1     | 3.47      |
| 315078 | 1HOPHCF2     | 3.47      |
| 315079 | 1HOPHCF3     | 3.47      |
| 315080 | 1HOPHCF4     | 5.26      |
| 315090 | 1YORKTN1     | 11.37     |
| 315091 | 1YORKTN2     | 11.8      |
| 315116 | 1SURREY 1    | 16.54     |
| 315120 | 1GRAVEL4     | 1.7       |
| 315122 | 1GRAVEL6     | 1.7       |
| 916192 | Z1-068 E     | 0.75      |
| 924811 | AB2-134 C O1 | 2.08      |
| 924812 | AB2-134 E O1 | 16.23     |
| 925331 | AB2-190 C    | 28.2      |
| 925332 | AB2-190 E    | 12.09     |
| 925522 | AC1-027 E    | 0.46      |
| 926662 | AC1-147 E    | 0.56      |
| 927221 | AC1-216 C O1 | 13.04     |
| 927222 | AC1-216 E O1 | 10.26     |
| 932041 | AC2-012 C    | 4.33      |
| 932042 | AC2-012 E    | 7.07      |
| 933061 | AC2-130      | 1.75      |
| 933732 | AC2-196 E    | 0.45      |
| 934011 | AD1-025 C    | 22.42     |
| 934012 | AD1-025 E    | 13.28     |
| 934061 | AD1-033 C    | 2.86      |
| 934062 | AD1-033 E    | 1.9       |
| 935112 | AD1-144 E    | 0.41      |
| 935161 | AD1-151 C O1 | 22.66     |
| 935162 | AD1-151 E O1 | 15.11     |
| 936041 | AD2-007      | 2.38      |
| 936051 | AD2-008 C    | 3.9       |
| 936052 | AD2-008 E    | 8.5       |
| 936391 | AD2-049 C    | 0.82      |
| 936392 | AD2-049 E    | 0.82      |
| 937251 | AD2-164      | 2.01      |
| 937541 | AD2-215 C    | 0.75      |
| 937542 | AD2-215 E    | 0.4       |
| 939311 | AE1-162 C    | 1.54      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 939312     | AE1-162 E    | 1.03      |
| 940251     | AE2-007      | 72.32     |
| 940542     | AE2-040 BAT  | 1.24      |
| 940891     | AE2-078 C    | 1.96      |
| 940892     | AE2-078 E    | 1.01      |
| 940901     | AE2-079 C    | 1.96      |
| 940902     | AE2-079 E    | 1.01      |
| 940911     | AE2-080 C    | 1.96      |
| 940912     | AE2-080 E    | 1.01      |
| 941281     | AE2-122 C O1 | 11.26     |
| 941282     | AE2-122 E O1 | 45.44     |
| 941291     | AE2-123 C O1 | 11.57     |
| 941292     | AE2-123 E O1 | 45.13     |
| 941301     | AE2-124 C O1 | 10.45     |
| 941302     | AE2-124 E O1 | 45.84     |
| 941591     | AE2-156      | 7.57      |
| 942551     | AE2-270      | 37.8      |
| CARR       | CARR         | 0.17      |
| CBM-S1     | CBM-S1       | 0.92      |
| CBM-S2     | CBM-S2       | 1.5       |
| CBM-W1     | CBM-W1       | 0.3       |
| CBM-W2     | CBM-W2       | 5.4       |
| CIN        | CIN          | 0.18      |
| CPL        | CPL          | 0.78      |
| G-007      | G-007        | 0.53      |
| IPL        | IPL          | 0.1       |
| LGEE       | LGEE         | 0.05      |
| MEC        | MEC          | 0.59      |
| O-066      | O-066        | 3.37      |
| RENSSELAER | RENSSELAER   | 0.13      |
| WEC        | WEC          | 0.04      |

## 12.6.9 Index 8

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME          | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|--------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839699 | 314481    | 6LANDSTN | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2026 | breaker | 830.0      | 68.0                  | 97.44                  | DC    | 427.17    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 916191     | Z1-068 C     | 0.08      |
| 916192     | Z1-068 E     | 4.61      |
| 925521     | AC1-027 C    | 0.65      |
| 925522     | AC1-027 E    | 3.07      |
| 926662     | AC1-147 E    | 0.46      |
| 932041     | AC2-012 C    | 3.54      |
| 932042     | AC2-012 E    | 5.78      |
| 940251     | AE2-007      | 56.06     |
| 941281     | AE2-122 C O1 | 84.84     |
| 941282     | AE2-122 E O1 | 342.33    |
| 941291     | AE2-123 C O1 | 87.18     |
| 941292     | AE2-123 E O1 | 339.98    |
| 941301     | AE2-124 C O1 | 101.39    |
| 941302     | AE2-124 E O1 | 444.89    |
| 941591     | AE2-156      | 5.26      |
| BLUEG      | BLUEG        | 0.32      |
| CALDERWOOD | CALDERWOOD   | 0.06      |
| CANNELTON  | CANNELTON    | 0.02      |
| CATAWBA    | CATAWBA      | 0.06      |
| CHEOAH     | CHEOAH       | 0.06      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| COFFEEN    | COFFEEN      | 0.04      |
| COTTONWOOD | COTTONWOOD   | 0.21      |
| DUCKCREEK  | DUCKCREEK    | 0.07      |
| EDWARDS    | EDWARDS      | 0.03      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| FARMERCITY | FARMERCITY   | 0.03      |
| G-007A     | G-007A       | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.11      |
| NEWTON     | NEWTON       | 0.09      |
| PRAIRIE    | PRAIRIE      | 0.2       |
| SANTEETLA  | SANTEETLA    | 0.02      |
| SMITHLAND  | SMITHLAND    | 0.02      |
| TATANKA    | TATANKA      | 0.04      |
| TILTON     | TILTON       | 0.04      |
| TRIMBLE    | TRIMBLE      | 0.03      |
| TVA        | TVA          | 0.17      |
| UNIONPOWER | UNIONPOWER   | 0.08      |
| VFT        | VFT          | 0.03      |

## 12.6.10 Index 9

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 1841190 | 314481    | 6LANDSTN | DVP           | 314486  | 6LYNHAVN | DVP         | 1      | DVP_P7-1: LN 147-2118 | tower | 830.0      | 59.61                 | 86.76                  | DC    | 225.27    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 314651     | 6WINFALL     | 0.52      |
| 913392     | Y1-086 E     | 0.89      |
| 917122     | Z2-027 E     | 0.39      |
| 919152     | AA1-139 E    | 3.25      |
| 923832     | AB2-022 E    | 0.5       |
| 933731     | AC2-196 C    | 0.12      |
| 933732     | AC2-196 E    | 0.68      |
| 934061     | AD1-033 C    | 5.57      |
| 934062     | AD1-033 E    | 3.71      |
| 937221     | AD2-160 C O1 | 3.07      |
| 937222     | AD2-160 E O1 | 1.61      |
| 938181     | AE1-027 C    | 1.29      |
| 938182     | AE1-027 E    | 0.68      |
| 938191     | AE1-028 C    | 0.75      |
| 938192     | AE1-028 E    | 0.43      |
| 938531     | AE1-072 C O1 | 8.55      |
| 938532     | AE1-072 E O1 | 4.46      |
| 941281     | AE2-122 C O1 | 44.74     |
| 941282     | AE2-122 E O1 | 180.53    |
| 941291     | AE2-123 C O1 | 45.98     |
| 941292     | AE2-123 E O1 | 179.29    |
| 941301     | AE2-124 C O1 | 41.81     |
| 941302     | AE2-124 E O1 | 183.46    |
| 941592     | AE2-156 BAT  | 3.98      |
| 942401     | AE2-253 C    | 3.23      |
| 942402     | AE2-253 E    | 1.45      |
| CARR       | CARR         | 0.0       |
| CBM-S1     | CBM-S1       | 0.42      |
| CBM-S2     | CBM-S2       | 0.43      |
| CBM-W1     | CBM-W1       | 0.5       |
| CBM-W2     | CBM-W2       | 2.81      |
| CIN        | CIN          | 0.22      |
| CPLE       | CPLE         | 0.23      |
| G-007      | G-007        | 0.01      |
| IPL        | IPL          | 0.14      |
| LGEE       | LGEE         | 0.06      |
| MEC        | MEC          | 0.47      |
| MECS       | MECS         | 0.24      |
| O-066      | O-066        | 0.05      |
| RENSSELAER | RENSSELAER   | 0.0       |
| WEC        | WEC          | 0.06      |



## 12.6.11 Index 10

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840662 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM | DVP         | 1      | DVP_P1-2: LN 581 | single | 2442.12    | 116.66                | 117.17                 | DC    | 26.88     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.09      |
| 314236 | 6NRTHEST     | 0.13      |
| 314250 | 6ROCKVILLE   | 0.24      |
| 314309 | 6IRON208     | 0.32      |
| 315043 | 1FOUR RIVERA | 2.6       |
| 315044 | 1FOUR RIVERB | 2.01      |
| 315045 | 1FOUR RIVERC | 2.6       |
| 315046 | 1FOUR RIVERD | 2.01      |
| 315047 | 1FOUR RIVERE | 2.01      |
| 315048 | 1FOUR RIVERF | 2.6       |
| 315053 | 1BELMED1     | 16.48     |
| 315054 | 1BELMED2     | 16.48     |
| 315055 | 1BELMED3     | 13.68     |
| 315058 | 1CHESTF3     | 17.38     |
| 315059 | 1CHESTF4     | 28.18     |
| 315060 | 1CHESTF5     | 7.17      |
| 315061 | 1CHESTG7     | 2.81      |
| 315062 | 1CHESTS7     | 1.28      |
| 315063 | 1CHESTG8     | 2.76      |
| 315064 | 1CHESTS8     | 1.42      |
| 315067 | 1DARBY 1     | 1.85      |
| 315068 | 1DARBY 2     | 1.85      |
| 315069 | 1DARBY 3     | 1.86      |
| 315070 | 1DARBY 4     | 1.86      |
| 315074 | 1HOPCGN1     | 7.96      |
| 315075 | 1HOPCGN2     | 7.85      |
| 315083 | 1SPRUNCA     | 10.03     |
| 315084 | 1SPRUNCB     | 10.03     |
| 315085 | 1SPRUNCC     | 7.44      |
| 315086 | 1SPRUNCD     | 7.44      |
| 315090 | 1YORKTN1     | 26.95     |
| 315091 | 1YORKTN2     | 27.96     |
| 315225 | 1N ANNA1     | 20.59     |
| 315226 | 1N ANNA2     | 20.64     |
| 919211 | AA1-145      | 7.51      |
| 924061 | AB2-050      | 0.44      |
| 924241 | AB2-068 O1   | 199.05    |
| 925051 | AB2-160 C O1 | 5.14      |
| 925061 | AB2-161 C O1 | 3.12      |
| 925331 | AB2-190 C    | 19.03     |
| 925861 | AC1-065 C    | 3.17      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926291 | AC1-107 O1   | 300.45    |
| 926411 | AC1-112 C    | 0.24      |
| 926551 | AC1-134      | 1.1       |
| 926751 | AC1-161 C O1 | 28.08     |
| 926781 | AC1-164 C    | 39.06     |
| 927041 | AC1-191 C O1 | 9.14      |
| 927221 | AC1-216 C O1 | 9.29      |
| 930121 | AB1-027 C    | 0.31      |
| 932041 | AC2-012 C    | 9.41      |
| 932501 | AC2-070 C    | 0.2       |
| 932581 | AC2-078 C O1 | 3.79      |
| 932591 | AC2-079 C O1 | 5.27      |
| 932831 | AC2-110 C    | 1.27      |
| 933011 | AC2-125      | 2.57      |
| 933021 | AC2-126      | 2.59      |
| 933061 | AC2-130      | 2.31      |
| 933261 | AC2-137 C    | 0.25      |
| 933291 | AC2-141 C    | 28.08     |
| 934011 | AD1-025 C    | 15.97     |
| 934061 | AD1-033 C    | 6.9       |
| 934141 | AD1-041 C    | 4.97      |
| 934211 | AD1-048 C    | 0.29      |
| 934571 | AD1-082 C    | 7.12      |
| 935161 | AD1-151 C O1 | 15.29     |
| 936041 | AD2-007      | 1.7       |
| 936051 | AD2-008 C    | 2.78      |
| 936151 | AD2-021      | 0.23      |
| 936241 | AD2-030 C    | 2.15      |
| 936301 | AD2-039 C    | 1.27      |
| 936391 | AD2-049 C    | 1.68      |
| 936661 | AD2-085 C    | 3.16      |
| 937221 | AD2-160 C O1 | 5.36      |
| 937251 | AD2-164      | 4.51      |
| 937541 | AD2-215 C    | 1.61      |
| 938031 | AE1-004 C    | 1.27      |
| 938181 | AE1-027 C    | 2.15      |
| 938191 | AE1-028 C    | 1.25      |
| 938531 | AE1-072 C O1 | 16.05     |
| 938551 | AE1-074 C    | 2.28      |
| 938631 | AE1-085 C O1 | 10.15     |
| 939191 | AE1-149 C O1 | 9.99      |
| 939261 | AE1-157 C O1 | 13.63     |
| 939271 | AE1-158 C O1 | 13.91     |
| 939311 | AE1-162 C    | 2.0       |
| 939411 | AE1-173 C    | 77.4      |
| 939421 | AE1-174 C    | 0.18      |
| 939431 | AE1-175 C    | 2.29      |
| 939611 | AE1-191 C    | 9.94      |
| 939751 | AE1-206 C O1 | 32.76     |
| 940061 | AE1-248 C O1 | 14.79     |
| 940071 | AE1-249 C    | 6.78      |
| 940231 | AE2-005 C    | 1.27      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 940251     | AE2-007      | 159.74    |
| 940431     | AE2-027 C O1 | 12.31     |
| 940471     | AE2-031 C O1 | 28.43     |
| 940551     | AE2-041      | 6.73      |
| 940641     | AE2-051 C O1 | 14.42     |
| 940651     | AE2-052      | 3.35      |
| 940891     | AE2-078 C    | 2.22      |
| 940901     | AE2-079 C    | 2.22      |
| 940911     | AE2-080 C    | 2.22      |
| 941101     | AE2-104 C O1 | 3.19      |
| 941281     | AE2-122 C O1 | 26.16     |
| 941291     | AE2-123 C O1 | 26.88     |
| 941301     | AE2-124 C O1 | 24.44     |
| 941581     | AE2-155 C    | 0.63      |
| 941591     | AE2-156      | 16.53     |
| 941601     | AE2-157 C O1 | 9.89      |
| 942001     | AE2-212 C    | 2.03      |
| 942131     | AE2-225 C    | 1.95      |
| 942151     | AE2-227 C O1 | 2.03      |
| 942161     | AE2-228 C O1 | 2.03      |
| 942171     | AE2-229 C    | 1.95      |
| 942191     | AE2-231 C O1 | 5.3       |
| 942341     | AE2-247 C    | 1.37      |
| 942371     | AE2-250 C O1 | 9.13      |
| 942401     | AE2-253 C    | 5.64      |
| 942531     | AE2-268 C    | 1.61      |
| 942551     | AE2-270      | 25.5      |
| 942921     | AE2-311 C O1 | 38.88     |
| AA2-074    | AA2-074      | 4.72      |
| CARR       | CARR         | 1.87      |
| CBM-S1     | CBM-S1       | 16.0      |
| CBM-S2     | CBM-S2       | 14.44     |
| CBM-W1     | CBM-W1       | 18.35     |
| CBM-W2     | CBM-W2       | 106.13    |
| CIN        | CIN          | 8.45      |
| CPLE       | CPLE         | 6.93      |
| IPL        | IPL          | 5.34      |
| LGEE       | LGEE         | 2.48      |
| MEC        | MEC          | 17.53     |
| MECS       | MECS         | 8.28      |
| RENSSELAER | RENSSELAER   | 1.48      |
| WEC        | WEC          | 2.23      |
| Z1-043     | Z1-043       | 8.76      |

## 12.6.12 Index 11

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME            | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839928 | 314919    | 8OX      | DVP           | 314904  | 8CLIFTON | DVP         | 1      | DVP_P4-2:<br>541T569 | breaker | 3144.0     | 99.74                 | 101.42                 | DC    | 118.98    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314093 | 6WARRNTN     | 0.31      |
| 314189 | 6PAPER MILL  | 5.82      |
| 314648 | 6SUNBURY     | 0.72      |
| 314651 | 6WINFALL     | 1.43      |
| 315037 | 1LDYSMT1     | 3.34      |
| 315038 | 1LDYSMT2     | 3.34      |
| 315039 | 1LDYSMT3     | 3.53      |
| 315040 | 1LDYSMT4     | 3.54      |
| 315041 | 1LDYSMT5     | 3.55      |
| 315053 | 1BELMED1     | 14.98     |
| 315054 | 1BELMED2     | 14.98     |
| 315055 | 1BELMED3     | 12.43     |
| 315058 | 1CHESTF3     | 15.76     |
| 315059 | 1CHESTF4     | 25.54     |
| 315073 | 1STONECA     | 5.96      |
| 315074 | 1HOPCGN1     | 7.18      |
| 315075 | 1HOPCGN2     | 7.09      |
| 315083 | 1SPRUNCA     | 9.18      |
| 315084 | 1SPRUNCB     | 9.18      |
| 315085 | 1SPRUNCC     | 6.81      |
| 315086 | 1SPRUNCD     | 6.81      |
| 315090 | 1YORKTN1     | 24.33     |
| 315091 | 1YORKTN2     | 25.25     |
| 315225 | 1N ANNA1     | 23.83     |
| 315226 | 1N ANNA2     | 23.88     |
| 901082 | W1-029 E     | 37.37     |
| 913392 | Y1-086 E     | 1.8       |
| 916042 | Z1-036 E     | 36.63     |
| 916192 | Z1-068 E     | 1.56      |
| 916302 | Z1-086 E     | 7.1       |
| 917122 | Z2-027 E     | 0.87      |
| 919152 | AA1-139 E    | 5.3       |
| 923832 | AB2-022 E    | 1.01      |
| 923842 | AB2-024 E    | 0.98      |
| 923852 | AB2-025 E    | 0.88      |
| 923892 | AB2-029 E    | 1.94      |
| 924241 | AB2-068 O1   | 169.58    |
| 924812 | AB2-134 E O1 | 10.44     |
| 925021 | AB2-158 C    | 1.28      |
| 925022 | AB2-158 E    | 4.68      |
| 925051 | AB2-160 C O1 | 4.66      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925052 | AB2-160 E O1 | 7.61      |
| 925061 | AB2-161 C O1 | 2.82      |
| 925062 | AB2-161 E O1 | 4.6       |
| 925331 | AB2-190 C    | 17.18     |
| 925332 | AB2-190 E    | 7.36      |
| 925522 | AC1-027 E    | 0.95      |
| 925671 | AC1-043 C    | 6.63      |
| 925672 | AC1-043 E    | 10.82     |
| 925861 | AC1-065 C    | 2.98      |
| 925862 | AC1-065 E    | 4.86      |
| 926001 | AC1-076 C    | 4.6       |
| 926002 | AC1-076 E    | 7.47      |
| 926291 | AC1-107 O1   | 255.97    |
| 926412 | AC1-112 E    | 0.98      |
| 926472 | AC1-118 E    | 1.08      |
| 926481 | AC1-120 C O1 | 7.03      |
| 926482 | AC1-120 E O1 | 3.62      |
| 926501 | AC1-121 C O1 | 2.41      |
| 926502 | AC1-121 E O1 | 1.14      |
| 926611 | AC1-143 C O1 | 6.76      |
| 926612 | AC1-143 E O1 | 3.08      |
| 926662 | AC1-147 E    | 1.1       |
| 926731 | AC1-158 C    | 75.01     |
| 926732 | AC1-158 E    | 32.92     |
| 926751 | AC1-161 C O1 | 25.37     |
| 926752 | AC1-161 E O1 | 10.83     |
| 926781 | AC1-164 C    | 34.95     |
| 926782 | AC1-164 E    | 15.7      |
| 927041 | AC1-191 C O1 | 8.61      |
| 927042 | AC1-191 E O1 | 4.29      |
| 927221 | AC1-216 C O1 | 8.39      |
| 927222 | AC1-216 E O1 | 6.6       |
| 930122 | AB1-027 E    | 0.96      |
| 932041 | AC2-012 C    | 8.5       |
| 932042 | AC2-012 E    | 13.87     |
| 932502 | AC2-070 E    | 0.61      |
| 932532 | AC2-073 E    | 1.05      |
| 932581 | AC2-078 C O1 | 3.43      |
| 932582 | AC2-078 E O1 | 5.6       |
| 932591 | AC2-079 C O1 | 4.76      |
| 932592 | AC2-079 E O1 | 7.76      |
| 932781 | AC2-102 C    | 5.37      |
| 932782 | AC2-102 E    | 8.77      |
| 932831 | AC2-110 C    | 1.19      |
| 932832 | AC2-110 E    | 1.95      |
| 933011 | AC2-125      | 2.7       |
| 933021 | AC2-126      | 2.72      |
| 933061 | AC2-130      | 2.08      |
| 933262 | AC2-137 E    | 1.17      |
| 933272 | AC2-138 E    | 0.95      |
| 933291 | AC2-141 C    | 25.37     |
| 933292 | AC2-141 E    | 10.83     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933732 | AC2-196 E    | 0.99      |
| 934011 | AD1-025 C    | 14.42     |
| 934012 | AD1-025 E    | 8.54      |
| 934061 | AD1-033 C    | 6.24      |
| 934062 | AD1-033 E    | 4.16      |
| 934141 | AD1-041 C    | 4.7       |
| 934142 | AD1-041 E    | 3.13      |
| 934191 | AD1-046 C    | 4.88      |
| 934192 | AD1-046 E    | 3.26      |
| 934212 | AD1-048 E    | 1.07      |
| 934392 | AD1-063 E    | 0.94      |
| 934541 | AD1-078 C    | 2.52      |
| 934542 | AD1-078 E    | 1.48      |
| 934571 | AD1-082 C    | 6.43      |
| 934572 | AD1-082 E    | 3.67      |
| 934781 | AD1-105 C    | 7.25      |
| 934782 | AD1-105 E    | 5.03      |
| 934861 | AD1-115 C    | 3.31      |
| 934862 | AD1-115 E    | 5.41      |
| 935112 | AD1-144 E    | 0.78      |
| 935161 | AD1-151 C O1 | 13.8      |
| 935162 | AD1-151 E O1 | 9.2       |
| 935212 | AD1-156 E    | 1.2       |
| 936041 | AD2-007      | 1.53      |
| 936051 | AD2-008 C    | 2.51      |
| 936052 | AD2-008 E    | 5.47      |
| 936151 | AD2-021      | 0.21      |
| 936241 | AD2-030 C    | 2.05      |
| 936242 | AD2-030 E    | 1.05      |
| 936301 | AD2-039 C    | 1.19      |
| 936302 | AD2-039 E    | 1.95      |
| 936341 | AD2-044 C    | 0.24      |
| 936342 | AD2-044 E    | 0.27      |
| 936391 | AD2-049 C    | 1.51      |
| 936392 | AD2-049 E    | 1.51      |
| 936581 | AD2-073 C    | 2.11      |
| 936582 | AD2-073 E    | 1.05      |
| 936591 | AD2-074 C    | 5.15      |
| 936592 | AD2-074 E    | 8.4       |
| 936661 | AD2-085 C    | 2.86      |
| 936662 | AD2-085 E    | 4.66      |
| 937221 | AD2-160 C O1 | 4.84      |
| 937222 | AD2-160 E O1 | 2.54      |
| 937251 | AD2-164      | 4.07      |
| 937541 | AD2-215 C    | 1.45      |
| 937542 | AD2-215 E    | 0.77      |
| 938031 | AE1-004 C    | 1.19      |
| 938032 | AE1-004 E    | 1.95      |
| 938181 | AE1-027 C    | 1.94      |
| 938182 | AE1-027 E    | 1.02      |
| 938191 | AE1-028 C    | 1.13      |
| 938192 | AE1-028 E    | 0.65      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938291 | AE1-044 C O1 | 20.43     |
| 938292 | AE1-044 E O1 | 16.12     |
| 938491 | AE1-068 C O1 | 45.24     |
| 938492 | AE1-068 E O1 | 24.99     |
| 938501 | AE1-069 C O1 | 35.43     |
| 938502 | AE1-069 E O1 | 20.26     |
| 938531 | AE1-072 C O1 | 14.46     |
| 938532 | AE1-072 E O1 | 7.54      |
| 938551 | AE1-074 C    | 2.12      |
| 938552 | AE1-074 E    | 1.07      |
| 938631 | AE1-085 C O1 | 9.19      |
| 938632 | AE1-085 E O1 | 6.13      |
| 938961 | AE1-124 C    | 2.11      |
| 938962 | AE1-124 E    | 1.06      |
| 939191 | AE1-149 C O1 | 9.05      |
| 939192 | AE1-149 E O1 | 6.03      |
| 939221 | AE1-153 C O1 | 13.69     |
| 939222 | AE1-153 E O1 | 9.13      |
| 939231 | AE1-154 C    | 1.72      |
| 939232 | AE1-154 E    | 1.2       |
| 939241 | AE1-155 C    | 14.09     |
| 939242 | AE1-155 E    | 9.39      |
| 939261 | AE1-157 C O1 | 13.79     |
| 939262 | AE1-157 E O1 | 7.48      |
| 939271 | AE1-158 C O1 | 14.07     |
| 939272 | AE1-158 E O1 | 7.2       |
| 939281 | AE1-159 C O1 | 11.86     |
| 939282 | AE1-159 E O1 | 7.02      |
| 939311 | AE1-162 C    | 1.81      |
| 939312 | AE1-162 E    | 1.21      |
| 939411 | AE1-173 C    | 71.22     |
| 939412 | AE1-173 E    | 47.48     |
| 939421 | AE1-174 C    | 0.16      |
| 939422 | AE1-174 E    | 0.25      |
| 939431 | AE1-175 C    | 2.06      |
| 939432 | AE1-175 E    | 1.02      |
| 939611 | AE1-191 C    | 9.4       |
| 939612 | AE1-191 E    | 6.27      |
| 939751 | AE1-206 C O1 | 29.89     |
| 939752 | AE1-206 E O1 | 19.93     |
| 940061 | AE1-248 C O1 | 13.36     |
| 940062 | AE1-248 E O1 | 8.91      |
| 940071 | AE1-249 C    | 6.15      |
| 940072 | AE1-249 E    | 4.59      |
| 940231 | AE2-005 C    | 1.19      |
| 940232 | AE2-005 E    | 1.95      |
| 940251 | AE2-007      | 144.36    |
| 940352 | AE2-019 BAT  | 15.76     |
| 940421 | AE2-026 C    | 3.27      |
| 940422 | AE2-026 E    | 4.44      |
| 940431 | AE2-027 C O1 | 11.16     |
| 940432 | AE2-027 E O1 | 7.44      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940471 | AE2-031 C O1 | 26.02     |
| 940472 | AE2-031 E O1 | 17.35     |
| 940481 | AE2-033 C    | 12.55     |
| 940482 | AE2-033 E    | 8.46      |
| 940541 | AE2-040      | 2.52      |
| 940551 | AE2-041      | 6.3       |
| 940641 | AE2-051 C O1 | 13.35     |
| 940642 | AE2-051 E O1 | 8.9       |
| 940651 | AE2-052      | 3.03      |
| 940891 | AE2-078 C    | 2.0       |
| 940892 | AE2-078 E    | 1.03      |
| 940901 | AE2-079 C    | 2.0       |
| 940902 | AE2-079 E    | 1.03      |
| 940911 | AE2-080 C    | 2.0       |
| 940912 | AE2-080 E    | 1.03      |
| 941031 | AE2-094 C    | 29.58     |
| 941032 | AE2-094 E    | 13.25     |
| 941101 | AE2-104 C O1 | 2.88      |
| 941102 | AE2-104 E O1 | 4.57      |
| 941141 | AE2-108 C    | 1.34      |
| 941142 | AE2-108 E    | 1.85      |
| 941151 | AE2-109 C    | 0.47      |
| 941152 | AE2-109 E    | 0.65      |
| 941281 | AE2-122 C O1 | 23.63     |
| 941282 | AE2-122 E O1 | 95.35     |
| 941291 | AE2-123 C O1 | 24.28     |
| 941292 | AE2-123 E O1 | 94.7      |
| 941301 | AE2-124 C O1 | 22.08     |
| 941302 | AE2-124 E O1 | 96.87     |
| 941361 | AE2-132      | 2.77      |
| 941381 | AE2-134      | 2.94      |
| 941501 | AE2-147 C    | 12.89     |
| 941502 | AE2-147 E    | 8.59      |
| 941581 | AE2-155 C    | 0.56      |
| 941582 | AE2-155 E    | 0.24      |
| 941591 | AE2-156      | 14.94     |
| 941601 | AE2-157 C O1 | 8.95      |
| 941602 | AE2-157 E O1 | 5.97      |
| 941831 | AE2-188      | 7.09      |
| 942001 | AE2-212 C    | 1.84      |
| 942002 | AE2-212 E    | 1.23      |
| 942131 | AE2-225 C    | 1.76      |
| 942132 | AE2-225 E    | 1.18      |
| 942151 | AE2-227 C O1 | 1.84      |
| 942152 | AE2-227 E O1 | 1.23      |
| 942161 | AE2-228 C O1 | 1.84      |
| 942162 | AE2-228 E O1 | 1.23      |
| 942171 | AE2-229 C    | 1.76      |
| 942172 | AE2-229 E    | 1.18      |
| 942191 | AE2-231 C O1 | 5.25      |
| 942192 | AE2-231 E O1 | 3.5       |
| 942211 | AE2-233 C    | 9.66      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942212</b>     | AE2-233 E    | 3.75             |
| <b>942341</b>     | AE2-247 C    | 1.24             |
| <b>942342</b>     | AE2-247 E    | 1.71             |
| <b>942371</b>     | AE2-250 C O1 | 8.29             |
| <b>942372</b>     | AE2-250 E O1 | 4.37             |
| <b>942401</b>     | AE2-253 C    | 5.09             |
| <b>942402</b>     | AE2-253 E    | 2.29             |
| <b>942531</b>     | AE2-268 C    | 1.51             |
| <b>942532</b>     | AE2-268 E    | 0.85             |
| <b>942551</b>     | AE2-270      | 23.02            |
| <b>942851</b>     | AE2-304 C    | 0.51             |
| <b>942852</b>     | AE2-304 E    | 0.2              |
| <b>942921</b>     | AE2-311 C O1 | 35.76            |
| <b>942922</b>     | AE2-311 E O1 | 23.84            |
| <b>942931</b>     | AE2-313 C    | 26.73            |
| <b>942932</b>     | AE2-313 E    | 17.82            |
| <b>AA2-074</b>    | AA2-074      | 3.67             |
| <b>BLUEG</b>      | BLUEG        | 0.06             |
| <b>CARR</b>       | CARR         | 1.38             |
| <b>CBM-S1</b>     | CBM-S1       | 5.51             |
| <b>CBM-S2</b>     | CBM-S2       | 10.13            |
| <b>CBM-W2</b>     | CBM-W2       | 28.06            |
| <b>CPL</b>        | CPL          | 5.4              |
| <b>EDWARDS</b>    | EDWARDS      | 0.03             |
| <b>G-007</b>      | G-007        | 3.92             |
| <b>LGEE</b>       | LGEE         | 0.05             |
| <b>MEC</b>        | MEC          | 1.82             |
| <b>O-066</b>      | O-066        | 25.16            |
| <b>RENSSELAER</b> | RENSSELAER   | 1.09             |
| <b>TILTON</b>     | TILTON       | 0.05             |
| <b>TRIMBLE</b>    | TRIMBLE      | 0.03             |

## 12.6.13 Index 12

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839659 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES | DVP         | 1      | DVP_P4-2:<br>231T2026 | breaker | 830.0      | 63.36                 | 96.22                  | DC    | 427.17    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 916191     | Z1-068 C     | 0.08      |
| 916192     | Z1-068 E     | 4.61      |
| 925521     | AC1-027 C    | 0.65      |
| 925522     | AC1-027 E    | 3.07      |
| 934061     | AD1-033 C    | 36.53     |
| 934062     | AD1-033 E    | 24.36     |
| 941281     | AE2-122 C O1 | 84.84     |
| 941282     | AE2-122 E O1 | 342.33    |
| 941291     | AE2-123 C O1 | 87.18     |
| 941292     | AE2-123 E O1 | 339.98    |
| 941301     | AE2-124 C O1 | 101.39    |
| 941302     | AE2-124 E O1 | 444.89    |
| BLUEG      | BLUEG        | 0.32      |
| CALDERWOOD | CALDERWOOD   | 0.06      |
| CANNELTON  | CANNELTON    | 0.02      |
| CATAWBA    | CATAWBA      | 0.06      |
| CHEOAH     | CHEOAH       | 0.06      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| COFFEEN    | COFFEEN      | 0.04      |
| COTTONWOOD | COTTONWOOD   | 0.21      |
| DUCKCREEK  | DUCKCREEK    | 0.07      |
| EDWARDS    | EDWARDS      | 0.03      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| FARMERCITY | FARMERCITY   | 0.03      |
| G-007A     | G-007A       | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.11      |
| NEWTON     | NEWTON       | 0.09      |
| PRAIRIE    | PRAIRIE      | 0.2       |
| SANTEETLA  | SANTEETLA    | 0.02      |
| SMITHLAND  | SMITHLAND    | 0.02      |
| TATANKA    | TATANKA      | 0.04      |
| TILTON     | TILTON       | 0.04      |
| TRIMBLE    | TRIMBLE      | 0.03      |
| TVA        | TVA          | 0.17      |
| UNIONPOWER | UNIONPOWER   | 0.08      |
| VFT        | VFT          | 0.03      |

## 12.6.14 Index 13

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840188 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 171.95                | 174.64                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940471     | AE2-031 C O1 | 11.6      |
| 940491     | AE2-034 C    | 2.86      |
| 940641     | AE2-051 C O1 | 4.65      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O1 | 1.28      |
| 941281     | AE2-122 C O1 | 11.59     |
| 941291     | AE2-123 C O1 | 11.92     |
| 941301     | AE2-124 C O1 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.29      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O1 | 14.4      |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPLE       | CPLE         | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

## 12.6.15 Index 14

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME           | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|---------|-------------|--------|---------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839472 | 314218    | 6ELMONT  | DVP           | 314908  | 8ELMONT | DVP         | 1      | DVP_P4-2:<br>H2T557 | breaker | 1050.6     | 159.27                | 165.01                 | DC    | 131.98    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314189 | 6PAPERMILL   | 8.73      |
| 314229 | 6MT RD221    | 0.17      |
| 314236 | 6NRTHEST     | 0.23      |
| 314250 | 6ROCKVILLE   | 0.39      |
| 314309 | 6IRON208     | 0.49      |
| 314539 | 3UNCAMP      | 2.16      |
| 314541 | 3WATKINS     | 0.6       |
| 314648 | 6SUNBURY     | 0.8       |
| 314651 | 6WINFALL     | 1.57      |
| 315043 | 1FOUR RIVERA | 4.24      |
| 315044 | 1FOUR RIVERB | 3.29      |
| 315045 | 1FOUR RIVERC | 4.24      |
| 315046 | 1FOUR RIVERD | 3.29      |
| 315047 | 1FOUR RIVERE | 3.29      |
| 315048 | 1FOUR RIVERF | 4.24      |
| 315053 | 1BELMED1     | 25.27     |
| 315054 | 1BELMED2     | 25.27     |
| 315055 | 1BELMED3     | 20.97     |
| 315058 | 1CHESTF3     | 26.83     |
| 315059 | 1CHESTF4     | 43.49     |
| 315067 | 1DARBY 1     | 3.07      |
| 315068 | 1DARBY 2     | 3.08      |
| 315069 | 1DARBY 3     | 3.09      |
| 315070 | 1DARBY 4     | 3.09      |
| 315073 | 1STONECA     | 9.28      |
| 315074 | 1HOPCGN1     | 11.19     |
| 315075 | 1HOPCGN2     | 11.05     |
| 315083 | 1SPRUNCA     | 14.77     |
| 315084 | 1SPRUNCB     | 14.77     |
| 315085 | 1SPRUNCC     | 10.95     |
| 315086 | 1SPRUNCD     | 10.95     |
| 315090 | 1YORKTN1     | 30.6      |
| 315091 | 1YORKTN2     | 31.75     |
| 901082 | W1-029 E     | 41.2      |
| 907092 | X1-038 E     | 5.4       |
| 913392 | Y1-086 E     | 1.98      |
| 916042 | Z1-036 E     | 40.19     |
| 916192 | Z1-068 E     | 1.73      |
| 917122 | Z2-027 E     | 0.95      |
| 919152 | AA1-139 E    | 5.84      |
| 919211 | AA1-145      | 12.27     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 923801 | AB2-015 C O1 | 7.63      |
| 923802 | AB2-015 E O1 | 6.25      |
| 923832 | AB2-022 E    | 1.12      |
| 923842 | AB2-024 E    | 1.47      |
| 923852 | AB2-025 E    | 1.07      |
| 924061 | AB2-050      | 0.72      |
| 924241 | AB2-068 O1   | 175.77    |
| 924511 | AB2-100 C    | 10.3      |
| 924512 | AB2-100 E    | 5.07      |
| 924812 | AB2-134 E O1 | 14.7      |
| 925051 | AB2-160 C O1 | 7.07      |
| 925052 | AB2-160 E O1 | 11.54     |
| 925061 | AB2-161 C O1 | 3.58      |
| 925062 | AB2-161 E O1 | 5.84      |
| 925331 | AB2-190 C    | 24.53     |
| 925332 | AB2-190 E    | 10.51     |
| 925522 | AC1-027 E    | 1.06      |
| 925861 | AC1-065 C    | 4.33      |
| 925862 | AC1-065 E    | 7.06      |
| 926291 | AC1-107 O1   | 265.31    |
| 926411 | AC1-112 C    | 0.42      |
| 926412 | AC1-112 E    | 1.92      |
| 926472 | AC1-118 E    | 1.06      |
| 926551 | AC1-134      | 1.8       |
| 926662 | AC1-147 E    | 1.23      |
| 926751 | AC1-161 C O1 | 26.82     |
| 926752 | AC1-161 E O1 | 11.45     |
| 926781 | AC1-164 C    | 57.92     |
| 926782 | AC1-164 E    | 26.02     |
| 927041 | AC1-191 C O1 | 17.43     |
| 927042 | AC1-191 E O1 | 8.68      |
| 927221 | AC1-216 C O1 | 11.81     |
| 927222 | AC1-216 E O1 | 9.29      |
| 930121 | AB1-027 C    | 0.54      |
| 930122 | AB1-027 E    | 1.89      |
| 932041 | AC2-012 C    | 9.5       |
| 932042 | AC2-012 E    | 15.5      |
| 932501 | AC2-070 C    | 0.35      |
| 932502 | AC2-070 E    | 1.2       |
| 932532 | AC2-073 E    | 1.54      |
| 932581 | AC2-078 C O1 | 4.69      |
| 932582 | AC2-078 E O1 | 7.65      |
| 932591 | AC2-079 C O1 | 5.74      |
| 932592 | AC2-079 E O1 | 9.36      |
| 932831 | AC2-110 C    | 1.73      |
| 932832 | AC2-110 E    | 2.83      |
| 933061 | AC2-130      | 3.44      |
| 933261 | AC2-137 C    | 0.38      |
| 933262 | AC2-137 E    | 2.03      |
| 933272 | AC2-138 E    | 1.07      |
| 933291 | AC2-141 C    | 26.82     |
| 933292 | AC2-141 E    | 11.45     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933732 | AC2-196 E    | 1.09      |
| 934011 | AD1-025 C    | 20.31     |
| 934012 | AD1-025 E    | 12.03     |
| 934061 | AD1-033 C    | 6.88      |
| 934062 | AD1-033 E    | 4.59      |
| 934141 | AD1-041 C    | 6.72      |
| 934142 | AD1-041 E    | 4.48      |
| 934211 | AD1-048 C    | 0.46      |
| 934212 | AD1-048 E    | 1.91      |
| 934392 | AD1-063 E    | 1.38      |
| 934571 | AD1-082 C    | 8.15      |
| 934572 | AD1-082 E    | 4.65      |
| 934781 | AD1-105 C    | 11.44     |
| 934782 | AD1-105 E    | 7.95      |
| 935112 | AD1-144 E    | 0.91      |
| 935161 | AD1-151 C O1 | 19.71     |
| 935162 | AD1-151 E O1 | 13.14     |
| 935212 | AD1-156 E    | 1.68      |
| 936041 | AD2-007      | 2.16      |
| 936051 | AD2-008 C    | 3.54      |
| 936052 | AD2-008 E    | 7.7       |
| 936151 | AD2-021      | 0.36      |
| 936241 | AD2-030 C    | 2.87      |
| 936242 | AD2-030 E    | 1.47      |
| 936301 | AD2-039 C    | 1.73      |
| 936302 | AD2-039 E    | 2.83      |
| 936341 | AD2-044 C    | 0.27      |
| 936342 | AD2-044 E    | 0.3       |
| 936391 | AD2-049 C    | 1.86      |
| 936392 | AD2-049 E    | 1.86      |
| 936581 | AD2-073 C    | 2.22      |
| 936582 | AD2-073 E    | 1.1       |
| 936591 | AD2-074 C    | 6.32      |
| 936592 | AD2-074 E    | 10.32     |
| 936661 | AD2-085 C    | 3.45      |
| 936662 | AD2-085 E    | 5.64      |
| 936711 | AD2-090 C O1 | 6.26      |
| 936712 | AD2-090 E O1 | 4.17      |
| 937221 | AD2-160 C O1 | 5.33      |
| 937222 | AD2-160 E O1 | 2.8       |
| 937251 | AD2-164      | 5.08      |
| 937541 | AD2-215 C    | 1.67      |
| 937542 | AD2-215 E    | 0.89      |
| 938031 | AE1-004 C    | 1.73      |
| 938032 | AE1-004 E    | 2.83      |
| 938181 | AE1-027 C    | 2.14      |
| 938182 | AE1-027 E    | 1.13      |
| 938191 | AE1-028 C    | 1.24      |
| 938192 | AE1-028 E    | 0.72      |
| 938531 | AE1-072 C O1 | 15.94     |
| 938532 | AE1-072 E O1 | 8.31      |
| 938551 | AE1-074 C    | 3.1       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938552 | AE1-074 E    | 1.56      |
| 938631 | AE1-085 C O1 | 12.45     |
| 938632 | AE1-085 E O1 | 8.3       |
| 938771 | AE1-103 C O1 | 3.24      |
| 938772 | AE1-103 E O1 | 4.47      |
| 939071 | AE1-135 C O1 | 18.69     |
| 939072 | AE1-135 E O1 | 12.46     |
| 939191 | AE1-149 C O1 | 12.54     |
| 939192 | AE1-149 E O1 | 8.36      |
| 939241 | AE1-155 C    | 17.01     |
| 939242 | AE1-155 E    | 11.34     |
| 939281 | AE1-159 C O1 | 12.01     |
| 939282 | AE1-159 E O1 | 7.1       |
| 939311 | AE1-162 C    | 2.22      |
| 939312 | AE1-162 E    | 1.48      |
| 939421 | AE1-174 C    | 0.23      |
| 939422 | AE1-174 E    | 0.34      |
| 939431 | AE1-175 C    | 2.86      |
| 939432 | AE1-175 E    | 1.42      |
| 939611 | AE1-191 C    | 13.43     |
| 939612 | AE1-191 E    | 8.96      |
| 939751 | AE1-206 C O1 | 56.7      |
| 939752 | AE1-206 E O1 | 37.8      |
| 940061 | AE1-248 C O1 | 16.95     |
| 940062 | AE1-248 E O1 | 11.3      |
| 940071 | AE1-249 C    | 9.33      |
| 940072 | AE1-249 E    | 6.96      |
| 940231 | AE2-005 C    | 1.73      |
| 940232 | AE2-005 E    | 2.83      |
| 940251 | AE2-007      | 160.86    |
| 940431 | AE2-027 C O1 | 17.76     |
| 940432 | AE2-027 E O1 | 11.84     |
| 940471 | AE2-031 C O1 | 25.91     |
| 940472 | AE2-031 E O1 | 17.27     |
| 940481 | AE2-033 C    | 15.17     |
| 940482 | AE2-033 E    | 10.23     |
| 940541 | AE2-040      | 3.07      |
| 940551 | AE2-041      | 9.23      |
| 940651 | AE2-052      | 4.2       |
| 940891 | AE2-078 C    | 2.59      |
| 940892 | AE2-078 E    | 1.33      |
| 940901 | AE2-079 C    | 2.59      |
| 940902 | AE2-079 E    | 1.33      |
| 940911 | AE2-080 C    | 2.59      |
| 940912 | AE2-080 E    | 1.33      |
| 941101 | AE2-104 C O1 | 3.27      |
| 941102 | AE2-104 E O1 | 5.2       |
| 941141 | AE2-108 C    | 2.12      |
| 941142 | AE2-108 E    | 2.92      |
| 941151 | AE2-109 C    | 0.74      |
| 941152 | AE2-109 E    | 1.02      |
| 941281 | AE2-122 C O1 | 26.21     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941282     | AE2-122 E O1 | 105.77    |
| 941291     | AE2-123 C O1 | 26.94     |
| 941292     | AE2-123 E O1 | 105.04    |
| 941301     | AE2-124 C O1 | 24.47     |
| 941302     | AE2-124 E O1 | 107.36    |
| 941501     | AE2-147 C    | 14.21     |
| 941502     | AE2-147 E    | 9.47      |
| 941581     | AE2-155 C    | 1.1       |
| 941582     | AE2-155 E    | 0.47      |
| 941591     | AE2-156      | 16.67     |
| 941601     | AE2-157 C O1 | 11.64     |
| 941602     | AE2-157 E O1 | 7.76      |
| 942001     | AE2-212 C    | 2.82      |
| 942002     | AE2-212 E    | 1.88      |
| 942131     | AE2-225 C    | 1.96      |
| 942132     | AE2-225 E    | 1.31      |
| 942151     | AE2-227 C O1 | 2.82      |
| 942152     | AE2-227 E O1 | 1.88      |
| 942161     | AE2-228 C O1 | 2.82      |
| 942162     | AE2-228 E O1 | 1.88      |
| 942171     | AE2-229 C    | 1.96      |
| 942172     | AE2-229 E    | 1.31      |
| 942191     | AE2-231 C O1 | 5.33      |
| 942192     | AE2-231 E O1 | 3.55      |
| 942341     | AE2-247 C    | 1.5       |
| 942342     | AE2-247 E    | 2.07      |
| 942371     | AE2-250 C O1 | 12.57     |
| 942372     | AE2-250 E O1 | 6.63      |
| 942401     | AE2-253 C    | 5.61      |
| 942402     | AE2-253 E    | 2.52      |
| 942471     | AE2-260 C O1 | 12.88     |
| 942472     | AE2-260 E O1 | 18.27     |
| 942531     | AE2-268 C    | 2.21      |
| 942532     | AE2-268 E    | 1.24      |
| 942551     | AE2-270      | 32.87     |
| 942851     | AE2-304 C    | 0.56      |
| 942852     | AE2-304 E    | 0.22      |
| AA2-074    | AA2-074      | 3.26      |
| CARR       | CARR         | 0.78      |
| CBM-S1     | CBM-S1       | 4.14      |
| CBM-S2     | CBM-S2       | 8.5       |
| CBM-W2     | CBM-W2       | 22.9      |
| CIN        | CIN          | 0.19      |
| CPL        | CPL          | 4.79      |
| G-007      | G-007        | 2.36      |
| IPL        | IPL          | 0.05      |
| LGEE       | LGEE         | 0.06      |
| MEC        | MEC          | 1.89      |
| O-066      | O-066        | 15.05     |
| RENSSELAER | RENSSELAER   | 0.61      |
| WEC        | WEC          | 0.04      |

## 12.6.16 Index 15

| ID      | FROM BUS# | FROM BUS  | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840303 | 314296    | 6PENNIMAN | DVP           | 314415  | 6WALR209 | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 160.56                | 163.25                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940471     | AE2-031 C O1 | 11.6      |
| 940491     | AE2-034 C    | 2.86      |
| 940641     | AE2-051 C O1 | 4.65      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O1 | 1.28      |
| 941281     | AE2-122 C O1 | 11.59     |
| 941291     | AE2-123 C O1 | 11.92     |
| 941301     | AE2-124 C O1 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.29      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O1 | 14.4      |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPL        | CPL          | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

## 12.6.17 Index 16

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840230 | 314386    | 6KINGS M | DVP           | 314296  | 6PENNIMAN | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 164.19                | 166.87                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940471     | AE2-031 C O1 | 11.6      |
| 940491     | AE2-034 C    | 2.86      |
| 940641     | AE2-051 C O1 | 4.65      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O1 | 1.28      |
| 941281     | AE2-122 C O1 | 11.59     |
| 941291     | AE2-123 C O1 | 11.92     |
| 941301     | AE2-124 C O1 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.29      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O1 | 14.4      |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPL        | CPL          | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

## 12.6.18 Index 17

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839781 | 314449    | 6CHESAPK | DVP           | 314448  | 3CHESAPK | DVP         | 1      | DVP_P4-2:<br>215822-5 | breaker | 293.9      | 113.3                 | 117.15                 | DC    | 25.12     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940251 | AE2-007      | 263.29    |
| 941281 | AE2-122 C O1 | 4.99      |
| 941282 | AE2-122 E O1 | 20.13     |
| 941291 | AE2-123 C O1 | 5.13      |
| 941292 | AE2-123 E O1 | 20.0      |
| 941301 | AE2-124 C O1 | 4.01      |
| 941302 | AE2-124 E O1 | 17.61     |
| 941592 | AE2-156 BAT  | 12.7      |
| CBM-N  | CBM-N        | 0.01      |
| CBM-S1 | CBM-S1       | 0.1       |
| CBM-S2 | CBM-S2       | 0.09      |
| CBM-W1 | CBM-W1       | 0.14      |
| CBM-W2 | CBM-W2       | 0.68      |
| CIN    | CIN          | 0.06      |
| CPL    | CPL          | 0.05      |
| G-007A | G-007A       | 0.02      |
| IPL    | IPL          | 0.04      |
| LGEE   | LGEE         | 0.02      |
| MEC    | MEC          | 0.12      |
| MECS   | MECS         | 0.07      |
| NYISO  | NYISO        | 0.03      |
| VFT    | VFT          | 0.05      |
| WEC    | WEC          | 0.02      |

## 12.6.19 Index 18

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839822 | 314449    | 6CHESAPK | DVP           | 314448  | 3CHESAPK | DVP         | 2      | DVP_P4-2:<br>215822-6 | breaker | 293.9      | 105.43                | 109.01                 | DC    | 23.37     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940251 | AE2-007      | 244.98    |
| 941281 | AE2-122 C O1 | 4.64      |
| 941282 | AE2-122 E O1 | 18.73     |
| 941291 | AE2-123 C O1 | 4.77      |
| 941292 | AE2-123 E O1 | 18.6      |
| 941301 | AE2-124 C O1 | 3.73      |
| 941302 | AE2-124 E O1 | 16.39     |
| 941592 | AE2-156 BAT  | 11.82     |
| CBM-N  | CBM-N        | 0.01      |
| CBM-S1 | CBM-S1       | 0.09      |
| CBM-S2 | CBM-S2       | 0.08      |
| CBM-W1 | CBM-W1       | 0.12      |
| CBM-W2 | CBM-W2       | 0.64      |
| CIN    | CIN          | 0.05      |
| CPL    | CPL          | 0.04      |
| G-007A | G-007A       | 0.01      |
| IPL    | IPL          | 0.03      |
| LGEE   | LGEE         | 0.02      |
| MEC    | MEC          | 0.11      |
| MECS   | MECS         | 0.07      |
| NYISO  | NYISO        | 0.02      |
| VFT    | VFT          | 0.04      |
| WEC    | WEC          | 0.01      |

## 12.6.20 Index 19

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME            | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901348 | 314574    | 6EVERETS | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 449.32     | 135.35                | 137.34                 | DC    | 8.97      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.07      |
| 314589 | 3MURPHYS     | 0.04      |
| 314638 | 6ELIZ CT     | 0.07      |
| 314639 | 6TANGLEW     | 0.14      |
| 314643 | 3O INLET     | 0.12      |
| 315098 | 1CHESPKA     | 0.1       |
| 315099 | 1CHESPKB     | 0.24      |
| 315115 | 1S HAMPT1    | 0.5       |
| 315126 | 1ROARAP2     | 0.41      |
| 315128 | 1ROARAP4     | 0.39      |
| 315136 | 1ROSEMG1     | 0.62      |
| 315137 | 1ROSEMS1     | 0.38      |
| 315138 | 1ROSEMG2     | 0.29      |
| 315139 | 1GASTONA     | 0.96      |
| 315141 | 1GASTONB     | 0.96      |
| 315260 | 1GOSPORTA    | 0.08      |
| 315261 | 1GOSPORTB    | 0.1       |
| 315262 | 1GOSPORTC    | 0.08      |
| 315292 | 1DOMTR78     | 1.14      |
| 315293 | 1DOMTR9      | 0.93      |
| 315294 | 1DOMTR10     | 1.69      |
| 901081 | W1-029 C     | 0.42      |
| 916041 | Z1-036 C     | 0.51      |
| 916191 | Z1-068 C     | 0.01      |
| 917331 | Z2-043 C     | 0.2       |
| 917511 | Z2-088 C OP1 | 1.34      |
| 918491 | AA1-063AC OP | 0.61      |
| 918511 | AA1-065 C OP | 1.15      |
| 918531 | AA1-067 C    | 0.36      |
| 918561 | AA1-072 C    | 0.03      |
| 919151 | AA1-139 C    | 0.66      |
| 919691 | AA2-053 C    | 0.54      |
| 920041 | AA2-088 C OP | 0.39      |
| 920671 | AA2-174 C    | 0.02      |
| 920691 | AA2-178 C    | 0.95      |
| 923801 | AB2-015 C O1 | 3.81      |
| 923831 | AB2-022 C    | 0.12      |
| 923911 | AB2-031 C O1 | 0.79      |
| 923991 | AB2-040 C O1 | 0.32      |
| 924491 | AB2-098 C    | 0.99      |
| 924501 | AB2-099 C    | 0.47      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 924511 | AB2-100 C    | 3.88      |
| 925061 | AB2-161 C O1 | 1.01      |
| 925121 | AB2-169 C    | 1.03      |
| 925171 | AB2-174 C O1 | 2.41      |
| 925521 | AC1-027 C    | 0.07      |
| 926071 | AC1-086 C    | 8.9       |
| 926201 | AC1-098 C    | 2.58      |
| 926211 | AC1-099 C    | 0.87      |
| 926661 | AC1-147 C    | 0.08      |
| 927021 | AC1-189 C    | 12.0      |
| 930861 | AB1-132 C O1 | 0.74      |
| 931231 | AB1-173 C    | 0.1       |
| 931241 | AB1-173AC    | 0.1       |
| 932041 | AC2-012 C    | 3.0       |
| 932591 | AC2-079 C O1 | 1.89      |
| 932631 | AC2-084 C    | 3.68      |
| 933731 | AC2-196 C    | 0.07      |
| 933991 | AD1-023 C    | 12.68     |
| 934061 | AD1-033 C    | 2.36      |
| 934201 | AD1-047 C    | 2.84      |
| 934521 | AD1-076 C    | 50.93     |
| 934571 | AD1-082 C    | 2.31      |
| 935111 | AD1-144 C    | 0.07      |
| 936401 | AD2-051 C O1 | 7.58      |
| 936661 | AD2-085 C    | 1.13      |
| 936701 | AD2-089 C    | 5.03      |
| 936711 | AD2-090 C O1 | 3.34      |
| 937221 | AD2-160 C O1 | 2.04      |
| 937541 | AD2-215 C    | 0.59      |
| 937571 | AD2-169 C    | 3.66      |
| 938171 | AE1-026 C1 O | 27.49     |
| 938172 | AE1-026 C2 O | 3.98      |
| 938181 | AE1-027 C    | 0.77      |
| 938191 | AE1-028 C    | 0.44      |
| 938221 | AE1-035 C    | 2.35      |
| 938531 | AE1-072 C O1 | 6.59      |
| 938661 | AE1-088      | 4.36      |
| 938771 | AE1-103 C O1 | 1.57      |
| 939071 | AE1-135 C O1 | 6.73      |
| 940061 | AE1-248 C O1 | 4.8       |
| 940251 | AE2-007      | 50.77     |
| 940491 | AE2-034 C    | 6.83      |
| 940521 | AE2-037 C O1 | 6.62      |
| 941101 | AE2-104 C O1 | 1.25      |
| 941281 | AE2-122 C O1 | 8.73      |
| 941291 | AE2-123 C O1 | 8.97      |
| 941301 | AE2-124 C O1 | 8.19      |
| 941501 | AE2-147 C    | 7.92      |
| 941541 | AE2-151 C    | 0.94      |
| 941591 | AE2-156      | 5.25      |
| 942131 | AE2-225 C    | 0.77      |
| 942171 | AE2-229 C    | 0.77      |

| <b>Bus #</b> | <b>Bus</b>   | <b>MW Impact</b> |
|--------------|--------------|------------------|
| 942341       | AE2-247 C    | 0.49             |
| 942401       | AE2-253 C    | 2.14             |
| 942471       | AE2-260 C O1 | 4.64             |
| 942851       | AE2-304 C    | 0.35             |
| 943171       | AE2-346 C    | 1.41             |
| AC1-131      | AC1-131      | 6.95             |
| BLUEG        | BLUEG        | 9.16             |
| CALDERWOOD   | CALDERWOOD   | 1.99             |
| CANNELTON    | CANNELTON    | 0.63             |
| CATAWBA      | CATAWBA      | 1.96             |
| CBM-N        | CBM-N        | 0.29             |
| CHEOAH       | CHEOAH       | 1.86             |
| CHILHOWEE    | CHILHOWEE    | 0.64             |
| COFFEEN      | COFFEEN      | 1.09             |
| COTTONWOOD   | COTTONWOOD   | 6.67             |
| DUCKCREEK    | DUCKCREEK    | 2.22             |
| EDWARDS      | EDWARDS      | 0.99             |
| ELMERSMITH   | ELMERSMITH   | 1.12             |
| FARMERCITY   | FARMERCITY   | 0.79             |
| G-007A       | G-007A       | 1.31             |
| GIBSON       | GIBSON       | 0.4              |
| HAMLET       | HAMLET       | 4.21             |
| NEWTON       | NEWTON       | 2.83             |
| NYISO        | NYISO        | 1.24             |
| PRAIRIE      | PRAIRIE      | 6.0              |
| SANTEETLA    | SANTEETLA    | 0.55             |
| SMITHLAND    | SMITHLAND    | 0.54             |
| TATANKA      | TATANKA      | 1.34             |
| TILTON       | TILTON       | 1.16             |
| TRIMBLE      | TRIMBLE      | 1.0              |
| TVA          | TVA          | 5.58             |
| UNIONPOWER   | UNIONPOWER   | 2.77             |
| VFT          | VFT          | 3.49             |

## 12.6.21 Index 20

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME            | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901943 | 314686    | 6CLOVER  | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 814.98     | 106.71                | 108.08                 | DC    | 11.19     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.04      |
| 314507 | 3THOMPSN     | 0.1       |
| 315090 | 1YORKTN1     | 10.65     |
| 315091 | 1YORKTN2     | 11.05     |
| 315092 | 1YORKTN3     | 6.44      |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.31      |
| 315102 | 1BRUNSWICKG1 | 4.13      |
| 315103 | 1BRUNSWICKG2 | 4.13      |
| 315104 | 1BRUNSWICKG3 | 4.13      |
| 315105 | 1BRUNSWICKS1 | 8.59      |
| 315108 | 1ELIZAR1     | 0.93      |
| 315109 | 1ELIZAR2     | 0.92      |
| 315110 | 1ELIZAR3     | 0.94      |
| 315116 | 1SURRY 1     | 6.74      |
| 315153 | 1CLOVER1     | 16.29     |
| 315154 | 1CLOVER2     | 16.08     |
| 315191 | 1BEARGRDN G1 | 1.24      |
| 315192 | 1BEARGRDN G2 | 1.24      |
| 315193 | 1BEARGRDN S1 | 2.54      |
| 315233 | 1SURRY 2     | 7.49      |
| 315260 | 1GOSPORTA    | 0.1       |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 916191 | Z1-068 C     | 0.01      |
| 916301 | Z1-086 C     | 24.14     |
| 920291 | AA2-127      | 0.26      |
| 924031 | AB2-045 C    | 0.15      |
| 925521 | AC1-027 C    | 0.09      |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.14     |
| 932041 | AC2-012 C    | 3.97      |
| 932511 | AC2-071 C    | 0.15      |
| 933291 | AC2-141 C    | 13.14     |
| 933731 | AC2-196 C    | 0.08      |
| 934061 | AD1-033 C    | 2.86      |
| 934233 | AD1-050 BAT  | 5.08      |
| 934621 | AD1-088 C    | 17.85     |
| 937251 | AD2-164      | 1.77      |
| 938181 | AE1-027 C    | 0.87      |
| 938191 | AE1-028 C    | 0.51      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 938491     | AE1-068 C O1 | 38.23     |
| 938501     | AE1-069 C O1 | 30.93     |
| 939311     | AE1-162 C    | 0.81      |
| 939411     | AE1-173 C    | 43.23     |
| 940251     | AE2-007      | 67.63     |
| 940471     | AE2-031 C O1 | 15.34     |
| 940641     | AE2-051 C O1 | 8.77      |
| 940891     | AE2-078 C    | 0.87      |
| 940901     | AE2-079 C    | 0.87      |
| 940911     | AE2-080 C    | 0.87      |
| 941031     | AE2-094 C    | 23.49     |
| 941281     | AE2-122 C O1 | 10.89     |
| 941291     | AE2-123 C O1 | 11.19     |
| 941301     | AE2-124 C O1 | 10.16     |
| 941591     | AE2-156      | 6.99      |
| 941791     | AE2-182 C    | 3.23      |
| 942211     | AE2-233 C    | 7.68      |
| 942921     | AE2-311 C O1 | 22.14     |
| 942931     | AE2-313 C    | 23.68     |
| 943051     | AE2-328 C    | 11.8      |
| AC1-131    | AC1-131      | 9.78      |
| BLUEG      | BLUEG        | 18.52     |
| CALDERWOOD | CALDERWOOD   | 3.67      |
| CANNELTON  | CANNELTON    | 1.25      |
| CATAWBA    | CATAWBA      | 3.52      |
| CBM-N      | CBM-N        | 0.67      |
| CHEOAH     | CHEOAH       | 3.42      |
| CHILHOWEE  | CHILHOWEE    | 1.19      |
| COFFEEN    | COFFEEN      | 2.13      |
| COTTONWOOD | COTTONWOOD   | 12.22     |
| DUCKCREEK  | DUCKCREEK    | 4.38      |
| EDWARDS    | EDWARDS      | 1.96      |
| ELMERSMITH | ELMERSMITH   | 2.2       |
| FARMERCITY | FARMERCITY   | 1.53      |
| G-007A     | G-007A       | 3.0       |
| GIBSON     | GIBSON       | 0.79      |
| HAMLET     | HAMLET       | 6.6       |
| NEWTON     | NEWTON       | 5.55      |
| NYISO      | NYISO        | 2.9       |
| PRAIRIE    | PRAIRIE      | 11.52     |
| SANTEETLA  | SANTEETLA    | 1.02      |
| SMITHLAND  | SMITHLAND    | 1.02      |
| TATANKA    | TATANKA      | 2.59      |
| TILTON     | TILTON       | 2.32      |
| TRIMBLE    | TRIMBLE      | 2.04      |
| TVA        | TVA          | 10.31     |
| UNIONPOWER | UNIONPOWER   | 5.07      |
| VFT        | VFT          | 7.99      |

## 12.6.22 Index 21

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840157 | 314903    | 8CHCKAHM | DVP           | 314908  | 8ELMONT | DVP         | 1      | DVP_P1-2: LN 563 | single | 2442.12    | 150.48                | 152.55                 | DC    | 50.64     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.19      |
| 314507 | 3THOMPSN     | 0.43      |
| 314638 | 6ELIZ CT     | 0.28      |
| 314639 | 6TANGLEW     | 0.5       |
| 314643 | 3O INLET     | 0.56      |
| 315074 | 1HOPCGN1     | 9.52      |
| 315075 | 1HOPCGN2     | 9.4       |
| 315090 | 1YORKTN1     | 50.95     |
| 315091 | 1YORKTN2     | 52.87     |
| 315092 | 1YORKTN3     | 30.89     |
| 315098 | 1CHESPKA     | 0.56      |
| 315099 | 1CHESPKB     | 1.4       |
| 315108 | 1ELIZAR1     | 4.14      |
| 315109 | 1ELIZAR2     | 4.07      |
| 315110 | 1ELIZAR3     | 4.2       |
| 315116 | 1SURRY 1     | 28.48     |
| 315120 | 1GRAVEL4     | 2.93      |
| 315121 | 1GRAVEL5     | 2.89      |
| 315122 | 1GRAVEL6     | 2.93      |
| 315131 | 1EDGECEMA    | 11.15     |
| 315132 | 1EDGECEMB    | 11.15     |
| 315233 | 1SURRY 2     | 37.58     |
| 315260 | 1GOSPORTA    | 0.45      |
| 315261 | 1GOSPORTB    | 0.57      |
| 315262 | 1GOSPORTC    | 0.49      |
| 901081 | W1-029 C     | 1.38      |
| 916041 | Z1-036 C     | 1.34      |
| 916191 | Z1-068 C     | 0.06      |
| 919151 | AA1-139 C    | 3.13      |
| 919701 | AA2-057 C    | 8.79      |
| 923801 | AB2-015 C O1 | 12.96     |
| 923831 | AB2-022 C    | 0.47      |
| 923841 | AB2-024 C    | 0.47      |
| 923911 | AB2-031 C O1 | 2.78      |
| 924241 | AB2-068 O1   | 607.0     |
| 924491 | AB2-098 C    | 0.76      |
| 924501 | AB2-099 C    | 0.82      |
| 924511 | AB2-100 C    | 14.25     |
| 925061 | AB2-161 C O1 | 4.78      |
| 925171 | AB2-174 C O1 | 8.68      |
| 925331 | AB2-190 C    | 27.02     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925521 | AC1-027 C    | 0.42      |
| 925591 | AC1-034 C    | 8.21      |
| 925861 | AC1-065 C    | 5.05      |
| 926071 | AC1-086 C    | 26.3      |
| 926201 | AC1-098 C    | 7.92      |
| 926211 | AC1-099 C    | 2.65      |
| 926291 | AC1-107 O1   | 916.22    |
| 926661 | AC1-147 C    | 0.48      |
| 926751 | AC1-161 C O1 | 56.99     |
| 926781 | AC1-164 C    | 64.03     |
| 927021 | AC1-189 C    | 11.37     |
| 927141 | AC1-208 C    | 11.41     |
| 927221 | AC1-216 C O1 | 13.51     |
| 932041 | AC2-012 C    | 17.66     |
| 932581 | AC2-078 C O1 | 5.08      |
| 932591 | AC2-079 C O1 | 8.71      |
| 932631 | AC2-084 C    | 11.29     |
| 932831 | AC2-110 C    | 2.02      |
| 933061 | AC2-130      | 2.81      |
| 933291 | AC2-141 C    | 56.99     |
| 933731 | AC2-196 C    | 0.38      |
| 933991 | AD1-023 C    | 19.45     |
| 934011 | AD1-025 C    | 23.23     |
| 934061 | AD1-033 C    | 13.04     |
| 934141 | AD1-041 C    | 8.0       |
| 934201 | AD1-047 C    | 9.95      |
| 934331 | AD1-057 C O1 | 12.33     |
| 934521 | AD1-076 C    | 81.69     |
| 934571 | AD1-082 C    | 10.9      |
| 935111 | AD1-144 C    | 0.35      |
| 935161 | AD1-151 C O1 | 21.71     |
| 936041 | AD2-007      | 2.47      |
| 936051 | AD2-008 C    | 4.04      |
| 936151 | AD2-021      | 0.3       |
| 936241 | AD2-030 C    | 3.51      |
| 936301 | AD2-039 C    | 2.02      |
| 936391 | AD2-049 C    | 3.09      |
| 936401 | AD2-051 C O1 | 12.17     |
| 936531 | AD2-068 C    | 6.41      |
| 936591 | AD2-074 C    | 7.02      |
| 936661 | AD2-085 C    | 5.21      |
| 936701 | AD2-089 C    | 9.09      |
| 936711 | AD2-090 C O1 | 10.57     |
| 937221 | AD2-160 C O1 | 10.08     |
| 937251 | AD2-164      | 8.44      |
| 937541 | AD2-215 C    | 2.93      |
| 937571 | AD2-169 C    | 12.48     |
| 938031 | AE1-004 C    | 2.02      |
| 938171 | AE1-026 C1 O | 41.09     |
| 938172 | AE1-026 C2 O | 5.94      |
| 938181 | AE1-027 C    | 4.05      |
| 938191 | AE1-028 C    | 2.35      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938221 | AE1-035 C    | 3.18      |
| 938491 | AE1-068 C O1 | 82.21     |
| 938501 | AE1-069 C O1 | 64.27     |
| 938531 | AE1-072 C O1 | 30.01     |
| 938631 | AE1-085 C O1 | 13.85     |
| 938661 | AE1-088      | 2.52      |
| 938771 | AE1-103 C O1 | 5.53      |
| 939071 | AE1-135 C O1 | 25.53     |
| 939191 | AE1-149 C O1 | 13.01     |
| 939241 | AE1-155 C    | 18.61     |
| 939311 | AE1-162 C    | 3.48      |
| 939411 | AE1-173 C    | 139.64    |
| 939421 | AE1-174 C    | 0.63      |
| 939431 | AE1-175 C    | 4.2       |
| 939611 | AE1-191 C    | 16.0      |
| 940061 | AE1-248 C O1 | 22.66     |
| 940231 | AE2-005 C    | 2.02      |
| 940251 | AE2-007      | 300.6     |
| 940471 | AE2-031 C O1 | 53.95     |
| 940481 | AE2-033 C    | 19.16     |
| 940491 | AE2-034 C    | 12.98     |
| 940521 | AE2-037 C O1 | 11.09     |
| 940541 | AE2-040      | 3.83      |
| 940551 | AE2-041      | 11.04     |
| 940571 | AE2-044 C    | 5.38      |
| 940641 | AE2-051 C O1 | 25.53     |
| 940651 | AE2-052      | 4.36      |
| 940891 | AE2-078 C    | 3.73      |
| 940901 | AE2-079 C    | 3.73      |
| 940911 | AE2-080 C    | 3.73      |
| 941031 | AE2-094 C    | 53.94     |
| 941101 | AE2-104 C O1 | 5.69      |
| 941281 | AE2-122 C O1 | 49.27     |
| 941291 | AE2-123 C O1 | 50.64     |
| 941301 | AE2-124 C O1 | 46.05     |
| 941501 | AE2-147 C    | 26.21     |
| 941541 | AE2-151 C    | 1.51      |
| 941591 | AE2-156      | 31.06     |
| 941601 | AE2-157 C O1 | 14.53     |
| 941951 | AE2-207      | 3.47      |
| 942131 | AE2-225 C    | 3.61      |
| 942171 | AE2-229 C    | 3.61      |
| 942211 | AE2-233 C    | 17.62     |
| 942341 | AE2-247 C    | 2.26      |
| 942401 | AE2-253 C    | 10.6      |
| 942471 | AE2-260 C O1 | 17.59     |
| 942531 | AE2-268 C    | 2.64      |
| 942551 | AE2-270      | 36.21     |
| 942711 | AE2-287 C O1 | 14.65     |
| 942851 | AE2-304 C    | 1.03      |
| 942921 | AE2-311 C O1 | 71.62     |
| 942931 | AE2-313 C    | 48.46     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>943171</b>     | AE2-346 C  | 2.45             |
| <b>AA2-074</b>    | AA2-074    | 6.33             |
| <b>CARR</b>       | CARR       | 1.23             |
| <b>CBM-S1</b>     | CBM-S1     | 12.44            |
| <b>CBM-S2</b>     | CBM-S2     | 17.46            |
| <b>CBM-W1</b>     | CBM-W1     | 8.49             |
| <b>CBM-W2</b>     | CBM-W2     | 77.11            |
| <b>CIN</b>        | CIN        | 4.07             |
| <b>CPL</b>        | CPL        | 9.31             |
| <b>IPL</b>        | IPL        | 2.49             |
| <b>LGEE</b>       | LGEE       | 1.19             |
| <b>MEC</b>        | MEC        | 10.39            |
| <b>MECS</b>       | MECS       | 1.96             |
| <b>RENSSELAER</b> | RENSSELAER | 0.97             |
| <b>WEC</b>        | WEC        | 1.08             |

## 12.6.23 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 |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840370 | 314905    | 8CHANCE  | DVP           | 314900  | 8BRISTER | DVP         | 1      | DVP_P1-2: LN 594 | single | 2442.12    | 131.3                 | 131.9                  | DC    | 31.98     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.1       |
| 314236 | 6NRTHEST     | 0.16      |
| 314250 | 6ROCKVILLE   | 0.28      |
| 314309 | 6IRON208     | 0.37      |
| 315037 | 1LDYSMT1     | 3.81      |
| 315038 | 1LDYSMT2     | 3.8       |
| 315039 | 1LDYSMT3     | 4.02      |
| 315040 | 1LDYSMT4     | 4.03      |
| 315041 | 1LDYSMT5     | 4.04      |
| 315043 | 1FOUR RIVERA | 3.02      |
| 315044 | 1FOUR RIVERB | 2.34      |
| 315045 | 1FOUR RIVERC | 3.02      |
| 315046 | 1FOUR RIVERD | 2.34      |
| 315047 | 1FOUR RIVERE | 2.34      |
| 315048 | 1FOUR RIVERF | 3.02      |
| 315053 | 1BELMED1     | 19.48     |
| 315054 | 1BELMED2     | 19.48     |
| 315055 | 1BELMED3     | 16.17     |
| 315058 | 1CHESTF3     | 20.44     |
| 315059 | 1CHESTF4     | 33.13     |
| 315067 | 1DARBY 1     | 2.16      |
| 315068 | 1DARBY 2     | 2.16      |
| 315069 | 1DARBY 3     | 2.17      |
| 315070 | 1DARBY 4     | 2.17      |
| 315074 | 1HOPCGN1     | 9.37      |
| 315075 | 1HOPCGN2     | 9.25      |
| 315083 | 1SPRUNCA     | 11.93     |
| 315084 | 1SPRUNCB     | 11.93     |
| 315085 | 1SPRUNCC     | 8.84      |
| 315086 | 1SPRUNCD     | 8.84      |
| 315090 | 1YORKTN1     | 31.8      |
| 315091 | 1YORKTN2     | 33.0      |
| 315225 | 1N ANNA1     | 30.98     |
| 315226 | 1N ANNA2     | 31.05     |
| 919211 | AA1-145      | 8.72      |
| 923801 | AB2-015 C O1 | 9.06      |
| 924061 | AB2-050      | 0.51      |
| 924241 | AB2-068 O1   | 226.15    |
| 924501 | AB2-099 C    | 0.59      |
| 924511 | AB2-100 C    | 11.8      |
| 925051 | AB2-160 C O1 | 6.09      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925061 | AB2-161 C O1 | 3.71      |
| 925331 | AB2-190 C    | 22.46     |
| 925861 | AC1-065 C    | 3.76      |
| 926001 | AC1-076 C    | 4.92      |
| 926291 | AC1-107 O1   | 341.36    |
| 926411 | AC1-112 C    | 0.28      |
| 926551 | AC1-134      | 1.28      |
| 926731 | AC1-158 C    | 93.16     |
| 926751 | AC1-161 C O1 | 33.44     |
| 926781 | AC1-164 C    | 45.47     |
| 927041 | AC1-191 C O1 | 10.76     |
| 927221 | AC1-216 C O1 | 10.98     |
| 930121 | AB1-027 C    | 0.36      |
| 932041 | AC2-012 C    | 11.19     |
| 932501 | AC2-070 C    | 0.23      |
| 932581 | AC2-078 C O1 | 4.49      |
| 932591 | AC2-079 C O1 | 6.26      |
| 932831 | AC2-110 C    | 1.5       |
| 933011 | AC2-125      | 3.08      |
| 933021 | AC2-126      | 3.1       |
| 933061 | AC2-130      | 2.7       |
| 933261 | AC2-137 C    | 0.29      |
| 933291 | AC2-141 C    | 33.44     |
| 933991 | AD1-023 C    | 13.49     |
| 934011 | AD1-025 C    | 18.87     |
| 934061 | AD1-033 C    | 8.21      |
| 934141 | AD1-041 C    | 5.9       |
| 934211 | AD1-048 C    | 0.34      |
| 934521 | AD1-076 C    | 56.18     |
| 934541 | AD1-078 C    | 3.04      |
| 934571 | AD1-082 C    | 8.45      |
| 934781 | AD1-105 C    | 7.77      |
| 935161 | AD1-151 C O1 | 18.05     |
| 936041 | AD2-007      | 2.0       |
| 936051 | AD2-008 C    | 3.28      |
| 936151 | AD2-021      | 0.27      |
| 936241 | AD2-030 C    | 2.56      |
| 936301 | AD2-039 C    | 1.5       |
| 936341 | AD2-044 C    | 0.26      |
| 936391 | AD2-049 C    | 1.98      |
| 936591 | AD2-074 C    | 5.92      |
| 936661 | AD2-085 C    | 3.76      |
| 936711 | AD2-090 C O1 | 7.49      |
| 937221 | AD2-160 C O1 | 6.37      |
| 937251 | AD2-164      | 5.32      |
| 937541 | AD2-215 C    | 1.91      |
| 938031 | AE1-004 C    | 1.5       |
| 938171 | AE1-026 C1 O | 28.67     |
| 938172 | AE1-026 C2 O | 4.15      |
| 938181 | AE1-027 C    | 2.56      |
| 938191 | AE1-028 C    | 1.48      |
| 938221 | AE1-035 C    | 2.27      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938491 | AE1-068 C O1 | 59.76     |
| 938501 | AE1-069 C O1 | 46.84     |
| 938531 | AE1-072 C O1 | 19.07     |
| 938551 | AE1-074 C    | 2.74      |
| 938561 | AE1-075 C    | 2.13      |
| 938631 | AE1-085 C O1 | 12.05     |
| 938771 | AE1-103 C O1 | 3.84      |
| 939071 | AE1-135 C O1 | 21.27     |
| 939191 | AE1-149 C O1 | 11.85     |
| 939241 | AE1-155 C    | 16.04     |
| 939261 | AE1-157 C O1 | 16.17     |
| 939271 | AE1-158 C O1 | 16.5      |
| 939311 | AE1-162 C    | 2.37      |
| 939411 | AE1-173 C    | 93.79     |
| 939421 | AE1-174 C    | 0.21      |
| 939431 | AE1-175 C    | 2.69      |
| 939611 | AE1-191 C    | 11.81     |
| 939751 | AE1-206 C O1 | 37.97     |
| 940061 | AE1-248 C O1 | 17.55     |
| 940071 | AE1-249 C    | 8.03      |
| 940231 | AE2-005 C    | 1.5       |
| 940251 | AE2-007      | 190.05    |
| 940431 | AE2-027 C O1 | 14.53     |
| 940471 | AE2-031 C O1 | 34.27     |
| 940481 | AE2-033 C    | 16.54     |
| 940491 | AE2-034 C    | 8.77      |
| 940541 | AE2-040      | 3.32      |
| 940551 | AE2-041      | 7.96      |
| 940641 | AE2-051 C O1 | 17.58     |
| 940651 | AE2-052      | 3.97      |
| 940891 | AE2-078 C    | 2.63      |
| 940901 | AE2-079 C    | 2.63      |
| 940911 | AE2-080 C    | 2.63      |
| 941031 | AE2-094 C    | 39.03     |
| 941101 | AE2-104 C O1 | 3.79      |
| 941141 | AE2-108 C    | 1.44      |
| 941151 | AE2-109 C    | 0.5       |
| 941281 | AE2-122 C O1 | 31.12     |
| 941291 | AE2-123 C O1 | 31.98     |
| 941301 | AE2-124 C O1 | 29.07     |
| 941381 | AE2-134      | 3.14      |
| 941501 | AE2-147 C    | 17.01     |
| 941581 | AE2-155 C    | 0.73      |
| 941591 | AE2-156      | 19.66     |
| 941601 | AE2-157 C O1 | 11.74     |
| 942001 | AE2-212 C    | 2.41      |
| 942131 | AE2-225 C    | 2.32      |
| 942151 | AE2-227 C O1 | 2.41      |
| 942161 | AE2-228 C O1 | 2.41      |
| 942171 | AE2-229 C    | 2.32      |
| 942191 | AE2-231 C O1 | 6.25      |
| 942211 | AE2-233 C    | 12.75     |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942341</b>     | AE2-247 C    | 1.63             |
| <b>942371</b>     | AE2-250 C O1 | 10.81            |
| <b>942401</b>     | AE2-253 C    | 6.7              |
| <b>942471</b>     | AE2-260 C O1 | 14.66            |
| <b>942531</b>     | AE2-268 C    | 1.91             |
| <b>942551</b>     | AE2-270      | 30.11            |
| <b>942851</b>     | AE2-304 C    | 0.67             |
| <b>942921</b>     | AE2-311 C O1 | 47.1             |
| <b>942931</b>     | AE2-313 C    | 35.26            |
| <b>943171</b>     | AE2-346 C    | 1.78             |
| <b>AA2-074</b>    | AA2-074      | 5.17             |
| <b>CARR</b>       | CARR         | 1.69             |
| <b>CBM-S1</b>     | CBM-S1       | 12.53            |
| <b>CBM-S2</b>     | CBM-S2       | 15.0             |
| <b>CBM-W1</b>     | CBM-W1       | 9.06             |
| <b>CBM-W2</b>     | CBM-W2       | 77.46            |
| <b>CIN</b>        | CIN          | 4.6              |
| <b>CPLE</b>       | CPLE         | 7.61             |
| <b>IPL</b>        | IPL          | 2.84             |
| <b>LGEE</b>       | LGEE         | 1.38             |
| <b>MEC</b>        | MEC          | 10.87            |
| <b>MECS</b>       | MECS         | 2.05             |
| <b>RENSSELAER</b> | RENSSELAER   | 1.34             |
| <b>WEC</b>        | WEC          | 1.17             |

## 12.6.24 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 |
|---------|-----------|----------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840036 | 314908    | 8ELMONT  | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 576 | single | 2442.12    | 164.95                | 165.94                 | DC    | 52.72     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.17      |
| 314236 | 6NRTHEST     | 0.26      |
| 314309 | 6IRON208     | 0.62      |
| 314421 | 6WINCHST     | 0.2       |
| 315053 | 1BELMED1     | 31.5      |
| 315054 | 1BELMED2     | 31.5      |
| 315055 | 1BELMED3     | 26.14     |
| 315058 | 1CHESTF3     | 33.46     |
| 315059 | 1CHESTF4     | 54.23     |
| 315060 | 1CHESTF5     | 13.99     |
| 315061 | 1CHESTG7     | 5.48      |
| 315062 | 1CHESTS7     | 2.49      |
| 315063 | 1CHESTG8     | 5.38      |
| 315064 | 1CHESTS8     | 2.77      |
| 315067 | 1DARBY 1     | 3.58      |
| 315068 | 1DARBY 2     | 3.58      |
| 315069 | 1DARBY 3     | 3.6       |
| 315070 | 1DARBY 4     | 3.6       |
| 315074 | 1HOPCGN1     | 15.43     |
| 315075 | 1HOPCGN2     | 15.23     |
| 315076 | 1HOPPOLC     | 2.16      |
| 315077 | 1HOPHCF1     | 3.37      |
| 315078 | 1HOPHCF2     | 3.37      |
| 315079 | 1HOPHCF3     | 3.37      |
| 315080 | 1HOPHCF4     | 5.12      |
| 315083 | 1SPRUNCA     | 19.06     |
| 315084 | 1SPRUNCB     | 19.06     |
| 315085 | 1SPRUNCC     | 14.13     |
| 315086 | 1SPRUNCD     | 14.13     |
| 315090 | 1YORKTN1     | 53.19     |
| 315091 | 1YORKTN2     | 55.2      |
| 315092 | 1YORKTN3     | 32.17     |
| 315233 | 1SURRY 2     | 34.94     |
| 923801 | AB2-015 C O1 | 14.83     |
| 924241 | AB2-068 O1   | 427.69    |
| 924501 | AB2-099 C    | 0.97      |
| 924511 | AB2-100 C    | 19.0      |
| 925051 | AB2-160 C O1 | 9.87      |
| 925061 | AB2-161 C O1 | 6.05      |
| 925331 | AB2-190 C    | 37.05     |
| 925861 | AC1-065 C    | 6.02      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926291 | AC1-107 O1   | 645.57    |
| 926411 | AC1-112 C    | 0.47      |
| 926751 | AC1-161 C O1 | 55.47     |
| 926781 | AC1-164 C    | 77.58     |
| 927041 | AC1-191 C O1 | 17.01     |
| 927221 | AC1-216 C O1 | 18.11     |
| 930121 | AB1-027 C    | 0.6       |
| 932041 | AC2-012 C    | 18.46     |
| 932501 | AC2-070 C    | 0.39      |
| 932581 | AC2-078 C O1 | 7.31      |
| 932591 | AC2-079 C O1 | 10.25     |
| 932831 | AC2-110 C    | 2.41      |
| 933061 | AC2-130      | 4.5       |
| 933261 | AC2-137 C    | 0.48      |
| 933291 | AC2-141 C    | 55.47     |
| 933991 | AD1-023 C    | 22.13     |
| 934011 | AD1-025 C    | 31.13     |
| 934061 | AD1-033 C    | 13.54     |
| 934141 | AD1-041 C    | 9.39      |
| 934211 | AD1-048 C    | 0.56      |
| 934521 | AD1-076 C    | 92.19     |
| 934571 | AD1-082 C    | 13.8      |
| 935161 | AD1-151 C O1 | 29.78     |
| 936041 | AD2-007      | 3.3       |
| 936051 | AD2-008 C    | 5.42      |
| 936151 | AD2-021      | 0.45      |
| 936241 | AD2-030 C    | 4.04      |
| 936301 | AD2-039 C    | 2.41      |
| 936391 | AD2-049 C    | 3.3       |
| 936401 | AD2-051 C O1 | 14.41     |
| 936661 | AD2-085 C    | 6.15      |
| 936711 | AD2-090 C O1 | 12.24     |
| 937221 | AD2-160 C O1 | 10.5      |
| 937251 | AD2-164      | 8.88      |
| 937541 | AD2-215 C    | 3.15      |
| 938031 | AE1-004 C    | 2.41      |
| 938171 | AE1-026 C1 O | 47.0      |
| 938172 | AE1-026 C2 O | 6.8       |
| 938181 | AE1-027 C    | 4.21      |
| 938191 | AE1-028 C    | 2.44      |
| 938221 | AE1-035 C    | 3.72      |
| 938491 | AE1-068 C O1 | 93.03     |
| 938501 | AE1-069 C O1 | 72.97     |
| 938531 | AE1-072 C O1 | 31.41     |
| 938551 | AE1-074 C    | 4.27      |
| 938631 | AE1-085 C O1 | 19.6      |
| 938661 | AE1-088      | 2.91      |
| 938771 | AE1-103 C O1 | 6.28      |
| 939071 | AE1-135 C O1 | 34.22     |
| 939191 | AE1-149 C O1 | 19.26     |
| 939311 | AE1-162 C    | 3.92      |
| 939411 | AE1-173 C    | 149.1     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 939421  | AE1-174 C    | 0.68      |
| 939431  | AE1-175 C    | 4.54      |
| 939611  | AE1-191 C    | 18.79     |
| 939751  | AE1-206 C O1 | 50.23     |
| 940061  | AE1-248 C O1 | 28.67     |
| 940071  | AE1-249 C    | 13.03     |
| 940231  | AE2-005 C    | 2.41      |
| 940251  | AE2-007      | 313.38    |
| 940431  | AE2-027 C O1 | 23.66     |
| 940471  | AE2-031 C O1 | 55.28     |
| 940481  | AE2-033 C    | 26.48     |
| 940491  | AE2-034 C    | 14.4      |
| 940521  | AE2-037 C O1 | 13.19     |
| 940541  | AE2-040      | 5.32      |
| 940551  | AE2-041      | 12.87     |
| 940641  | AE2-051 C O1 | 27.59     |
| 940651  | AE2-052      | 6.45      |
| 940891  | AE2-078 C    | 4.35      |
| 940901  | AE2-079 C    | 4.35      |
| 940911  | AE2-080 C    | 4.35      |
| 941031  | AE2-094 C    | 60.66     |
| 941101  | AE2-104 C O1 | 6.23      |
| 941281  | AE2-122 C O1 | 51.3      |
| 941291  | AE2-123 C O1 | 52.72     |
| 941301  | AE2-124 C O1 | 47.93     |
| 941501  | AE2-147 C    | 28.0      |
| 941541  | AE2-151 C    | 1.79      |
| 941581  | AE2-155 C    | 1.23      |
| 941591  | AE2-156      | 32.42     |
| 941601  | AE2-157 C O1 | 19.15     |
| 942001  | AE2-212 C    | 3.9       |
| 942131  | AE2-225 C    | 3.82      |
| 942151  | AE2-227 C O1 | 3.9       |
| 942161  | AE2-228 C O1 | 3.9       |
| 942171  | AE2-229 C    | 3.82      |
| 942211  | AE2-233 C    | 19.82     |
| 942341  | AE2-247 C    | 2.67      |
| 942371  | AE2-250 C O1 | 17.54     |
| 942401  | AE2-253 C    | 11.05     |
| 942471  | AE2-260 C O1 | 23.59     |
| 942531  | AE2-268 C    | 3.08      |
| 942551  | AE2-270      | 49.66     |
| 942851  | AE2-304 C    | 1.11      |
| 942921  | AE2-311 C O1 | 75.07     |
| 942931  | AE2-313 C    | 54.81     |
| 943171  | AE2-346 C    | 2.9       |
| AA2-074 | AA2-074      | 8.65      |
| CARR    | CARR         | 2.59      |
| CBM-S1  | CBM-S1       | 26.67     |
| CBM-S2  | CBM-S2       | 26.03     |
| CBM-W1  | CBM-W1       | 27.93     |
| CBM-W2  | CBM-W2       | 174.04    |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CIN</b>        | CIN        | 13.03            |
| <b>CPLE</b>       | CPLE       | 12.72            |
| <b>IPL</b>        | IPL        | 8.21             |
| <b>LGEE</b>       | LGEE       | 3.84             |
| <b>MEC</b>        | MEC        | 27.75            |
| <b>MECS</b>       | MECS       | 11.64            |
| <b>RENSSELAER</b> | RENSSELAER | 2.05             |
| <b>WEC</b>        | WEC        | 3.42             |
| <b>Z1-043</b>     | Z1-043     | 13.47            |

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| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840490 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE | DVP         | 1      | DVP_P1-2: LN 573 | single | 2738.22    | 120.59                | 121.14                 | DC    | 32.5      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.1       |
| 314236 | 6NRTHEST     | 0.16      |
| 314250 | 6ROCKVILLE   | 0.28      |
| 314309 | 6IRON208     | 0.38      |
| 315037 | 1LDYSMT1     | 3.9       |
| 315038 | 1LDYSMT2     | 3.9       |
| 315039 | 1LDYSMT3     | 4.13      |
| 315040 | 1LDYSMT4     | 4.14      |
| 315041 | 1LDYSMT5     | 4.15      |
| 315043 | 1FOUR RIVERA | 3.08      |
| 315044 | 1FOUR RIVERB | 2.39      |
| 315045 | 1FOUR RIVERC | 3.08      |
| 315046 | 1FOUR RIVERD | 2.39      |
| 315047 | 1FOUR RIVERE | 2.39      |
| 315048 | 1FOUR RIVERF | 3.08      |
| 315053 | 1BELMED1     | 19.81     |
| 315054 | 1BELMED2     | 19.81     |
| 315055 | 1BELMED3     | 16.44     |
| 315058 | 1CHESTF3     | 20.8      |
| 315059 | 1CHESTF4     | 33.71     |
| 315067 | 1DARBY 1     | 2.2       |
| 315068 | 1DARBY 2     | 2.2       |
| 315069 | 1DARBY 3     | 2.21      |
| 315070 | 1DARBY 4     | 2.21      |
| 315074 | 1HOPCGN1     | 9.53      |
| 315075 | 1HOPCGN2     | 9.41      |
| 315083 | 1SPRUNCA     | 12.12     |
| 315084 | 1SPRUNCB     | 12.12     |
| 315085 | 1SPRUNCC     | 8.99      |
| 315086 | 1SPRUNCD     | 8.99      |
| 315090 | 1YORKTN1     | 32.35     |
| 315091 | 1YORKTN2     | 33.57     |
| 315225 | 1N ANNA1     | 31.47     |
| 315226 | 1N ANNA2     | 31.54     |
| 919211 | AA1-145      | 8.91      |
| 923801 | AB2-015 C O1 | 9.19      |
| 923911 | AB2-031 C O1 | 2.27      |
| 924061 | AB2-050      | 0.52      |
| 924241 | AB2-068 O1   | 230.43    |
| 924501 | AB2-099 C    | 0.6       |
| 924511 | AB2-100 C    | 11.97     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925051 | AB2-160 C O1 | 6.19      |
| 925061 | AB2-161 C O1 | 3.77      |
| 925171 | AB2-174 C O1 | 7.15      |
| 925331 | AB2-190 C    | 22.85     |
| 925861 | AC1-065 C    | 3.83      |
| 926291 | AC1-107 O1   | 347.82    |
| 926411 | AC1-112 C    | 0.28      |
| 926551 | AC1-134      | 1.31      |
| 926751 | AC1-161 C O1 | 33.98     |
| 926781 | AC1-164 C    | 46.3      |
| 927041 | AC1-191 C O1 | 10.97     |
| 927221 | AC1-216 C O1 | 11.16     |
| 930121 | AB1-027 C    | 0.36      |
| 932041 | AC2-012 C    | 11.38     |
| 932501 | AC2-070 C    | 0.24      |
| 932581 | AC2-078 C O1 | 4.57      |
| 932591 | AC2-079 C O1 | 6.36      |
| 932831 | AC2-110 C    | 1.53      |
| 933011 | AC2-125      | 3.16      |
| 933021 | AC2-126      | 3.18      |
| 933061 | AC2-130      | 2.75      |
| 933261 | AC2-137 C    | 0.29      |
| 933291 | AC2-141 C    | 33.98     |
| 933991 | AD1-023 C    | 13.69     |
| 934011 | AD1-025 C    | 19.19     |
| 934061 | AD1-033 C    | 8.35      |
| 934141 | AD1-041 C    | 6.01      |
| 934201 | AD1-047 C    | 8.14      |
| 934211 | AD1-048 C    | 0.34      |
| 934521 | AD1-076 C    | 57.01     |
| 934571 | AD1-082 C    | 8.58      |
| 934781 | AD1-105 C    | 7.94      |
| 935161 | AD1-151 C O1 | 18.36     |
| 936041 | AD2-007      | 2.04      |
| 936051 | AD2-008 C    | 3.34      |
| 936151 | AD2-021      | 0.27      |
| 936241 | AD2-030 C    | 2.61      |
| 936301 | AD2-039 C    | 1.53      |
| 936341 | AD2-044 C    | 0.27      |
| 936391 | AD2-049 C    | 2.02      |
| 936401 | AD2-051 C O1 | 8.94      |
| 936581 | AD2-073 C    | 2.27      |
| 936591 | AD2-074 C    | 6.04      |
| 936661 | AD2-085 C    | 3.82      |
| 936711 | AD2-090 C O1 | 7.6       |
| 937221 | AD2-160 C O1 | 6.48      |
| 937251 | AD2-164      | 5.41      |
| 937541 | AD2-215 C    | 1.94      |
| 938031 | AE1-004 C    | 1.53      |
| 938171 | AE1-026 C1 O | 29.09     |
| 938172 | AE1-026 C2 O | 4.21      |
| 938181 | AE1-027 C    | 2.6       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938191 | AE1-028 C    | 1.51      |
| 938221 | AE1-035 C    | 2.3       |
| 938491 | AE1-068 C O1 | 60.62     |
| 938501 | AE1-069 C O1 | 47.51     |
| 938531 | AE1-072 C O1 | 19.37     |
| 938551 | AE1-074 C    | 2.79      |
| 938561 | AE1-075 C    | 2.13      |
| 938631 | AE1-085 C O1 | 12.25     |
| 938661 | AE1-088      | 1.8       |
| 938771 | AE1-103 C O1 | 3.89      |
| 939071 | AE1-135 C O1 | 21.58     |
| 939191 | AE1-149 C O1 | 12.05     |
| 939241 | AE1-155 C    | 16.37     |
| 939261 | AE1-157 C O1 | 16.56     |
| 939271 | AE1-158 C O1 | 16.9      |
| 939311 | AE1-162 C    | 2.41      |
| 939411 | AE1-173 C    | 95.24     |
| 939421 | AE1-174 C    | 0.22      |
| 939431 | AE1-175 C    | 2.74      |
| 939611 | AE1-191 C    | 12.03     |
| 939751 | AE1-206 C O1 | 38.74     |
| 940061 | AE1-248 C O1 | 17.84     |
| 940071 | AE1-249 C    | 8.16      |
| 940231 | AE2-005 C    | 1.53      |
| 940251 | AE2-007      | 193.14    |
| 940431 | AE2-027 C O1 | 14.78     |
| 940471 | AE2-031 C O1 | 34.82     |
| 940481 | AE2-033 C    | 16.79     |
| 940491 | AE2-034 C    | 8.9       |
| 940521 | AE2-037 C O1 | 8.18      |
| 940541 | AE2-040      | 3.37      |
| 940551 | AE2-041      | 8.11      |
| 940641 | AE2-051 C O1 | 17.85     |
| 940651 | AE2-052      | 4.04      |
| 940891 | AE2-078 C    | 2.67      |
| 940901 | AE2-079 C    | 2.67      |
| 940911 | AE2-080 C    | 2.67      |
| 941031 | AE2-094 C    | 39.6      |
| 941101 | AE2-104 C O1 | 3.85      |
| 941141 | AE2-108 C    | 1.47      |
| 941151 | AE2-109 C    | 0.51      |
| 941281 | AE2-122 C O1 | 31.62     |
| 941291 | AE2-123 C O1 | 32.5      |
| 941301 | AE2-124 C O1 | 29.55     |
| 941501 | AE2-147 C    | 17.28     |
| 941541 | AE2-151 C    | 1.11      |
| 941581 | AE2-155 C    | 0.74      |
| 941591 | AE2-156      | 19.98     |
| 941601 | AE2-157 C O1 | 11.94     |
| 942001 | AE2-212 C    | 2.45      |
| 942131 | AE2-225 C    | 2.36      |
| 942151 | AE2-227 C O1 | 2.45      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 942161     | AE2-228 C O1 | 2.45      |
| 942171     | AE2-229 C    | 2.36      |
| 942191     | AE2-231 C O1 | 6.4       |
| 942211     | AE2-233 C    | 12.94     |
| 942341     | AE2-247 C    | 1.65      |
| 942371     | AE2-250 C O1 | 10.99     |
| 942401     | AE2-253 C    | 6.81      |
| 942471     | AE2-260 C O1 | 14.87     |
| 942531     | AE2-268 C    | 1.94      |
| 942551     | AE2-270      | 30.62     |
| 942851     | AE2-304 C    | 0.68      |
| 942921     | AE2-311 C O1 | 47.83     |
| 942931     | AE2-313 C    | 35.77     |
| 943171     | AE2-346 C    | 1.8       |
| AA2-074    | AA2-074      | 5.23      |
| CARR       | CARR         | 1.69      |
| CBM-S1     | CBM-S1       | 12.54     |
| CBM-S2     | CBM-S2       | 15.13     |
| CBM-W1     | CBM-W1       | 8.95      |
| CBM-W2     | CBM-W2       | 77.39     |
| CIN        | CIN          | 4.55      |
| CPL        | CPL          | 7.68      |
| IPL        | IPL          | 2.81      |
| LGEE       | LGEE         | 1.37      |
| MEC        | MEC          | 10.81     |
| MECS       | MECS         | 1.96      |
| RENSSELAER | RENSSELAER   | 1.34      |
| WEC        | WEC          | 1.16      |

## 12.6.26 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 |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840595 | 314918    | 8NO ANNA | DVP           | 314934  | 8SPOTSYL | DVP         | 1      | DVP_P1-2: LN 581 | single | 3218.56    | 117.6                 | 118.1                  | DC    | 35.72     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314236 | 6NRTHEST     | 0.17      |
| 314250 | 6ROCKVILLE   | 0.3       |
| 314309 | 6IRON208     | 0.4       |
| 314314 | 3LOCKS       | 0.26      |
| 314507 | 3THOMPSN     | 0.3       |
| 315053 | 1BELMED1     | 21.1      |
| 315054 | 1BELMED2     | 21.1      |
| 315055 | 1BELMED3     | 17.52     |
| 315058 | 1CHESTF3     | 21.87     |
| 315059 | 1CHESTF4     | 35.45     |
| 315065 | 1CHESTF6     | 18.16     |
| 315074 | 1HOPCGN1     | 10.14     |
| 315075 | 1HOPCGN2     | 10.01     |
| 315076 | 1HOPPOLC     | 1.42      |
| 315077 | 1HOPHCF1     | 2.21      |
| 315078 | 1HOPHCF2     | 2.21      |
| 315079 | 1HOPHCF3     | 2.21      |
| 315080 | 1HOPHCF4     | 3.36      |
| 315083 | 1SPRUNCA     | 13.09     |
| 315084 | 1SPRUNCB     | 13.09     |
| 315085 | 1SPRUNCC     | 9.7       |
| 315086 | 1SPRUNCD     | 9.7       |
| 315090 | 1YORKTN1     | 34.62     |
| 315091 | 1YORKTN2     | 35.93     |
| 315098 | 1CHESPKA     | 0.4       |
| 315099 | 1CHESPKB     | 0.99      |
| 315108 | 1ELIZAR1     | 2.92      |
| 315109 | 1ELIZAR2     | 2.87      |
| 315110 | 1ELIZAR3     | 2.96      |
| 315225 | 1N ANNA1     | 45.34     |
| 315226 | 1N ANNA2     | 45.44     |
| 315233 | 1SURRY 2     | 22.66     |
| 315260 | 1GOSPORTA    | 0.32      |
| 315261 | 1GOSPORTB    | 0.41      |
| 315262 | 1GOSPORTC    | 0.34      |
| 923801 | AB2-015 C O1 | 10.16     |
| 923911 | AB2-031 C O1 | 2.53      |
| 924241 | AB2-068 O1   | 230.57    |
| 924501 | AB2-099 C    | 0.67      |
| 924511 | AB2-100 C    | 13.34     |
| 925051 | AB2-160 C O1 | 6.67      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925061 | AB2-161 C O1 | 4.12      |
| 925171 | AB2-174 C O1 | 7.98      |
| 925331 | AB2-190 C    | 24.5      |
| 925821 | AC1-061      | 0.01      |
| 925861 | AC1-065 C    | 3.98      |
| 926071 | AC1-086 C    | 23.3      |
| 926291 | AC1-107 O1   | 348.03    |
| 926661 | AC1-147 C    | 0.34      |
| 926751 | AC1-161 C O1 | 37.34     |
| 926781 | AC1-164 C    | 47.75     |
| 927041 | AC1-191 C O1 | 11.08     |
| 927221 | AC1-216 C O1 | 11.98     |
| 932041 | AC2-012 C    | 12.49     |
| 932581 | AC2-078 C O1 | 4.97      |
| 932591 | AC2-079 C O1 | 6.97      |
| 932831 | AC2-110 C    | 1.59      |
| 933011 | AC2-125      | 2.87      |
| 933021 | AC2-126      | 2.88      |
| 933061 | AC2-130      | 2.88      |
| 933291 | AC2-141 C    | 37.34     |
| 933501 | AC2-165 C    | 11.0      |
| 933991 | AD1-023 C    | 15.17     |
| 934011 | AD1-025 C    | 20.6      |
| 934061 | AD1-033 C    | 9.18      |
| 934141 | AD1-041 C    | 6.26      |
| 934201 | AD1-047 C    | 9.08      |
| 934521 | AD1-076 C    | 63.11     |
| 934571 | AD1-082 C    | 9.38      |
| 935161 | AD1-151 C O1 | 19.68     |
| 935211 | AD1-156 C    | 0.32      |
| 936041 | AD2-007      | 2.19      |
| 936051 | AD2-008 C    | 3.59      |
| 936151 | AD2-021      | 0.28      |
| 936241 | AD2-030 C    | 2.72      |
| 936301 | AD2-039 C    | 1.59      |
| 936391 | AD2-049 C    | 2.17      |
| 936401 | AD2-051 C O1 | 9.93      |
| 936591 | AD2-074 C    | 6.19      |
| 936661 | AD2-085 C    | 4.18      |
| 936711 | AD2-090 C O1 | 8.4       |
| 937221 | AD2-160 C O1 | 7.13      |
| 937251 | AD2-164      | 5.81      |
| 937541 | AD2-215 C    | 2.12      |
| 937571 | AD2-169 C    | 11.29     |
| 938031 | AE1-004 C    | 1.59      |
| 938171 | AE1-026 C1 O | 32.23     |
| 938172 | AE1-026 C2 O | 4.66      |
| 938181 | AE1-027 C    | 2.86      |
| 938191 | AE1-028 C    | 1.66      |
| 938221 | AE1-035 C    | 2.55      |
| 938491 | AE1-068 C O1 | 70.23     |
| 938501 | AE1-069 C O1 | 55.02     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938531 | AE1-072 C O1 | 21.32     |
| 938551 | AE1-074 C    | 3.09      |
| 938561 | AE1-075 C    | 2.45      |
| 938631 | AE1-085 C O1 | 13.34     |
| 938661 | AE1-088      | 2.0       |
| 938771 | AE1-103 C O1 | 4.3       |
| 939071 | AE1-135 C O1 | 24.05     |
| 939191 | AE1-149 C O1 | 13.11     |
| 939231 | AE1-154 C    | 2.08      |
| 939241 | AE1-155 C    | 16.72     |
| 939261 | AE1-157 C O1 | 15.38     |
| 939271 | AE1-158 C O1 | 15.69     |
| 939311 | AE1-162 C    | 2.63      |
| 939411 | AE1-173 C    | 108.28    |
| 939421 | AE1-174 C    | 0.23      |
| 939431 | AE1-175 C    | 2.89      |
| 939611 | AE1-191 C    | 12.51     |
| 939751 | AE1-206 C O1 | 38.21     |
| 940061 | AE1-248 C O1 | 19.5      |
| 940071 | AE1-249 C    | 8.79      |
| 940231 | AE2-005 C    | 1.59      |
| 940251 | AE2-007      | 212.16    |
| 940421 | AE2-026 C    | 3.95      |
| 940431 | AE2-027 C O1 | 15.77     |
| 940471 | AE2-031 C O1 | 39.17     |
| 940481 | AE2-033 C    | 18.69     |
| 940491 | AE2-034 C    | 9.84      |
| 940521 | AE2-037 C O1 | 9.09      |
| 940541 | AE2-040      | 3.76      |
| 940551 | AE2-041      | 8.42      |
| 940641 | AE2-051 C O1 | 20.51     |
| 940651 | AE2-052      | 4.39      |
| 940891 | AE2-078 C    | 2.88      |
| 940901 | AE2-079 C    | 2.88      |
| 940911 | AE2-080 C    | 2.88      |
| 941031 | AE2-094 C    | 45.9      |
| 941101 | AE2-104 C O1 | 4.23      |
| 941281 | AE2-122 C O1 | 34.76     |
| 941291 | AE2-123 C O1 | 35.72     |
| 941301 | AE2-124 C O1 | 32.48     |
| 941501 | AE2-147 C    | 19.04     |
| 941541 | AE2-151 C    | 1.23      |
| 941581 | AE2-155 C    | 0.76      |
| 941591 | AE2-156      | 21.94     |
| 941601 | AE2-157 C O1 | 13.03     |
| 942001 | AE2-212 C    | 2.64      |
| 942131 | AE2-225 C    | 2.59      |
| 942151 | AE2-227 C O1 | 2.64      |
| 942161 | AE2-228 C O1 | 2.64      |
| 942171 | AE2-229 C    | 2.59      |
| 942191 | AE2-231 C O1 | 6.02      |
| 942211 | AE2-233 C    | 15.0      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942341</b>     | AE2-247 C    | 1.81             |
| <b>942371</b>     | AE2-250 C O1 | 11.84            |
| <b>942401</b>     | AE2-253 C    | 7.5              |
| <b>942471</b>     | AE2-260 C O1 | 16.57            |
| <b>942531</b>     | AE2-268 C    | 2.02             |
| <b>942551</b>     | AE2-270      | 32.83            |
| <b>942851</b>     | AE2-304 C    | 0.75             |
| <b>942921</b>     | AE2-311 C O1 | 54.33            |
| <b>942931</b>     | AE2-313 C    | 41.45            |
| <b>943171</b>     | AE2-346 C    | 2.0              |
| <b>AA2-074</b>    | AA2-074      | 5.89             |
| <b>CARR</b>       | CARR         | 1.84             |
| <b>CBM-S1</b>     | CBM-S1       | 13.47            |
| <b>CBM-S2</b>     | CBM-S2       | 16.92            |
| <b>CBM-W1</b>     | CBM-W1       | 8.86             |
| <b>CBM-W2</b>     | CBM-W2       | 82.41            |
| <b>CIN</b>        | CIN          | 4.58             |
| <b>CPLE</b>       | CPLE         | 8.65             |
| <b>IPL</b>        | IPL          | 2.81             |
| <b>LGEE</b>       | LGEE         | 1.38             |
| <b>MEC</b>        | MEC          | 11.2             |
| <b>MECS</b>       | MECS         | 1.5              |
| <b>RENSSELAER</b> | RENSSELAER   | 1.46             |
| <b>WEC</b>        | WEC          | 1.17             |

## 12.6.27 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 |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840561 | 314934    | 8SPOTSYL | DVP           | 314916  | 8MORRSVL | DVP         | 1      | DVP_P1-2: LN 568 | single | 3218.56    | 118.04                | 119.05                 | DC    | 32.69     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314250 | 6ROCKVILLE   | 0.28      |
| 314314 | 3LOCKS       | 0.24      |
| 314507 | 3THOMPSN     | 0.28      |
| 315053 | 1BELMED1     | 19.13     |
| 315054 | 1BELMED2     | 19.13     |
| 315055 | 1BELMED3     | 15.88     |
| 315058 | 1CHESTF3     | 19.75     |
| 315059 | 1CHESTF4     | 32.01     |
| 315065 | 1CHESTF6     | 16.47     |
| 315074 | 1HOPCGN1     | 9.19      |
| 315075 | 1HOPCGN2     | 9.07      |
| 315083 | 1SPRUNCA     | 11.91     |
| 315084 | 1SPRUNCB     | 11.91     |
| 315085 | 1SPRUNCC     | 8.83      |
| 315086 | 1SPRUNCD     | 8.83      |
| 315090 | 1YORKTN1     | 31.43     |
| 315091 | 1YORKTN2     | 32.61     |
| 315098 | 1CHESPKA     | 0.36      |
| 315099 | 1CHESPKB     | 0.91      |
| 315108 | 1ELIZAR1     | 2.67      |
| 315109 | 1ELIZAR2     | 2.63      |
| 315110 | 1ELIZAR3     | 2.71      |
| 315116 | 1SURRY 1     | 20.47     |
| 315120 | 1GRAVEL4     | 2.11      |
| 315225 | 1N ANNA1     | 43.17     |
| 315226 | 1N ANNA2     | 43.26     |
| 315233 | 1SURRY 2     | 20.64     |
| 315260 | 1GOSPORTA    | 0.29      |
| 315261 | 1GOSPORTB    | 0.37      |
| 315262 | 1GOSPORTC    | 0.32      |
| 916191 | Z1-068 C     | 0.04      |
| 916301 | Z1-086 C     | 39.85     |
| 923801 | AB2-015 C O1 | 9.34      |
| 923911 | AB2-031 C O1 | 2.35      |
| 924241 | AB2-068 O1   | 206.02    |
| 924501 | AB2-099 C    | 0.62      |
| 924511 | AB2-100 C    | 12.3      |
| 925021 | AB2-158 C    | 1.69      |
| 925051 | AB2-160 C O1 | 6.06      |
| 925061 | AB2-161 C O1 | 3.76      |
| 925171 | AB2-174 C O1 | 7.39      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925331 | AB2-190 C    | 22.25     |
| 925521 | AC1-027 C    | 0.27      |
| 925821 | AC1-061      | 0.0       |
| 925861 | AC1-065 C    | 3.57      |
| 926001 | AC1-076 C    | 6.0       |
| 926291 | AC1-107 O1   | 310.98    |
| 926661 | AC1-147 C    | 0.31      |
| 926731 | AC1-158 C    | 197.69    |
| 926751 | AC1-161 C O1 | 34.15     |
| 926781 | AC1-164 C    | 42.89     |
| 927041 | AC1-191 C O1 | 9.84      |
| 927221 | AC1-216 C O1 | 10.89     |
| 932041 | AC2-012 C    | 11.43     |
| 932581 | AC2-078 C O1 | 4.54      |
| 932591 | AC2-079 C O1 | 6.38      |
| 932831 | AC2-110 C    | 1.43      |
| 933061 | AC2-130      | 2.6       |
| 933291 | AC2-141 C    | 34.15     |
| 933501 | AC2-165 C    | 10.45     |
| 933731 | AC2-196 C    | 0.24      |
| 933991 | AD1-023 C    | 13.98     |
| 934011 | AD1-025 C    | 18.72     |
| 934061 | AD1-033 C    | 8.4       |
| 934141 | AD1-041 C    | 5.61      |
| 934201 | AD1-047 C    | 8.41      |
| 934521 | AD1-076 C    | 58.13     |
| 934541 | AD1-078 C    | 3.63      |
| 934571 | AD1-082 C    | 8.58      |
| 935161 | AD1-151 C O1 | 17.88     |
| 935211 | AD1-156 C    | 0.29      |
| 936041 | AD2-007      | 1.99      |
| 936051 | AD2-008 C    | 3.26      |
| 936151 | AD2-021      | 0.25      |
| 936241 | AD2-030 C    | 2.43      |
| 936301 | AD2-039 C    | 1.43      |
| 936391 | AD2-049 C    | 1.98      |
| 936661 | AD2-085 C    | 3.83      |
| 936711 | AD2-090 C O1 | 7.74      |
| 937221 | AD2-160 C O1 | 6.52      |
| 937251 | AD2-164      | 5.28      |
| 937541 | AD2-215 C    | 1.94      |
| 938031 | AE1-004 C    | 1.43      |
| 938171 | AE1-026 C1 O | 29.71     |
| 938172 | AE1-026 C2 O | 4.3       |
| 938181 | AE1-027 C    | 2.61      |
| 938191 | AE1-028 C    | 1.52      |
| 938221 | AE1-035 C    | 2.36      |
| 938491 | AE1-068 C O1 | 65.16     |
| 938501 | AE1-069 C O1 | 51.06     |
| 938531 | AE1-072 C O1 | 19.52     |
| 938551 | AE1-074 C    | 2.83      |
| 938561 | AE1-075 C    | 2.32      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938631 | AE1-085 C O1 | 12.17     |
| 938771 | AE1-103 C O1 | 3.95      |
| 939071 | AE1-135 C O1 | 22.18     |
| 939191 | AE1-149 C O1 | 11.96     |
| 939231 | AE1-154 C    | 2.27      |
| 939311 | AE1-162 C    | 2.39      |
| 939411 | AE1-173 C    | 99.84     |
| 939421 | AE1-174 C    | 0.21      |
| 939431 | AE1-175 C    | 2.62      |
| 939611 | AE1-191 C    | 11.21     |
| 939751 | AE1-206 C O1 | 33.72     |
| 940061 | AE1-248 C O1 | 17.82     |
| 940071 | AE1-249 C    | 8.0       |
| 940231 | AE2-005 C    | 1.43      |
| 940251 | AE2-007      | 194.08    |
| 940421 | AE2-026 C    | 4.31      |
| 940431 | AE2-027 C O1 | 14.3      |
| 940471 | AE2-031 C O1 | 36.02     |
| 940481 | AE2-033 C    | 17.19     |
| 940491 | AE2-034 C    | 9.05      |
| 940541 | AE2-040      | 3.45      |
| 940551 | AE2-041      | 7.55      |
| 940641 | AE2-051 C O1 | 18.96     |
| 940651 | AE2-052      | 4.0       |
| 940891 | AE2-078 C    | 2.62      |
| 940901 | AE2-079 C    | 2.62      |
| 940911 | AE2-080 C    | 2.62      |
| 941031 | AE2-094 C    | 42.57     |
| 941101 | AE2-104 C O1 | 3.88      |
| 941281 | AE2-122 C O1 | 31.81     |
| 941291 | AE2-123 C O1 | 32.69     |
| 941301 | AE2-124 C O1 | 29.72     |
| 941381 | AE2-134      | 3.83      |
| 941501 | AE2-147 C    | 17.46     |
| 941581 | AE2-155 C    | 0.68      |
| 941591 | AE2-156      | 20.08     |
| 941601 | AE2-157 C O1 | 11.9      |
| 942001 | AE2-212 C    | 2.4       |
| 942131 | AE2-225 C    | 2.38      |
| 942151 | AE2-227 C O1 | 2.4       |
| 942161 | AE2-228 C O1 | 2.4       |
| 942171 | AE2-229 C    | 2.38      |
| 942211 | AE2-233 C    | 13.91     |
| 942341 | AE2-247 C    | 1.66      |
| 942371 | AE2-250 C O1 | 10.77     |
| 942401 | AE2-253 C    | 6.86      |
| 942471 | AE2-260 C O1 | 15.28     |
| 942531 | AE2-268 C    | 1.81      |
| 942551 | AE2-270      | 29.82     |
| 942851 | AE2-304 C    | 0.69      |
| 942921 | AE2-311 C O1 | 50.07     |
| 942931 | AE2-313 C    | 38.45     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>943171</b>     | AE2-346 C  | 1.85             |
| <b>AA2-074</b>    | AA2-074    | 5.57             |
| <b>CARR</b>       | CARR       | 1.84             |
| <b>CBM-S1</b>     | CBM-S1     | 13.99            |
| <b>CBM-S2</b>     | CBM-S2     | 16.21            |
| <b>CBM-W1</b>     | CBM-W1     | 11.11            |
| <b>CBM-W2</b>     | CBM-W2     | 87.6             |
| <b>CIN</b>        | CIN        | 5.49             |
| <b>CPL</b>        | CPL        | 8.18             |
| <b>IPL</b>        | IPL        | 3.41             |
| <b>LGEE</b>       | LGEE       | 1.64             |
| <b>MEC</b>        | MEC        | 12.66            |
| <b>MECS</b>       | MECS       | 3.14             |
| <b>RENSSELAER</b> | RENSSELAER | 1.46             |
| <b>WEC</b>        | WEC        | 1.42             |

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| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME            | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901874 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEGE HILL | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 814.98     | 112.32                | 113.69                 | DC    | 11.19     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.04      |
| 314507 | 3THOMPSN     | 0.1       |
| 315090 | 1YORKTN1     | 10.65     |
| 315091 | 1YORKTN2     | 11.05     |
| 315092 | 1YORKTN3     | 6.44      |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.31      |
| 315102 | 1BRUNSWICKG1 | 4.13      |
| 315103 | 1BRUNSWICKG2 | 4.13      |
| 315104 | 1BRUNSWICKG3 | 4.13      |
| 315105 | 1BRUNSWICKS1 | 8.59      |
| 315108 | 1ELIZAR1     | 0.93      |
| 315109 | 1ELIZAR2     | 0.92      |
| 315110 | 1ELIZAR3     | 0.94      |
| 315116 | 1SURRY 1     | 6.74      |
| 315153 | 1CLOVER1     | 16.29     |
| 315154 | 1CLOVER2     | 16.08     |
| 315191 | 1BEARGRDN G1 | 1.24      |
| 315192 | 1BEARGRDN G2 | 1.24      |
| 315193 | 1BEARGRDN S1 | 2.54      |
| 315233 | 1SURRY 2     | 7.49      |
| 315260 | 1GOSPORTA    | 0.1       |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 916191 | Z1-068 C     | 0.01      |
| 916301 | Z1-086 C     | 24.14     |
| 920291 | AA2-127      | 0.26      |
| 924031 | AB2-045 C    | 0.15      |
| 925521 | AC1-027 C    | 0.09      |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.14     |
| 932041 | AC2-012 C    | 3.97      |
| 932511 | AC2-071 C    | 0.15      |
| 933291 | AC2-141 C    | 13.14     |
| 933731 | AC2-196 C    | 0.08      |
| 934061 | AD1-033 C    | 2.86      |
| 934233 | AD1-050 BAT  | 5.08      |
| 934611 | AD1-087 C O1 | 20.5      |
| 934621 | AD1-088 C    | 17.85     |
| 935171 | AD1-152 C O1 | 20.38     |
| 937251 | AD2-164      | 1.77      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 937481     | AD2-202 C O1 | 5.65      |
| 938181     | AE1-027 C    | 0.87      |
| 938191     | AE1-028 C    | 0.51      |
| 938491     | AE1-068 C O1 | 38.23     |
| 938501     | AE1-069 C O1 | 30.93     |
| 939311     | AE1-162 C    | 0.81      |
| 939411     | AE1-173 C    | 43.23     |
| 940251     | AE2-007      | 67.63     |
| 940471     | AE2-031 C O1 | 15.34     |
| 940641     | AE2-051 C O1 | 8.77      |
| 940891     | AE2-078 C    | 0.87      |
| 940901     | AE2-079 C    | 0.87      |
| 940911     | AE2-080 C    | 0.87      |
| 941031     | AE2-094 C    | 23.49     |
| 941281     | AE2-122 C O1 | 10.89     |
| 941291     | AE2-123 C O1 | 11.19     |
| 941301     | AE2-124 C O1 | 10.16     |
| 941591     | AE2-156      | 6.99      |
| 941791     | AE2-182 C    | 3.23      |
| 942211     | AE2-233 C    | 7.68      |
| 942921     | AE2-311 C O1 | 22.14     |
| 942931     | AE2-313 C    | 23.68     |
| 943051     | AE2-328 C    | 11.8      |
| AC1-131    | AC1-131      | 9.78      |
| BLUEG      | BLUEG        | 18.52     |
| CALDERWOOD | CALDERWOOD   | 3.67      |
| CANNELTON  | CANNELTON    | 1.25      |
| CATAWBA    | CATAWBA      | 3.52      |
| CBM-N      | CBM-N        | 0.67      |
| CHEOAH     | CHEOAH       | 3.42      |
| CHILHOWEE  | CHILHOWEE    | 1.19      |
| COFFEEN    | COFFEEN      | 2.13      |
| COTTONWOOD | COTTONWOOD   | 12.22     |
| DUCKCREEK  | DUCKCREEK    | 4.38      |
| EDWARDS    | EDWARDS      | 1.96      |
| ELMERSMITH | ELMERSMITH   | 2.2       |
| FARMERCITY | FARMERCITY   | 1.53      |
| G-007A     | G-007A       | 3.0       |
| GIBSON     | GIBSON       | 0.79      |
| HAMLET     | HAMLET       | 6.6       |
| NEWTON     | NEWTON       | 5.55      |
| NYISO      | NYISO        | 2.9       |
| PRAIRIE    | PRAIRIE      | 11.52     |
| SANTEETLA  | SANTEETLA    | 1.02      |
| SMITHLAND  | SMITHLAND    | 1.02      |
| TATANKA    | TATANKA      | 2.59      |
| TILTON     | TILTON       | 2.32      |
| TRIMBLE    | TRIMBLE      | 2.04      |
| TVA        | TVA          | 10.31     |
| UNIONPOWER | UNIONPOWER   | 5.07      |
| VFT        | VFT          | 7.99      |

## 12.6.29 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 |
|---------|-----------|-------------|---------------|---------|---------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901389 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILLE T | CPL         | 1      | DVP_P1-2: LN 570_FSA | single | 478.0      | 131.05                | 132.92                 | DC    | 8.97      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.07      |
| 314589 | 3MURPHYS     | 0.04      |
| 314638 | 6ELIZ CT     | 0.07      |
| 314639 | 6TANGLEW     | 0.14      |
| 314643 | 3O INLET     | 0.12      |
| 315098 | 1CHESPKA     | 0.1       |
| 315099 | 1CHESPKB     | 0.24      |
| 315115 | 1S HAMPT1    | 0.5       |
| 315126 | 1ROARAP2     | 0.41      |
| 315128 | 1ROARAP4     | 0.39      |
| 315136 | 1ROSEMG1     | 0.62      |
| 315137 | 1ROSEMS1     | 0.38      |
| 315138 | 1ROSEMG2     | 0.29      |
| 315139 | 1GASTONA     | 0.96      |
| 315141 | 1GASTONB     | 0.96      |
| 315260 | 1GOSPORTA    | 0.08      |
| 315261 | 1GOSPORTB    | 0.1       |
| 315262 | 1GOSPORTC    | 0.08      |
| 315292 | 1DOMTR78     | 1.14      |
| 315293 | 1DOMTR9      | 0.93      |
| 315294 | 1DOMTR10     | 1.69      |
| 901081 | W1-029 C     | 0.42      |
| 916041 | Z1-036 C     | 0.51      |
| 916191 | Z1-068 C     | 0.01      |
| 917331 | Z2-043 C     | 0.2       |
| 917511 | Z2-088 C OP1 | 1.34      |
| 918491 | AA1-063AC OP | 0.61      |
| 918511 | AA1-065 C OP | 1.15      |
| 918531 | AA1-067 C    | 0.36      |
| 918561 | AA1-072 C    | 0.03      |
| 919151 | AA1-139 C    | 0.66      |
| 919691 | AA2-053 C    | 0.54      |
| 920041 | AA2-088 C OP | 0.39      |
| 920671 | AA2-174 C    | 0.02      |
| 920691 | AA2-178 C    | 0.95      |
| 923801 | AB2-015 C O1 | 3.81      |
| 923831 | AB2-022 C    | 0.12      |
| 923911 | AB2-031 C O1 | 0.79      |
| 923991 | AB2-040 C O1 | 0.32      |
| 924491 | AB2-098 C    | 0.99      |
| 924501 | AB2-099 C    | 0.47      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 924511 | AB2-100 C    | 3.88      |
| 925061 | AB2-161 C O1 | 1.01      |
| 925121 | AB2-169 C    | 1.03      |
| 925171 | AB2-174 C O1 | 2.41      |
| 925521 | AC1-027 C    | 0.07      |
| 926071 | AC1-086 C    | 8.9       |
| 926201 | AC1-098 C    | 2.58      |
| 926211 | AC1-099 C    | 0.87      |
| 926661 | AC1-147 C    | 0.08      |
| 927021 | AC1-189 C    | 12.0      |
| 930861 | AB1-132 C O1 | 0.74      |
| 931231 | AB1-173 C    | 0.1       |
| 931241 | AB1-173AC    | 0.1       |
| 932041 | AC2-012 C    | 3.0       |
| 932591 | AC2-079 C O1 | 1.89      |
| 932631 | AC2-084 C    | 3.68      |
| 933731 | AC2-196 C    | 0.07      |
| 933991 | AD1-023 C    | 12.68     |
| 934061 | AD1-033 C    | 2.36      |
| 934201 | AD1-047 C    | 2.84      |
| 934521 | AD1-076 C    | 50.93     |
| 934571 | AD1-082 C    | 2.31      |
| 935111 | AD1-144 C    | 0.07      |
| 936401 | AD2-051 C O1 | 7.58      |
| 936531 | AD2-068 C    | 18.65     |
| 936661 | AD2-085 C    | 1.13      |
| 936701 | AD2-089 C    | 5.03      |
| 936711 | AD2-090 C O1 | 3.34      |
| 937221 | AD2-160 C O1 | 2.04      |
| 937541 | AD2-215 C    | 0.59      |
| 937571 | AD2-169 C    | 3.66      |
| 938171 | AE1-026 C1 O | 27.49     |
| 938172 | AE1-026 C2 O | 3.98      |
| 938181 | AE1-027 C    | 0.77      |
| 938191 | AE1-028 C    | 0.44      |
| 938221 | AE1-035 C    | 2.35      |
| 938531 | AE1-072 C O1 | 6.59      |
| 938661 | AE1-088      | 4.36      |
| 938771 | AE1-103 C O1 | 1.57      |
| 939071 | AE1-135 C O1 | 6.73      |
| 940061 | AE1-248 C O1 | 4.8       |
| 940251 | AE2-007      | 50.77     |
| 940491 | AE2-034 C    | 6.83      |
| 940521 | AE2-037 C O1 | 6.62      |
| 941101 | AE2-104 C O1 | 1.25      |
| 941281 | AE2-122 C O1 | 8.73      |
| 941291 | AE2-123 C O1 | 8.97      |
| 941301 | AE2-124 C O1 | 8.19      |
| 941501 | AE2-147 C    | 7.92      |
| 941541 | AE2-151 C    | 0.94      |
| 941591 | AE2-156      | 5.25      |
| 942131 | AE2-225 C    | 0.77      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 942171     | AE2-229 C    | 0.77      |
| 942341     | AE2-247 C    | 0.49      |
| 942401     | AE2-253 C    | 2.14      |
| 942471     | AE2-260 C O1 | 4.64      |
| 942851     | AE2-304 C    | 0.35      |
| 943171     | AE2-346 C    | 1.41      |
| AC1-131    | AC1-131      | 6.95      |
| BLUEG      | BLUEG        | 9.16      |
| CALDERWOOD | CALDERWOOD   | 1.99      |
| CANNELTON  | CANNELTON    | 0.63      |
| CATAWBA    | CATAWBA      | 1.96      |
| CBM-N      | CBM-N        | 0.29      |
| CHEOAH     | CHEOAH       | 1.86      |
| CHILHOWEE  | CHILHOWEE    | 0.64      |
| COFFEEN    | COFFEEN      | 1.09      |
| COTTONWOOD | COTTONWOOD   | 6.67      |
| DUCKCREEK  | DUCKCREEK    | 2.22      |
| EDWARDS    | EDWARDS      | 0.99      |
| ELMERSMITH | ELMERSMITH   | 1.12      |
| FARMERCITY | FARMERCITY   | 0.79      |
| G-007A     | G-007A       | 1.31      |
| GIBSON     | GIBSON       | 0.4       |
| HAMLET     | HAMLET       | 4.21      |
| NEWTON     | NEWTON       | 2.83      |
| NYISO      | NYISO        | 1.24      |
| PRAIRIE    | PRAIRIE      | 6.0       |
| SANTEETLA  | SANTEETLA    | 0.55      |
| SMITHLAND  | SMITHLAND    | 0.54      |
| TATANKA    | TATANKA      | 1.34      |
| TILTON     | TILTON       | 1.16      |
| TRIMBLE    | TRIMBLE      | 1.0       |
| TVA        | TVA          | 5.58      |
| UNIONPOWER | UNIONPOWER   | 2.77      |
| VFT        | VFT          | 3.49      |

## Short Circuit

## 12.7 Short Circuit

The following Breakers are overduty: None

### **13 Network Impacts – Secondary Point of Interconnection**

The Queue Project AE2-123 was evaluated as a 800.1 MW (Capacity 163.3 MW) injection at the Landstown 230 kV substation in the Dominion area. Project AE2-123 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-123 was studied with a commercial probability of 53%. Potential network impacts were as follows:

## Summer Peak Load Flow

### 13.1 Generation Deliverability

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

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840447 | 314415    | 6WALR209 | DVP           | 314391  | 6LIGH209   | DVP         | 1      | DVP_P1-2: LN 567 | single | 441.8      | 93.36                 | 96.42                  | DC    | 13.51     |
| 1840503 | 314902    | 8CARSON  | DVP           | 314914  | 8MDLTHAN   | DVP         | 1      | DVP_P1-2: LN 574 | single | 3218.56    | 94.5                  | 95.79                  | DC    | 41.69     |
| 1840121 | 314914    | 8MDLTHAN | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | Base Case        | single | 2442.12    | 99.26                 | 100.66                 | DC    | 34.28     |
| 1840820 | 314918    | 8NO ANNA | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 594 | single | 3218.56    | 99.7                  | 100.37                 | DC    | 22.08     |
| 1840689 | 314924    | 8SURREY  | DVP           | 314903  | 8CHCKAHM   | DVP         | 1      | DVP_P1-2: LN 563 | single | 2442.12    | 88.89                 | 90.82                  | DC    | 47.53     |

### 13.2 Multiple Facility Contingency

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

| ID       | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME              | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|----------|-----------|-------------|---------------|---------|-------------|-------------|--------|------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839868  | 314303    | 6HOPEWLL    | DVP           | 314287  | 6CHESTF B   | DVP         | 1      | DVP_P4-2: 56372        | breaker | 549.0      | 99.48                 | 104.19                 | DC    | 56.29     |
| 1839699  | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2026     | breaker | 830.0      | 78.49                 | 118.31                 | DC    | 546.28    |
| 1839700  | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2105     | breaker | 830.0      | 64.91                 | 90.22                  | DC    | 413.9     |
| 1839701  | 314481    | 6LANDSTN    | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 23152        | breaker | 830.0      | 66.55                 | 91.12                  | DC    | 424.71    |
| 1841190  | 314481    | 6LANDSTN    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P7-1: LN 147-2118  | tower   | 830.0      | 59.61                 | 86.76                  | DC    | 225.27    |
| 1841191  | 314481    | 6LANDSTN    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P7-1: LN 78-2118   | tower   | 830.0      | 53.99                 | 81.13                  | DC    | 225.24    |
| 12355797 | 314481    | 6LANDSTN    | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P4-2: 231T2128     | breaker | 830.0      | 59.63                 | 97.21                  | DC    | 311.84    |
| 1839966  | 314911    | 8LADYSMITH  | DVP           | 314922  | 8POSSUM     | DVP         | 1      | DVP_P4-2: 545T594      | breaker | 3637.0     | 93.31                 | 95.03                  | DC    | 137.32    |
| 1839955  | 314918    | 8NO ANNA    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P4-2: SPOTS H1T594 | breaker | 3938.0     | 96.5                  | 97.86                  | DC    | 114.61    |
| 1839928  | 314919    | 8OX         | DVP           | 314904  | 8CLIFTON    | DVP         | 1      | DVP_P4-2: 541T569      | breaker | 3144.0     | 99.69                 | 101.38                 | DC    | 118.95    |
| 1839852  | 314924    | 8SURREY     | DVP           | 314903  | 8CHCKAHM    | DVP         | 1      | DVP_P4-2: 56372        | breaker | 3144.0     | 95.49                 | 101.87                 | DC    | 245.05    |
| 1839853  | 314924    | 8SURREY     | DVP           | 314903  | 8CHCKAHM    | DVP         | 1      | DVP_P4-2: 563T576      | breaker | 3144.0     | 91.41                 | 98.1                   | DC    | 237.33    |
| 1839659  | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES    | DVP         | 1      | DVP_P4-2: 231T2026     | breaker | 830.0      | 74.39                 | 118.28                 | DC    | 546.28    |
| 1839660  | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES    | DVP         | 1      | DVP_P4-2: 23152        | breaker | 830.0      | 64.69                 | 93.81                  | DC    | 424.71    |

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME          | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|----------|-------------|--------|--------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839661 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES | DVP         | 1      | DVP_P4-2: 231T2105 | breaker | 830.0      | 63.15                 | 92.86                  | DC    | 413.9     |

### 13.3 Contribution to Previously Identified Overloads

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

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|-------------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1840188 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 168.9                 | 171.59                 | DC    | 11.92     |
| 1840190 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M    | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 119.84                | 122.91                 | DC    | 13.51     |
| 1839472 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P4-2: H2T557      | breaker | 1050.6     | 158.55                | 164.28                 | DC    | 131.83    |
| 1840303 | 314296    | 6PENNIMAN    | DVP           | 314415  | 6WALR209    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 157.51                | 160.2                  | DC    | 11.92     |
| 1840305 | 314296    | 6PENNIMAN    | DVP           | 314415  | 6WALR209    | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 108.46                | 111.52                 | DC    | 13.51     |
| 1840230 | 314386    | 6KINGS M     | DVP           | 314296  | 6PENNIMAN   | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 161.14                | 163.82                 | DC    | 11.92     |
| 1840232 | 314386    | 6KINGS M     | DVP           | 314296  | 6PENNIMAN   | DVP         | 1      | DVP_P1-2: LN 567      | single  | 441.8      | 112.08                | 115.14                 | DC    | 13.51     |
| 1840445 | 314415    | 6WALR209     | DVP           | 314391  | 6LIGH209    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 441.8      | 142.39                | 145.08                 | DC    | 11.92     |
| 1839781 | 314449    | 6CHESAPK     | DVP           | 314448  | 3CHESAPK    | DVP         | 1      | DVP_P4-2: 215822-5    | breaker | 293.9      | 112.76                | 116.08                 | DC    | 21.63     |
| 1839822 | 314449    | 6CHESAPK     | DVP           | 314448  | 3CHESAPK    | DVP         | 2      | DVP_P4-2: 215822-6    | breaker | 293.9      | 104.93                | 108.02                 | DC    | 20.12     |
| 1840360 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570      | single  | 449.32     | 136.34                | 138.33                 | DC    | 9.01      |
| 1840362 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 2167     | single  | 449.32     | 120.52                | 122.39                 | DC    | 8.42      |
| 7901347 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single  | 449.32     | 136.34                | 138.33                 | DC    | 9.01      |
| 7901348 | 314574    | 6EVERETS     | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single  | 449.32     | 136.34                | 138.33                 | DC    | 9.01      |
| 1840882 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570      | single  | 814.98     | 107.34                | 108.71                 | DC    | 11.17     |
| 7901942 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single  | 814.98     | 107.34                | 108.71                 | DC    | 11.17     |
| 7901943 | 314686    | 6CLOVER      | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single  | 814.98     | 107.31                | 108.68                 | DC    | 11.17     |
| 1839726 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P4-2: 557T574     | breaker | 3938.0     | 122.67                | 125.26                 | DC    | 246.28    |
| 1839727 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P4-2: H2T557      | breaker | 3938.0     | 115.94                | 118.5                  | DC    | 237.86    |
| 1840499 | 314902    | 8CARSON      | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P1-2: LN 557      | single  | 3218.56    | 120.06                | 121.53                 | DC    | 47.31     |
| 1839581 | 314903    | 8CHCKAHM     | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P4-2: 563T576     | breaker | 3144.0     | 139.78                | 143.27                 | DC    | 260.09    |

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME              | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|------------|-------------|--------|------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839582 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P4-2: 56372        | breaker | 3144.0     | 136.05                | 139.74                 | DC    | 255.22    |
| 1840157 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P1-2: LN 563       | single  | 2442.12    | 148.35                | 150.43                 | DC    | 50.64     |
| 1840161 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | DVP_P1-2: LN 576       | single  | 2442.12    | 143.64                | 145.71                 | DC    | 50.77     |
| 1840166 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT    | DVP         | 1      | Base Case              | single  | 2442.12    | 117.7                 | 119.36                 | DC    | 40.63     |
| 1839795 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P4-2: H1T594       | breaker | 3351.0     | 114.62                | 116.06                 | DC    | 157.04    |
| 1839796 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P4-2: 573T594      | breaker | 3351.0     | 113.81                | 115.3                  | DC    | 156.58    |
| 1840370 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2442.12    | 131.26                | 131.86                 | DC    | 31.97     |
| 1840371 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER   | DVP         | 1      | DVP_P1-2: LN 573       | single  | 2442.12    | 127.31                | 127.9                  | DC    | 31.38     |
| 1839515 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P4-2: WT576        | breaker | 3351.0     | 148.45                | 151.97                 | DC    | 258.18    |
| 1839516 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P4-2: 57602        | breaker | 3351.0     | 148.46                | 151.97                 | DC    | 258.18    |
| 1840036 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 576       | single  | 2442.12    | 164.61                | 165.6                  | DC    | 52.71     |
| 1840037 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 563       | single  | 2442.12    | 153.87                | 154.71                 | DC    | 45.32     |
| 1840044 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | Base Case              | single  | 2442.12    | 112.43                | 113.07                 | DC    | 34.65     |
| 1839776 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P4-2: SPOTS H1T594 | breaker | 3351.0     | 119.02                | 120.45                 | DC    | 158.41    |
| 1839777 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P4-2: 57302        | breaker | 3351.0     | 117.65                | 119.2                  | DC    | 160.08    |
| 1840490 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P1-2: LN 573       | single  | 2738.22    | 120.41                | 120.96                 | DC    | 32.49     |
| 1840491 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE    | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2738.22    | 118.06                | 118.59                 | DC    | 31.3      |
| 1840662 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM    | DVP         | 1      | DVP_P1-2: LN 581       | single  | 2442.12    | 116.18                | 116.69                 | DC    | 26.88     |
| 1840663 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM    | DVP         | 1      | DVP_P1-2: LN 594       | single  | 2442.12    | 115.51                | 116.01                 | DC    | 26.53     |
| 1839669 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P4-2: 557T574      | breaker | 3637.0     | 134.29                | 135.5                  | DC    | 253.9     |
| 1840112 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P1-2: LN 574       | single  | 2442.12    | 155.96                | 157.87                 | DC    | 46.83     |
| 1840114 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA   | DVP         | 1      | DVP_P1-2: LN 557       | single  | 2442.12    | 147.45                | 149.32                 | DC    | 45.75     |
| 1839824 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P4-2: 568T575      | breaker | 3938.0     | 109.11                | 110.72                 | DC    | 149.21    |
| 1840594 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P1-2: LN 568       | single  | 3218.56    | 117.31                | 118.33                 | DC    | 32.9      |
| 1840595 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL   | DVP         | 1      | DVP_P1-2: LN 581       | single  | 3218.56    | 116.95                | 117.45                 | DC    | 35.71     |
| 1839816 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P4-2: 568T575      | breaker | 3938.0     | 108.86                | 110.62                 | DC    | 148.83    |
| 1839817 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P4-2: 57502        | breaker | 3938.0     | 107.23                | 108.86                 | DC    | 140.19    |
| 1840560 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P1-2: LN 552       | single  | 3218.56    | 118.48                | 118.98                 | DC    | 35.33     |
| 1840561 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P1-2: LN 568       | single  | 3218.56    | 118.54                | 119.55                 | DC    | 32.68     |
| 1841180 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL   | DVP         | 1      | DVP_P7-1: LN 198-581   | tower   | 3938.0     | 112.65                | 113.55                 | DC    | 172.51    |

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS        | TO BUS AREA | CKT ID | CONT NAME             | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|---------------|-------------|--------|-----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840813 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL  | DVP         | 1      | DVP_P1-2: LN 570      | single | 814.98     | 112.96                | 114.33                 | DC    | 11.17     |
| 7901873 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL  | DVP         | 1      | DVP_P1-2: LN 6002_FSA | single | 814.98     | 112.96                | 114.33                 | DC    | 11.17     |
| 7901874 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEEDGE HILL  | DVP         | 1      | DVP_P1-2: LN 570_FSA  | single | 814.98     | 112.94                | 114.3                  | DC    | 11.17     |
| 1840421 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILLE T | CPL         | 1      | DVP_P1-2: LN 570      | single | 478.0      | 131.98                | 133.85                 | DC    | 9.01      |
| 7901387 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILLE T | CPL         | 1      | DVP_P1-2: LN 6002_FSA | single | 478.0      | 132.0                 | 133.87                 | DC    | 9.01      |
| 7901389 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILLE T | CPL         | 1      | DVP_P1-2: LN 570_FSA  | single | 478.0      | 131.98                | 133.85                 | DC    | 9.01      |

### 13.4 Potential Congestion due to Local Energy Deliverability

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

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

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME        | Type      | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|-----------|-------------|--------|------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840187 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 441.8      | 167.45                | 173.46                 | DC    | 58.41     |
| 1840955 | 314209    | 6SKIFF CREEK | DVP           | 314413  | 6WALR285  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 678.68     | 90.36                 | 94.02                  | DC    | 54.64     |
| 1840761 | 314214    | 6CHCKAHM     | DVP           | 314903  | 8CHCKAHM  | DVP         | 1      | DVP_P1-2: LN 567 | operation | 828.8      | 101.19                | 106.3                  | DC    | 93.37     |
| 1840690 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT   | DVP         | 2      | DVP_P1-2: LN 557 | operation | 879.84     | 114.17                | 118.54                 | DC    | 84.29     |
| 1840756 | 314218    | 6ELMONT      | DVP           | 314908  | 8ELMONT   | DVP         | 1      | DVP_P1-2: LN 557 | operation | 920.92     | 110.64                | 114.84                 | DC    | 84.68     |
| 1840845 | 314225    | 6CHARCTY     | DVP           | 314227  | 6LAKESIDE | DVP         | 1      | DVP_P1-2: LN 557 | operation | 984.18     | 107.32                | 109.77                 | DC    | 52.81     |
| 7902139 | 314227    | 6LAKESIDE    | DVP           | 314218  | 6ELMONT   | DVP         | 1      | DVP_P1-2: LN 557 | operation | 740.72     | 86.34                 | 89.48                  | DC    | 51.64     |
| 1840804 | 314287    | 6CHESTF B    | DVP           | 314225  | 6CHARCTY  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 984.18     | 111.02                | 113.47                 | DC    | 52.81     |
| 1840302 | 314296    | 6PENNIMAN    | DVP           | 314415  | 6WALR209  | DVP         | 1      | DVP_P1-2: LN 557 | operation | 441.8      | 156.07                | 162.08                 | DC    | 58.41     |

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME           | Type      | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|-------------|-------------|--------|---------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840229 | 314386    | 6KINGS M   | DVP           | 314296  | 6PENNYMAN   | DVP         | 1      | DVP_P1-2: LN 557    | operation | 441.8      | 159.69                | 165.7                  | DC    | 58.41     |
| 1840444 | 314415    | 6WALR209   | DVP           | 314391  | 6LIGH209    | DVP         | 1      | DVP_P1-2: LN 557    | operation | 441.8      | 140.95                | 146.96                 | DC    | 58.41     |
| 1840951 | 314449    | 6CHESAPK   | DVP           | 314448  | 3CHESAPK    | DVP         | 1      | DVP_P1-2: LN 2158   | operation | 255.21     | 91.84                 | 94.54                  | DC    | 15.29     |
| 1840535 | 314481    | 6LANDSTN   | DVP           | 314486  | 6LYNHAVN    | DVP         | 1      | DVP_P1-2: LN 2118-A | operation | 598.78     | 71.24                 | 107.1                  | DC    | 214.72    |
| 1840699 | 314481    | 6LANDSTN   | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P1-2: LN 231    | operation | 678.68     | 81.43                 | 111.14                 | DC    | 424.15    |
| 1840942 | 314481    | 6LANDSTN   | DVP           | 314502  | 6STUMPY     | DVP         | 1      | DVP_P1-2: LN 271-A  | operation | 984.18     | 56.27                 | 83.22                  | DC    | 448.8     |
| 1840079 | 314536    | 3SUFFOLK   | DVP           | 314532  | 3OAKRI23    | DVP         | 1      | Base Case           | operation | 110.92     | 94.92                 | 96.54                  | DC    | 7.16      |
| 1840496 | 314902    | 8CARSON    | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | DVP_P1-2: LN 557    | operation | 3218.56    | 139.36                | 142.46                 | DC    | 231.81    |
| 1840502 | 314902    | 8CARSON    | DVP           | 314914  | 8MDLTHAN    | DVP         | 1      | Base Case           | operation | 3218.56    | 99.11                 | 103.69                 | DC    | 166.75    |
| 1840155 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT     | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 172.23                | 176.64                 | DC    | 248.11    |
| 1840162 | 314903    | 8CHCKAHM   | DVP           | 314908  | 8ELMONT     | DVP         | 1      | Base Case           | operation | 2442.12    | 138.94                | 142.66                 | DC    | 199.09    |
| 1840367 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER    | DVP         | 1      | DVP_P1-2: LN 594    | operation | 2442.12    | 156.08                | 158.14                 | DC    | 156.64    |
| 1840375 | 314905    | 8CHANCE    | DVP           | 314900  | 8BRISTER    | DVP         | 1      | Base Case           | operation | 2442.12    | 93.35                 | 95.21                  | DC    | 100.05    |
| 1840033 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P1-2: LN 576    | operation | 2442.12    | 203.57                | 208.39                 | DC    | 258.23    |
| 1840041 | 314908    | 8ELMONT    | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | Base Case           | operation | 2442.12    | 131.03                | 134.18                 | DC    | 169.75    |
| 1840487 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE     | DVP         | 1      | DVP_P1-2: LN 573    | operation | 2738.22    | 142.94                | 144.97                 | DC    | 159.19    |
| 1840658 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM     | DVP         | 1      | DVP_P1-2: LN 581    | operation | 2442.12    | 128.75                | 131.22                 | DC    | 131.68    |
| 1840110 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA    | DVP         | 1      | DVP_P1-2: LN 574    | operation | 2442.12    | 180.2                 | 183.11                 | DC    | 229.46    |
| 1840117 | 314914    | 8MDLTHAN   | DVP           | 314918  | 8NO ANNA    | DVP         | 1      | Base Case           | operation | 2442.12    | 124.03                | 128.27                 | DC    | 167.95    |
| 1840590 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL    | DVP         | 1      | DVP_P1-2: LN 581    | operation | 3218.56    | 134.08                | 135.47                 | DC    | 174.98    |
| 1840599 | 314918    | 8NO ANNA   | DVP           | 314934  | 8SPOTSYL    | DVP         | 1      | Base Case           | operation | 3218.56    | 102.73                | 103.52                 | DC    | 131.26    |
| 1840817 | 314918    | 8NO ANNA   | DVP           | 314911  | 8LADYSMITH  | DVP         | 1      | DVP_P1-2: LN 573    | operation | 3218.56    | 111.21                | 112.87                 | DC    | 114.33    |
| 1840948 | 314923    | 8SEPTA     | DVP           | 314924  | 8SURREY     | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 91.28                 | 93.8                   | DC    | 135.48    |
| 1840684 | 314924    | 8SURREY    | DVP           | 314903  | 8CHCKAHM    | DVP         | 1      | DVP_P1-2: LN 563    | operation | 2442.12    | 112.93                | 121.36                 | DC    | 232.89    |
| 1840556 | 314934    | 8SPOTSYL   | DVP           | 314916  | 8MORRSVL    | DVP         | 1      | DVP_P1-2: LN 552    | operation | 3218.56    | 136.91                | 137.98                 | DC    | 173.09    |

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type      | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|----------|-------------|--------|------------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 1840565 | 314934    | 8SPOTSYL    | DVP           | 314916  | 8MORRSVL | DVP         | 1      | Base Case        | operation | 3218.56    | 107.04                | 107.6                  | DC    | 130.16    |
| 1840228 | 932590    | AC2-079 TAP | DVP           | 314528  | 3IVOR106 | DVP         | 1      | Base Case        | operation | 110.92     | 92.93                 | 93.86                  | DC    | 7.16      |
| 1840633 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES | DVP         | 1      | DVP_P1-2: LN 231 | operation | 678.68     | 79.17                 | 114.42                 | DC    | 424.15    |

## 13.5 Flow Gate Details

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

### 13.5.1 Contingency Descriptions

| Contingency Name   | Contingency Definition                                                                                                                                                                                                                                                                     |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P1-2: LN 567   | CONTINGENCY 'DVP_P1-2: LN 567'<br>OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00<br>END                                                                                                                                                                |
| DVP_P4-2: 215822-5 | CONTINGENCY 'DVP_P4-2: 215822-5' /* PORTSMOUTH PS 230 KV<br>OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00<br>OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 2 /* 3CHESAPK 115.00 - 6CHESAPK 230.00<br>OPEN BUS 313887 /* 6CHESAPK_STC230.00 KV<br>END |
| DVP_P1-2: LN 563   | CONTINGENCY 'DVP_P1-2: LN 563'<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>END                                                                                                                                                               |
| DVP_P4-2: 215822-6 | CONTINGENCY 'DVP_P4-2: 215822-6' /* PORTSMOUTH PS 230 KV<br>OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00<br>OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 1 /* 3CHESAPK 115.00 - 6CHESAPK 230.00<br>END                                             |
| DVP_P4-2: 57302    | CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00<br>END                                                  |
| DVP_P4-2: 545T594  | CONTINGENCY 'DVP_P4-2: 545T594' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314900 TO BUS 314916 CKT 1 /* 8BRISTER 500.00 - 8MORRSVL 500.00<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>END                                               |

| Contingency Name      | Contingency Definition                                                                                                                                                                                                                              |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P1-2: LN 568      | CONTINGENCY 'DVP_P1-2: LN 568'<br>OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM<br>500.00<br>END                                                                                                                   |
| DVP_P7-1: LN 78-2118  | CONTINGENCY 'DVP_P7-1: LN 78-2118'<br>OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND                                                                                                                                                      |
| DVP_P1-2: LN 2158     | CONTINGENCY 'DVP_P1-2: LN 2158'<br>OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00<br>END                                                                                                                       |
| DVP_P4-2: 568T575     | CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV<br>OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM<br>500.00<br>OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA<br>500.00<br>END |
| DVP_P4-2: 57502       | CONTINGENCY 'DVP_P4-2: 57502' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA<br>500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA<br>500.00<br>END   |
| DVP_P4-2: WT576       | CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA<br>500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA<br>500.00<br>END     |
| DVP_P7-1: LN 147-2118 | CONTINGENCY 'DVP_P7-1: LN 147-2118'<br>OPEN BRANCH FROM BUS 314479 TO BUS 314492 CKT 1 /* 3LANDSTN 115.00 - 3P ANNE 115.00<br>OPEN BRANCH FROM BUS 314482 TO BUS 314491 CKT 1 /* 3LONDONB 115.00 - 3PEND                                            |
| DVP_P1-2: LN 594      | CONTINGENCY 'DVP_P1-2: LN 594'<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL<br>500.00<br>END                                                                                                                    |
| DVP_P1-2: LN 2167     | CONTINGENCY 'DVP_P1-2: LN 2167'<br>OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM<br>230.00<br>END                                                                                                                  |

| Contingency Name             | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P7-1: LN 198-581</b>  | CONTINGENCY 'DVP_P7-1: LN 198-581'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00<br>OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00<br>OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00<br>OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00<br>OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00<br>OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00<br>OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00<br>OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00<br>OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00<br>END |
| <b>DVP_P4-2: 56372</b>       | CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>DVP_P4-2: 23152</b>       | CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00<br>OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DVP_P4-2: 231T2128</b>    | CONTINGENCY 'DVP_P4-2: 231T2128' /* THRASHER 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314466 TO BUS 314508 CKT 1 /* 6FENTRES 230.00 - 6THRASHER 230.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>DVP_P4-2: 231T2105</b>    | CONTINGENCY 'DVP_P4-2: 231T2105' /* THRASHER 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314508 TO BUS 314514 CKT 1 /* 6THRASHER 230.00 - 6YADKIN 230.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DVP_P1-2: LN 6002_FSA</b> | CONTINGENCY 'DVP_P1-2: LN 6002_FSA'<br>OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Contingency Name    | Contingency Definition                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P1-2: LN 2118-A | CONTINGENCY 'DVP_P1-2: LN 2118-A'<br>OPEN BRANCH FROM BUS 314295 TO BUS 941300 CKT 1 /* 6BIRDNECK 230.00 - AE2-124 TAP 230.00<br>OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00<br>OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00<br>OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00<br>OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00<br>END         |
| DVP_P4-2: 541T569   | CONTINGENCY 'DVP_P4-2: 541T569' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314929 CKT 1 /* 8MORRSVL 500.00 - 8FRONT ROYAL500.00<br>OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL 500.00<br>END                                                                                                                                 |
| DVP_P1-2: LN 271-A  | CONTINGENCY 'DVP_P1-2: LN 271-A'<br>OPEN BRANCH FROM BUS 314466 TO BUS 934060 CKT 1 /* 6FENTRES 230.00 - AD1-033 TAP 230.00<br>END                                                                                                                                                                                                                                              |
| DVP_P4-2: 231T2026  | CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00<br>END |
| DVP_P1-2: LN 552    | CONTINGENCY 'DVP_P1-2: LN 552'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00<br>END                                                                                                                                                              |
| DVP_P4-2: 573T594   | CONTINGENCY 'DVP_P4-2: 573T594' /* SPOTSYLVANIA 500 KV<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>END                                                                                                                                   |
| DVP_P1-2: LN 557    | CONTINGENCY 'DVP_P1-2: LN 557'<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00<br>END                                                                                                                                                            |

| Contingency Name     | Contingency Definition                                                                                                                                                                                                                                                                                                                   |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DVP_P1-2: LN 231     | CONTINGENCY 'DVP_P1-2: LN 231'<br>OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00<br>OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER<br>230.00<br>OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00<br>END                                                                     |
| DVP_P1-2: LN 570     | CONTINGENCY 'DVP_P1-2: LN 570'<br>OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP<br>500.00<br>OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP<br>500.00<br>OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00<br>END                                                   |
| DVP_P1-2: LN 573     | CONTINGENCY 'DVP_P1-2: LN 573'<br>OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL<br>500.00<br>END                                                                                                                                                                                                         |
| DVP_P1-2: LN 574     | CONTINGENCY 'DVP_P1-2: LN 574'<br>OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH<br>500.00<br>END                                                                                                                                                                                                        |
| DVP_P1-2: LN 576     | CONTINGENCY 'DVP_P1-2: LN 576'<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA<br>500.00<br>END                                                                                                                                                                                                         |
| DVP_P4-2: 557T574    | CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM<br>500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT<br>500.00<br>OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH<br>500.00<br>END |
| DVP_P4-2: 57602      | CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA<br>500.00<br>OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA<br>500.00<br>END                                                                                          |
| DVP_P1-2: LN 570_FSA | CONTINGENCY 'DVP_P1-2: LN 570_FSA'<br>OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP<br>500.00<br>END                                                                                                                                                                                               |
| Base Case            |                                                                                                                                                                                                                                                                                                                                          |

| Contingency Name              | Contingency Definition                                                                                                                                                                                                                                                                                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DVP_P4-2: 563T576</b>      | CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV<br>OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00<br>OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00<br>END                                                                              |
| <b>DVP_P4-2: H2T557</b>       | CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV<br>OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00<br>OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00<br>OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00<br>END |
| <b>DVP_P1-2: LN 581</b>       | CONTINGENCY 'DVP_P1-2: LN 581'<br>OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00<br>OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00<br>END                                                                                                        |
| <b>DVP_P4-2: H1T594</b>       | CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00<br>OPEN BUS 314897 /* 8MORRS_1 500.00 KV<br>END                                        |
| <b>DVP_P4-2: SPOTS H1T594</b> | CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV<br>OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00<br>OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00<br>END                                                                          |

### 13.5.2 Index 1

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840445 | 314415    | 6WALR209 | DVP           | 314391  | 6LIGH209 | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 142.39                | 145.08                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940491     | AE2-034 C    | 2.86      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O2 | 1.42      |
| 941281     | AE2-122 C O2 | 11.6      |
| 941291     | AE2-123 C O2 | 11.92     |
| 941301     | AE2-124 C O2 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.23      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O2 | 13.78     |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPL        | CPL          | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

### 13.5.3 Index 2

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME            | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839726 | 314902    | 8CARSON  | DVP           | 314914  | 8MDLTHAN | DVP         | 1      | DVP_P4-2:<br>557T574 | breaker | 3938.0     | 122.67                | 125.26                 | DC    | 246.28    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314539 | 3UNCAMP      | 3.89      |
| 314541 | 3WATKINS     | 1.1       |
| 314566 | 3CRESWEL     | 3.94      |
| 314594 | 6PLYMOTH     | 1.38      |
| 314648 | 6SUNBURY     | 1.49      |
| 314651 | 6WINFALL     | 2.96      |
| 315102 | 1BRUNSWICKG1 | 11.92     |
| 315103 | 1BRUNSWICKG2 | 11.92     |
| 315104 | 1BRUNSWICKG3 | 11.92     |
| 315105 | 1BRUNSWICKS1 | 24.76     |
| 315108 | 1ELIZAR1     | 4.09      |
| 315109 | 1ELIZAR2     | 4.02      |
| 315110 | 1ELIZAR3     | 4.15      |
| 315233 | 1SURRY 2     | 32.32     |
| 901082 | W1-029 E     | 77.45     |
| 907092 | X1-038 E     | 9.72      |
| 913392 | Y1-086 E     | 3.74      |
| 916042 | Z1-036 E     | 76.13     |
| 916191 | Z1-068 C     | 0.06      |
| 916192 | Z1-068 E     | 3.23      |
| 916301 | Z1-086 C     | 72.75     |
| 916302 | Z1-086 E     | 18.68     |
| 917122 | Z2-027 E     | 1.8       |
| 919151 | AA1-139 C    | 3.13      |
| 919152 | AA1-139 E    | 11.03     |
| 920692 | AA2-178 E    | 6.75      |
| 923801 | AB2-015 C O1 | 13.78     |
| 923802 | AB2-015 E O1 | 11.3      |
| 923832 | AB2-022 E    | 2.11      |
| 924241 | AB2-068 O1   | 333.15    |
| 925521 | AC1-027 C    | 0.42      |
| 925522 | AC1-027 E    | 1.97      |
| 926291 | AC1-107 O1   | 502.86    |
| 926662 | AC1-147 E    | 2.26      |
| 926751 | AC1-161 C O1 | 55.48     |
| 926752 | AC1-161 E O1 | 23.68     |
| 932041 | AC2-012 C    | 17.42     |
| 932042 | AC2-012 E    | 28.43     |
| 932591 | AC2-079 C O1 | 8.81      |
| 932592 | AC2-079 E O1 | 14.37     |
| 933291 | AC2-141 C    | 55.48     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933292 | AC2-141 E    | 23.68     |
| 933731 | AC2-196 C    | 0.38      |
| 933732 | AC2-196 E    | 2.06      |
| 933991 | AD1-023 C    | 21.18     |
| 933992 | AD1-023 E    | 11.53     |
| 934061 | AD1-033 C    | 12.98     |
| 934062 | AD1-033 E    | 8.65      |
| 934521 | AD1-076 C    | 88.28     |
| 934522 | AD1-076 E    | 44.95     |
| 935112 | AD1-144 E    | 1.53      |
| 936661 | AD2-085 C    | 5.26      |
| 936662 | AD2-085 E    | 8.59      |
| 936711 | AD2-090 C O1 | 11.41     |
| 936712 | AD2-090 E O1 | 7.6       |
| 937221 | AD2-160 C O1 | 10.07     |
| 937222 | AD2-160 E O1 | 5.28      |
| 937541 | AD2-215 C    | 2.84      |
| 937542 | AD2-215 E    | 1.51      |
| 938171 | AE1-026 C1 O | 30.52     |
| 938172 | AE1-026 C2 O | 4.42      |
| 938173 | AE1-026 E O1 | 9.22      |
| 938181 | AE1-027 C    | 4.04      |
| 938182 | AE1-027 E    | 2.13      |
| 938191 | AE1-028 C    | 2.34      |
| 938192 | AE1-028 E    | 1.36      |
| 938491 | AE1-068 C O1 | 119.31    |
| 938492 | AE1-068 E O1 | 65.89     |
| 938501 | AE1-069 C O1 | 93.21     |
| 938502 | AE1-069 E O1 | 53.29     |
| 938531 | AE1-072 C O1 | 30.11     |
| 938532 | AE1-072 E O1 | 15.69     |
| 938771 | AE1-103 C O1 | 5.83      |
| 938772 | AE1-103 E O1 | 8.05      |
| 939411 | AE1-173 C    | 175.24    |
| 939412 | AE1-173 E    | 116.83    |
| 940251 | AE2-007      | 296.93    |
| 940471 | AE2-031 C O2 | 63.95     |
| 940472 | AE2-031 E O2 | 42.63     |
| 940491 | AE2-034 C    | 13.78     |
| 940492 | AE2-034 E    | 5.91      |
| 941031 | AE2-094 C    | 78.36     |
| 941032 | AE2-094 E    | 35.09     |
| 941101 | AE2-104 C O2 | 5.94      |
| 941102 | AE2-104 E O2 | 9.43      |
| 941281 | AE2-122 C O2 | 48.91     |
| 941282 | AE2-122 E O2 | 197.37    |
| 941291 | AE2-123 C O2 | 50.27     |
| 941292 | AE2-123 E O2 | 196.01    |
| 941301 | AE2-124 C O2 | 45.68     |
| 941302 | AE2-124 E O2 | 200.45    |
| 941501 | AE2-147 C    | 26.71     |
| 941502 | AE2-147 E    | 17.8      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941591     | AE2-156      | 30.39     |
| 942131     | AE2-225 C    | 3.62      |
| 942132     | AE2-225 E    | 2.41      |
| 942171     | AE2-229 C    | 3.62      |
| 942172     | AE2-229 E    | 2.41      |
| 942211     | AE2-233 C    | 25.6      |
| 942212     | AE2-233 E    | 9.95      |
| 942341     | AE2-247 C    | 2.28      |
| 942342     | AE2-247 E    | 3.15      |
| 942401     | AE2-253 C    | 10.6      |
| 942402     | AE2-253 E    | 4.76      |
| 942851     | AE2-304 C    | 1.06      |
| 942852     | AE2-304 E    | 0.41      |
| 942921     | AE2-311 C O2 | 87.62     |
| 942922     | AE2-311 E O2 | 58.41     |
| 942931     | AE2-313 C    | 70.34     |
| 942932     | AE2-313 E    | 46.89     |
| AA2-074    | AA2-074      | 8.87      |
| CARR       | CARR         | 1.73      |
| CBM-S1     | CBM-S1       | 21.71     |
| CBM-S2     | CBM-S2       | 25.48     |
| CBM-W1     | CBM-W1       | 19.63     |
| CBM-W2     | CBM-W2       | 139.15    |
| CIN        | CIN          | 9.13      |
| CPL        | CPL          | 13.04     |
| G-007      | G-007        | 5.72      |
| IPL        | IPL          | 5.69      |
| LGEE       | LGEE         | 2.67      |
| MEC        | MEC          | 20.8      |
| MECS       | MECS         | 7.23      |
| O-066      | O-066        | 36.38     |
| RENSSELAER | RENSSELAER   | 1.37      |
| WEC        | WEC          | 2.42      |
| Z1-043     | Z1-043       | 9.53      |

### 13.5.4 Index 3

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840112 | 314914    | 8MDLTHAN | DVP           | 314918  | 8NO ANNA | DVP         | 1      | DVP_P1-2: LN 574 | single | 2442.12    | 155.96                | 157.87                 | DC    | 46.83     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.39      |
| 314638 | 6ELIZ CT     | 0.26      |
| 314639 | 6TANGLEW     | 0.48      |
| 314643 | 3O INLET     | 0.52      |
| 315053 | 1BELMED1     | 25.0      |
| 315054 | 1BELMED2     | 25.0      |
| 315055 | 1BELMED3     | 20.75     |
| 315058 | 1CHESTF3     | 25.07     |
| 315059 | 1CHESTF4     | 40.64     |
| 315074 | 1HOPCGN1     | 12.09     |
| 315075 | 1HOPCGN2     | 11.93     |
| 315083 | 1SPRUNCA     | 16.01     |
| 315084 | 1SPRUNCB     | 16.01     |
| 315085 | 1SPRUNCC     | 11.87     |
| 315086 | 1SPRUNCD     | 11.87     |
| 315090 | 1YORKTN1     | 42.39     |
| 315091 | 1YORKTN2     | 43.99     |
| 315098 | 1CHESPKA     | 0.52      |
| 315099 | 1CHESPKB     | 1.3       |
| 315102 | 1BRUNSWICKG1 | 10.29     |
| 315103 | 1BRUNSWICKG2 | 10.29     |
| 315104 | 1BRUNSWICKG3 | 10.29     |
| 315105 | 1BRUNSWICKS1 | 21.38     |
| 315108 | 1ELIZAR1     | 3.83      |
| 315109 | 1ELIZAR2     | 3.76      |
| 315110 | 1ELIZAR3     | 3.88      |
| 315116 | 1SURRY 1     | 28.17     |
| 315120 | 1GRAVEL4     | 2.9       |
| 315122 | 1GRAVEL6     | 2.9       |
| 315131 | 1EDGECEMA    | 13.5      |
| 315132 | 1EDGECEMB    | 13.5      |
| 315233 | 1SURRY 2     | 28.7      |
| 315260 | 1GOSPORTA    | 0.42      |
| 315261 | 1GOSPORTB    | 0.53      |
| 315262 | 1GOSPORTC    | 0.45      |
| 901081 | W1-029 C     | 1.33      |
| 916041 | Z1-036 C     | 1.31      |
| 916191 | Z1-068 C     | 0.05      |
| 916301 | Z1-086 C     | 62.63     |
| 919151 | AA1-139 C    | 2.92      |
| 919701 | AA2-057 C    | 10.5      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 923801 | AB2-015 C O1 | 13.47     |
| 923831 | AB2-022 C    | 0.45      |
| 923851 | AB2-025 C    | 0.48      |
| 923911 | AB2-031 C O1 | 3.43      |
| 924241 | AB2-068 O1   | 244.96    |
| 924401 | AB2-089 C    | 3.06      |
| 924491 | AB2-098 C    | 0.86      |
| 924501 | AB2-099 C    | 0.9       |
| 924511 | AB2-100 C    | 17.96     |
| 925051 | AB2-160 C O1 | 8.18      |
| 925061 | AB2-161 C O1 | 5.3       |
| 925171 | AB2-174 C O1 | 10.78     |
| 925331 | AB2-190 C    | 29.95     |
| 925521 | AC1-027 C    | 0.39      |
| 925591 | AC1-034 C    | 9.94      |
| 925781 | AC1-054 C O1 | 10.4      |
| 925861 | AC1-065 C    | 4.34      |
| 926071 | AC1-086 C    | 31.57     |
| 926201 | AC1-098 C    | 9.23      |
| 926211 | AC1-099 C    | 3.09      |
| 926291 | AC1-107 O1   | 369.74    |
| 926661 | AC1-147 C    | 0.44      |
| 926751 | AC1-161 C O1 | 49.05     |
| 926781 | AC1-164 C    | 52.57     |
| 927021 | AC1-189 C    | 12.94     |
| 927141 | AC1-208 C    | 13.51     |
| 927221 | AC1-216 C O1 | 14.71     |
| 932041 | AC2-012 C    | 16.34     |
| 932581 | AC2-078 C O1 | 6.31      |
| 932591 | AC2-079 C O1 | 9.05      |
| 932631 | AC2-084 C    | 13.15     |
| 932831 | AC2-110 C    | 1.74      |
| 933061 | AC2-130      | 3.3       |
| 933291 | AC2-141 C    | 49.05     |
| 933501 | AC2-165 C    | 14.51     |
| 933731 | AC2-196 C    | 0.35      |
| 933991 | AD1-023 C    | 20.32     |
| 934011 | AD1-025 C    | 25.28     |
| 934061 | AD1-033 C    | 12.05     |
| 934201 | AD1-047 C    | 12.28     |
| 934231 | AD1-050 C    | 6.74      |
| 934331 | AD1-057 C O1 | 14.87     |
| 934521 | AD1-076 C    | 84.44     |
| 934571 | AD1-082 C    | 12.07     |
| 934611 | AD1-087 C O1 | 12.14     |
| 934621 | AD1-088 C    | 18.61     |
| 935111 | AD1-144 C    | 0.33      |
| 935161 | AD1-151 C O1 | 24.07     |
| 935171 | AD1-152 C O1 | 12.06     |
| 935211 | AD1-156 C    | 0.41      |
| 936041 | AD2-007      | 2.68      |
| 936051 | AD2-008 C    | 4.4       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 936151 | AD2-021      | 0.31      |
| 936301 | AD2-039 C    | 1.74      |
| 936391 | AD2-049 C    | 2.72      |
| 936401 | AD2-051 C O1 | 13.38     |
| 936531 | AD2-068 C    | 7.57      |
| 936661 | AD2-085 C    | 5.43      |
| 936701 | AD2-089 C    | 10.68     |
| 936711 | AD2-090 C O1 | 11.19     |
| 937221 | AD2-160 C O1 | 9.37      |
| 937251 | AD2-164      | 7.16      |
| 937481 | AD2-202 C O1 | 3.34      |
| 937541 | AD2-215 C    | 2.75      |
| 937571 | AD2-169 C    | 15.28     |
| 938031 | AE1-004 C    | 1.74      |
| 938171 | AE1-026 C1 O | 43.23     |
| 938172 | AE1-026 C2 O | 6.25      |
| 938181 | AE1-027 C    | 3.75      |
| 938191 | AE1-028 C    | 2.18      |
| 938221 | AE1-035 C    | 3.44      |
| 938491 | AE1-068 C O1 | 102.49    |
| 938501 | AE1-069 C O1 | 80.25     |
| 938531 | AE1-072 C O1 | 28.04     |
| 938551 | AE1-074 C    | 4.0       |
| 938561 | AE1-075 C    | 3.29      |
| 938631 | AE1-085 C O1 | 16.95     |
| 938661 | AE1-088      | 2.7       |
| 938771 | AE1-103 C O1 | 5.69      |
| 939071 | AE1-135 C O1 | 32.36     |
| 939191 | AE1-149 C O1 | 16.57     |
| 939311 | AE1-162 C    | 3.34      |
| 939411 | AE1-173 C    | 152.3     |
| 939421 | AE1-174 C    | 0.27      |
| 939431 | AE1-175 C    | 3.41      |
| 940061 | AE1-248 C O1 | 25.09     |
| 940071 | AE1-249 C    | 10.79     |
| 940231 | AE2-005 C    | 1.74      |
| 940251 | AE2-007      | 277.69    |
| 940431 | AE2-027 C O2 | 19.56     |
| 940471 | AE2-031 C O2 | 55.18     |
| 940481 | AE2-033 C    | 25.04     |
| 940491 | AE2-034 C    | 13.11     |
| 940521 | AE2-037 C O2 | 12.09     |
| 940541 | AE2-040      | 4.78      |
| 940551 | AE2-041      | 9.18      |
| 940571 | AE2-044 C    | 6.51      |
| 940641 | AE2-051 C O2 | 26.37     |
| 940651 | AE2-052      | 5.55      |
| 940891 | AE2-078 C    | 3.6       |
| 940901 | AE2-079 C    | 3.6       |
| 940911 | AE2-080 C    | 3.6       |
| 941031 | AE2-094 C    | 67.04     |
| 941101 | AE2-104 C O2 | 5.59      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941281     | AE2-122 C O2 | 45.57     |
| 941291     | AE2-123 C O2 | 46.83     |
| 941301     | AE2-124 C O2 | 42.59     |
| 941501     | AE2-147 C    | 25.12     |
| 941541     | AE2-151 C    | 1.66      |
| 941591     | AE2-156      | 28.65     |
| 941601     | AE2-157 C O2 | 16.71     |
| 941791     | AE2-182 C    | 3.37      |
| 941951     | AE2-207      | 4.21      |
| 942001     | AE2-212 C    | 3.24      |
| 942131     | AE2-225 C    | 3.41      |
| 942151     | AE2-227 C O2 | 3.03      |
| 942161     | AE2-228 C O2 | 3.18      |
| 942171     | AE2-229 C    | 3.41      |
| 942211     | AE2-233 C    | 21.91     |
| 942341     | AE2-247 C    | 2.35      |
| 942371     | AE2-250 C O2 | 14.01     |
| 942401     | AE2-253 C    | 9.85      |
| 942471     | AE2-260 C O2 | 22.28     |
| 942531     | AE2-268 C    | 2.2       |
| 942551     | AE2-270      | 40.14     |
| 942711     | AE2-287 C O2 | 19.23     |
| 942851     | AE2-304 C    | 1.0       |
| 942921     | AE2-311 C O2 | 76.15     |
| 942931     | AE2-313 C    | 60.47     |
| 943171     | AE2-346 C    | 2.69      |
| AA2-074    | AA2-074      | 8.49      |
| CARR       | CARR         | 2.07      |
| CBM-S1     | CBM-S1       | 23.17     |
| CBM-S2     | CBM-S2       | 24.91     |
| CBM-W1     | CBM-W1       | 22.48     |
| CBM-W2     | CBM-W2       | 149.66    |
| CIN        | CIN          | 10.5      |
| CPLE       | CPLE         | 12.48     |
| IPL        | IPL          | 6.58      |
| LGEE       | LGEE         | 3.08      |
| MEC        | MEC          | 23.09     |
| MECS       | MECS         | 8.8       |
| RENSSELAER | RENSSELAER   | 1.64      |
| WEC        | WEC          | 2.76      |
| Z1-043     | Z1-043       | 10.89     |

### 13.5.5 Index 4

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840820 | 314918    | 8NO ANNA | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 594 | single | 3218.56    | 99.7                  | 100.37                 | DC    | 22.08     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314429 | 3JTRSVLE     | 0.23      |
| 314643 | 3O INLET     | 0.25      |
| 315102 | 1BRUNSWICKG1 | 6.08      |
| 315103 | 1BRUNSWICKG2 | 6.08      |
| 315104 | 1BRUNSWICKG3 | 6.08      |
| 315105 | 1BRUNSWICKS1 | 12.62     |
| 315108 | 1ELIZAR1     | 1.8       |
| 315109 | 1ELIZAR2     | 1.77      |
| 315110 | 1ELIZAR3     | 1.82      |
| 315153 | 1CLOVER1     | 8.65      |
| 315154 | 1CLOVER2     | 8.54      |
| 315172 | 1LOISA A     | 2.3       |
| 315173 | 1LOISA B     | 2.32      |
| 315174 | 1LOISA C     | 2.32      |
| 315175 | 1LOISA D     | 2.32      |
| 315176 | 1LOISA E     | 4.72      |
| 315177 | 1S ANNAG1    | 1.4       |
| 315178 | 1S ANNAS1    | 0.72      |
| 315179 | 1S ANNAG2    | 1.4       |
| 315180 | 1S ANNAS2    | 0.72      |
| 315225 | 1N ANNA1     | 77.29     |
| 315226 | 1N ANNA2     | 77.46     |
| 916191 | Z1-068 C     | 0.02      |
| 916301 | Z1-086 C     | 37.0      |
| 919151 | AA1-139 C    | 1.38      |
| 923851 | AB2-025 C    | 0.24      |
| 923861 | AB2-026 C    | 0.29      |
| 924031 | AB2-045 C    | 0.23      |
| 924511 | AB2-100 C    | 9.22      |
| 925021 | AB2-158 C    | 3.04      |
| 925171 | AB2-174 C O1 | 5.62      |
| 925521 | AC1-027 C    | 0.18      |
| 925671 | AC1-043 C    | 6.21      |
| 925831 | AC1-062      | 0.03      |
| 926001 | AC1-076 C    | 6.49      |
| 926481 | AC1-120 C O1 | 7.77      |
| 926501 | AC1-121 C O1 | 2.67      |
| 926731 | AC1-158 C    | 225.95    |
| 926751 | AC1-161 C O1 | 23.0      |
| 932041 | AC2-012 C    | 7.66      |
| 932511 | AC2-071 C    | 0.22      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932781 | AC2-102 C    | 5.71      |
| 933291 | AC2-141 C    | 23.0      |
| 933501 | AC2-165 C    | 9.55      |
| 933731 | AC2-196 C    | 0.17      |
| 934061 | AD1-033 C    | 5.7       |
| 934541 | AD1-078 C    | 3.74      |
| 934611 | AD1-087 C O1 | 7.16      |
| 934621 | AD1-088 C    | 11.57     |
| 934861 | AD1-115 C    | 3.1       |
| 935171 | AD1-152 C O1 | 7.12      |
| 935221 | AD1-157 C    | 0.15      |
| 935231 | AD1-160 C    | 0.9       |
| 937221 | AD2-160 C O1 | 4.44      |
| 937481 | AD2-202 C O1 | 1.97      |
| 938181 | AE1-027 C    | 1.78      |
| 938191 | AE1-028 C    | 1.03      |
| 938371 | AE1-056 C    | 5.3       |
| 938491 | AE1-068 C O1 | 60.59     |
| 938501 | AE1-069 C O1 | 47.42     |
| 938531 | AE1-072 C O1 | 13.31     |
| 938551 | AE1-074 C    | 2.01      |
| 938561 | AE1-075 C    | 2.11      |
| 939071 | AE1-135 C O1 | 16.61     |
| 939221 | AE1-153 C O1 | 12.36     |
| 939231 | AE1-154 C    | 4.09      |
| 939371 | AE1-168 C    | 12.15     |
| 939411 | AE1-173 C    | 83.8      |
| 940251 | AE2-007      | 130.4     |
| 940421 | AE2-026 C    | 7.78      |
| 940471 | AE2-031 C O2 | 32.67     |
| 940481 | AE2-033 C    | 12.76     |
| 940641 | AE2-051 C O2 | 13.35     |
| 941031 | AE2-094 C    | 39.68     |
| 941101 | AE2-104 C O2 | 2.65      |
| 941281 | AE2-122 C O2 | 21.48     |
| 941291 | AE2-123 C O2 | 22.08     |
| 941301 | AE2-124 C O2 | 20.07     |
| 941381 | AE2-134      | 4.15      |
| 941501 | AE2-147 C    | 12.03     |
| 941591 | AE2-156      | 13.4      |
| 941791 | AE2-182 C    | 2.09      |
| 941831 | AE2-188      | 7.53      |
| 942131 | AE2-225 C    | 1.61      |
| 942171 | AE2-229 C    | 1.61      |
| 942211 | AE2-233 C    | 12.96     |
| 942371 | AE2-250 C O2 | 7.31      |
| 942401 | AE2-253 C    | 4.67      |
| 942461 | AE2-259 C O2 | 8.34      |
| 942471 | AE2-260 C O2 | 11.43     |
| 942921 | AE2-311 C O2 | 41.9      |
| 942931 | AE2-313 C    | 35.81     |
| 943051 | AE2-328 C    | 10.04     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AA2-074</b>    | AA2-074    | 4.65             |
| <b>CARR</b>       | CARR       | 1.49             |
| <b>CBM-S1</b>     | CBM-S1     | 11.1             |
| <b>CBM-S2</b>     | CBM-S2     | 13.41            |
| <b>CBM-W1</b>     | CBM-W1     | 8.85             |
| <b>CBM-W2</b>     | CBM-W2     | 69.77            |
| <b>CIN</b>        | CIN        | 4.29             |
| <b>CPLE</b>       | CPLE       | 6.84             |
| <b>IPL</b>        | IPL        | 2.66             |
| <b>LGEE</b>       | LGEE       | 1.27             |
| <b>MEC</b>        | MEC        | 10.04            |
| <b>MECS</b>       | MECS       | 2.59             |
| <b>RENSSELAER</b> | RENSSELAER | 1.18             |
| <b>WEC</b>        | WEC        | 1.12             |

### 13.5.6 Index 5

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839852 | 314924    | 8SURREY  | DVP           | 314903  | 8CHCKAHM | DVP         | 1      | DVP_P4-2: 56372 | breaker | 3144.0     | 95.49                 | 101.87                 | DC    | 245.05    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.42      |
| 314539 | 3UNCAMP      | 3.29      |
| 314541 | 3WATKINS     | 0.91      |
| 314554 | 3BTLEBRO     | 0.84      |
| 314557 | 3BETHEL      | 0.9       |
| 314566 | 3CRESWEL     | 3.48      |
| 314574 | 6EVERETS     | 5.03      |
| 314578 | 3HORNRTN     | 3.34      |
| 314582 | 3KELFORD     | 4.11      |
| 314594 | 6PLYMOTH     | 1.19      |
| 314603 | 3SCOT NK     | 3.71      |
| 314617 | 3TUNIS       | 1.02      |
| 314620 | 6CASHIE      | 1.13      |
| 314623 | 3WITAKRS     | 1.43      |
| 314648 | 6SUNBURY     | 1.42      |
| 314651 | 6WINFALL     | 2.8       |
| 315090 | 1YORKTN1     | 39.38     |
| 315091 | 1YORKTN2     | 40.87     |
| 315098 | 1CHESPKA     | 0.55      |
| 315099 | 1CHESPKB     | 1.37      |
| 315108 | 1ELIZAR1     | 4.08      |
| 315109 | 1ELIZAR2     | 4.01      |
| 315110 | 1ELIZAR3     | 4.13      |
| 315131 | 1EDGECEMA    | 9.77      |
| 315132 | 1EDGECEMB    | 9.77      |
| 315233 | 1SURREY 2    | 40.44     |
| 315260 | 1GOSPORTA    | 0.44      |
| 315261 | 1GOSPORTB    | 0.56      |
| 315262 | 1GOSPORTC    | 0.48      |
| 900672 | V4-068 E     | 0.36      |
| 901082 | W1-029 E     | 73.37     |
| 907092 | X1-038 E     | 8.22      |
| 913392 | Y1-086 E     | 3.61      |
| 916042 | Z1-036 E     | 70.49     |
| 916191 | Z1-068 C     | 0.06      |
| 916192 | Z1-068 E     | 3.21      |
| 916302 | Z1-086 E     | 14.12     |
| 917122 | Z2-027 E     | 1.72      |
| 917332 | Z2-043 E     | 1.17      |
| 917342 | Z2-044 E     | 0.61      |
| 917512 | Z2-088 E OP1 | 4.52      |
| 918492 | AA1-063AE OP | 4.35      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 918512 | AA1-065 E OP | 5.6       |
| 918532 | AA1-067 E    | 0.89      |
| 918562 | AA1-072 E    | 0.19      |
| 919151 | AA1-139 C    | 3.09      |
| 919152 | AA1-139 E    | 10.87     |
| 919692 | AA2-053 E    | 3.92      |
| 919701 | AA2-057 C    | 7.56      |
| 919702 | AA2-057 E    | 3.78      |
| 920042 | AA2-088 E OP | 12.98     |
| 920592 | AA2-165 E    | 0.5       |
| 920672 | AA2-174 E    | 0.45      |
| 920692 | AA2-178 E    | 5.96      |
| 923801 | AB2-015 C O1 | 11.5      |
| 923802 | AB2-015 E O1 | 9.43      |
| 923832 | AB2-022 E    | 2.04      |
| 924152 | AB2-059 E O1 | 5.74      |
| 924401 | AB2-089 C    | 2.0       |
| 924402 | AB2-089 E    | 1.03      |
| 924491 | AB2-098 C    | 0.69      |
| 924492 | AB2-098 E    | 0.3       |
| 924501 | AB2-099 C    | 0.71      |
| 924502 | AB2-099 E    | 0.31      |
| 925061 | AB2-161 C O1 | 3.39      |
| 925062 | AB2-161 E O1 | 5.54      |
| 925122 | AB2-169 E    | 7.61      |
| 925521 | AC1-027 C    | 0.42      |
| 925522 | AC1-027 E    | 1.95      |
| 925591 | AC1-034 C    | 7.21      |
| 925592 | AC1-034 E    | 5.44      |
| 925781 | AC1-054 C O1 | 6.82      |
| 925782 | AC1-054 E O1 | 3.14      |
| 926071 | AC1-086 C    | 19.38     |
| 926072 | AC1-086 E    | 8.82      |
| 926201 | AC1-098 C    | 6.76      |
| 926202 | AC1-098 E    | 4.03      |
| 926211 | AC1-099 C    | 2.27      |
| 926212 | AC1-099 E    | 1.33      |
| 926271 | AC1-105 C O1 | 5.3       |
| 926272 | AC1-105 E O1 | 2.64      |
| 926661 | AC1-147 C    | 0.47      |
| 926662 | AC1-147 E    | 2.25      |
| 926751 | AC1-161 C O1 | 60.92     |
| 926752 | AC1-161 E O1 | 26.01     |
| 927021 | AC1-189 C    | 10.21     |
| 927022 | AC1-189 E    | 5.09      |
| 927141 | AC1-208 C    | 9.6       |
| 927142 | AC1-208 E    | 4.26      |
| 927251 | AC1-221 C    | 2.26      |
| 927252 | AC1-221 E    | 2.26      |
| 927261 | AC1-222 C    | 3.46      |
| 927262 | AC1-222 E    | 3.29      |
| 930402 | AB1-081 E O1 | 4.05      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 930862 | AB1-132 E O1 | 5.64      |
| 932041 | AC2-012 C    | 17.3      |
| 932042 | AC2-012 E    | 28.23     |
| 932591 | AC2-079 C O1 | 7.14      |
| 932592 | AC2-079 E O1 | 11.66     |
| 932631 | AC2-084 C    | 9.64      |
| 932632 | AC2-084 E    | 4.75      |
| 932761 | AC2-100 C    | 5.21      |
| 932762 | AC2-100 E    | 2.54      |
| 933291 | AC2-141 C    | 60.92     |
| 933292 | AC2-141 E    | 26.01     |
| 933731 | AC2-196 C    | 0.38      |
| 933732 | AC2-196 E    | 2.06      |
| 933991 | AD1-023 C    | 17.83     |
| 933992 | AD1-023 E    | 9.71      |
| 934061 | AD1-033 C    | 12.94     |
| 934062 | AD1-033 E    | 8.63      |
| 934231 | AD1-050 C    | 4.41      |
| 934232 | AD1-050 E    | 2.41      |
| 934311 | AD1-055 C    | 2.4       |
| 934312 | AD1-055 E    | 0.62      |
| 934331 | AD1-057 C O1 | 10.01     |
| 934332 | AD1-057 E O1 | 5.34      |
| 934341 | AD1-058 C    | 5.67      |
| 934342 | AD1-058 E    | 1.44      |
| 934521 | AD1-076 C    | 75.57     |
| 934522 | AD1-076 E    | 38.48     |
| 934571 | AD1-082 C    | 7.73      |
| 934572 | AD1-082 E    | 4.41      |
| 934611 | AD1-087 C O1 | 9.42      |
| 934612 | AD1-087 E O1 | 4.43      |
| 934621 | AD1-088 C    | 12.79     |
| 934622 | AD1-088 E    | 6.0       |
| 934991 | AD1-131 C    | 1.86      |
| 934992 | AD1-131 E    | 1.24      |
| 935112 | AD1-144 E    | 1.46      |
| 935171 | AD1-152 C O1 | 9.36      |
| 935172 | AD1-152 E O1 | 6.24      |
| 936331 | AD2-043 C    | 4.49      |
| 936332 | AD2-043 E    | 5.31      |
| 936391 | AD2-049 C    | 2.51      |
| 936392 | AD2-049 E    | 2.51      |
| 936401 | AD2-051 C O1 | 10.66     |
| 936402 | AD2-051 E O1 | 4.58      |
| 936531 | AD2-068 C    | 5.94      |
| 936532 | AD2-068 E    | 3.06      |
| 936661 | AD2-085 C    | 4.24      |
| 936662 | AD2-085 E    | 6.91      |
| 936701 | AD2-089 C    | 8.06      |
| 936702 | AD2-089 E    | 5.37      |
| 936711 | AD2-090 C O1 | 9.26      |
| 936712 | AD2-090 E O1 | 6.17      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937221 | AD2-160 C O1 | 9.97      |
| 937222 | AD2-160 E O1 | 5.23      |
| 937251 | AD2-164      | 6.63      |
| 937481 | AD2-202 C O1 | 2.59      |
| 937482 | AD2-202 E O1 | 1.31      |
| 937541 | AD2-215 C    | 2.69      |
| 937542 | AD2-215 E    | 1.43      |
| 937571 | AD2-169 C    | 9.08      |
| 937572 | AD2-169 E    | 6.05      |
| 938171 | AE1-026 C1 O | 37.48     |
| 938172 | AE1-026 C2 O | 5.42      |
| 938173 | AE1-026 E O1 | 11.32     |
| 938181 | AE1-027 C    | 4.02      |
| 938182 | AE1-027 E    | 2.12      |
| 938191 | AE1-028 C    | 2.33      |
| 938192 | AE1-028 E    | 1.35      |
| 938221 | AE1-035 C    | 2.84      |
| 938222 | AE1-035 E    | 1.4       |
| 938491 | AE1-068 C O1 | 90.21     |
| 938492 | AE1-068 E O1 | 49.83     |
| 938501 | AE1-069 C O1 | 70.44     |
| 938502 | AE1-069 E O1 | 40.27     |
| 938531 | AE1-072 C O1 | 29.57     |
| 938532 | AE1-072 E O1 | 15.42     |
| 938661 | AE1-088      | 2.3       |
| 938771 | AE1-103 C O1 | 4.93      |
| 938772 | AE1-103 E O1 | 6.81      |
| 939311 | AE1-162 C    | 2.94      |
| 939312 | AE1-162 E    | 1.96      |
| 939411 | AE1-173 C    | 149.42    |
| 939412 | AE1-173 E    | 99.61     |
| 939421 | AE1-174 C    | 0.17      |
| 939422 | AE1-174 E    | 0.26      |
| 939431 | AE1-175 C    | 2.18      |
| 939432 | AE1-175 E    | 1.08      |
| 940061 | AE1-248 C O1 | 16.07     |
| 940062 | AE1-248 E O1 | 10.72     |
| 940251 | AE2-007      | 295.65    |
| 940471 | AE2-031 C O2 | 48.35     |
| 940472 | AE2-031 E O2 | 32.23     |
| 940491 | AE2-034 C    | 12.17     |
| 940492 | AE2-034 E    | 5.21      |
| 940521 | AE2-037 C O2 | 9.87      |
| 940522 | AE2-037 E O2 | 4.77      |
| 940571 | AE2-044 C    | 4.72      |
| 940572 | AE2-044 E    | 2.02      |
| 940891 | AE2-078 C    | 2.82      |
| 940892 | AE2-078 E    | 1.46      |
| 940901 | AE2-079 C    | 2.82      |
| 940902 | AE2-079 E    | 1.46      |
| 940911 | AE2-080 C    | 2.82      |
| 940912 | AE2-080 E    | 1.46      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 941031  | AE2-094 C    | 59.31     |
| 941032  | AE2-094 E    | 26.56     |
| 941101  | AE2-104 C O2 | 5.72      |
| 941102  | AE2-104 E O2 | 9.09      |
| 941281  | AE2-122 C O2 | 48.67     |
| 941282  | AE2-122 E O2 | 196.38    |
| 941291  | AE2-123 C O2 | 50.01     |
| 941292  | AE2-123 E O2 | 195.03    |
| 941301  | AE2-124 C O2 | 45.44     |
| 941302  | AE2-124 E O2 | 199.4     |
| 941501  | AE2-147 C    | 25.3      |
| 941502  | AE2-147 E    | 16.87     |
| 941541  | AE2-151 C    | 1.32      |
| 941542  | AE2-151 E    | 0.71      |
| 941591  | AE2-156      | 30.04     |
| 941601  | AE2-157 C O2 | 10.08     |
| 941602  | AE2-157 E O2 | 6.72      |
| 941791  | AE2-182 C    | 2.31      |
| 941792  | AE2-182 E    | 1.09      |
| 941951  | AE2-207      | 3.05      |
| 942131  | AE2-225 C    | 3.48      |
| 942132  | AE2-225 E    | 2.32      |
| 942171  | AE2-229 C    | 3.48      |
| 942172  | AE2-229 E    | 2.32      |
| 942211  | AE2-233 C    | 19.38     |
| 942212  | AE2-233 E    | 7.53      |
| 942341  | AE2-247 C    | 1.84      |
| 942342  | AE2-247 E    | 2.54      |
| 942401  | AE2-253 C    | 10.48     |
| 942402  | AE2-253 E    | 4.71      |
| 942851  | AE2-304 C    | 0.99      |
| 942852  | AE2-304 E    | 0.39      |
| 942921  | AE2-311 C O2 | 74.71     |
| 942922  | AE2-311 E O2 | 49.81     |
| 942931  | AE2-313 C    | 53.22     |
| 942932  | AE2-313 E    | 35.48     |
| 943171  | AE2-346 C    | 2.14      |
| 943172  | AE2-346 E    | 0.92      |
| AA2-074 | AA2-074      | 6.4       |
| CARR    | CARR         | 1.11      |
| CBM-S1  | CBM-S1       | 13.93     |
| CBM-S2  | CBM-S2       | 17.99     |
| CBM-W1  | CBM-W1       | 11.23     |
| CBM-W2  | CBM-W2       | 88.09     |
| CIN     | CIN          | 5.25      |
| CPL     | CPL          | 9.41      |
| G-007   | G-007        | 3.6       |
| IPL     | IPL          | 3.25      |
| LGEE    | LGEE         | 1.53      |
| MEC     | MEC          | 12.58     |
| MECS    | MECS         | 3.61      |
| O-066   | O-066        | 22.93     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>RENSSELAER</b> | RENSSELAER | 0.88             |
| <b>WEC</b>        | WEC        | 1.39             |

### 13.5.7 Index 6

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-----------|-------------|--------|-----------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839868 | 314303    | 6HOPEWLL | DVP           | 314287  | 6CHESTF B | DVP         | 1      | DVP_P4-2: 56372 | breaker | 549.0      | 99.48                 | 104.19                 | DC    | 56.29     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 315073 | 1STONECA     | 13.17     |
| 315074 | 1HOPCGN1     | 15.88     |
| 315075 | 1HOPCGN2     | 15.67     |
| 315076 | 1HOPPOLC     | 2.22      |
| 315077 | 1HOPHCF1     | 3.47      |
| 315078 | 1HOPHCF2     | 3.47      |
| 315079 | 1HOPHCF3     | 3.47      |
| 315080 | 1HOPHCF4     | 5.26      |
| 315090 | 1YORKTN1     | 11.37     |
| 315091 | 1YORKTN2     | 11.8      |
| 315116 | 1SURREY 1    | 16.54     |
| 315120 | 1GRAVEL4     | 1.7       |
| 315122 | 1GRAVEL6     | 1.7       |
| 916192 | Z1-068 E     | 0.75      |
| 924811 | AB2-134 C O1 | 2.08      |
| 924812 | AB2-134 E O1 | 16.23     |
| 925331 | AB2-190 C    | 28.2      |
| 925332 | AB2-190 E    | 12.09     |
| 925522 | AC1-027 E    | 0.46      |
| 926662 | AC1-147 E    | 0.56      |
| 927221 | AC1-216 C O1 | 13.04     |
| 927222 | AC1-216 E O1 | 10.26     |
| 932041 | AC2-012 C    | 4.33      |
| 932042 | AC2-012 E    | 7.07      |
| 933061 | AC2-130      | 1.75      |
| 933732 | AC2-196 E    | 0.45      |
| 934011 | AD1-025 C    | 22.42     |
| 934012 | AD1-025 E    | 13.28     |
| 934061 | AD1-033 C    | 2.86      |
| 934062 | AD1-033 E    | 1.9       |
| 935112 | AD1-144 E    | 0.41      |
| 935161 | AD1-151 C O1 | 22.66     |
| 935162 | AD1-151 E O1 | 15.11     |
| 936041 | AD2-007      | 2.38      |
| 936051 | AD2-008 C    | 3.9       |
| 936052 | AD2-008 E    | 8.5       |
| 936391 | AD2-049 C    | 0.82      |
| 936392 | AD2-049 E    | 0.82      |
| 937251 | AD2-164      | 2.01      |
| 937541 | AD2-215 C    | 0.75      |
| 937542 | AD2-215 E    | 0.4       |
| 939311 | AE1-162 C    | 1.54      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 939312     | AE1-162 E    | 1.03      |
| 940251     | AE2-007      | 72.32     |
| 940542     | AE2-040 BAT  | 0.94      |
| 940891     | AE2-078 C    | 1.96      |
| 940892     | AE2-078 E    | 1.01      |
| 940901     | AE2-079 C    | 1.96      |
| 940902     | AE2-079 E    | 1.01      |
| 940911     | AE2-080 C    | 1.96      |
| 940912     | AE2-080 E    | 1.01      |
| 941281     | AE2-122 C O2 | 11.18     |
| 941282     | AE2-122 E O2 | 45.11     |
| 941291     | AE2-123 C O2 | 11.49     |
| 941292     | AE2-123 E O2 | 44.8      |
| 941301     | AE2-124 C O2 | 10.52     |
| 941302     | AE2-124 E O2 | 46.18     |
| 941591     | AE2-156      | 7.93      |
| 942151     | AE2-227 C O2 | 0.91      |
| 942152     | AE2-227 E O2 | 0.6       |
| 942551     | AE2-270      | 37.8      |
| CARR       | CARR         | 0.17      |
| CBM-S1     | CBM-S1       | 0.92      |
| CBM-S2     | CBM-S2       | 1.5       |
| CBM-W1     | CBM-W1       | 0.3       |
| CBM-W2     | CBM-W2       | 5.4       |
| CIN        | CIN          | 0.18      |
| CPL        | CPL          | 0.78      |
| G-007      | G-007        | 0.53      |
| IPL        | IPL          | 0.1       |
| LGEE       | LGEE         | 0.05      |
| MEC        | MEC          | 0.59      |
| O-066      | O-066        | 3.37      |
| RENSSELAER | RENSSELAER   | 0.13      |
| WEC        | WEC          | 0.04      |

### 13.5.8 Index 7

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME          | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|--------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839699 | 314481    | 6LANDSTN | DVP           | 934060  | AD1-033 TAP | DVP         | 1      | DVP_P4-2: 231T2026 | breaker | 830.0      | 78.49                 | 118.31                 | DC    | 546.28    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 916191     | Z1-068 C     | 0.08      |
| 916192     | Z1-068 E     | 4.61      |
| 925521     | AC1-027 C    | 0.65      |
| 925522     | AC1-027 E    | 3.07      |
| 926662     | AC1-147 E    | 0.46      |
| 932041     | AC2-012 C    | 3.54      |
| 932042     | AC2-012 E    | 5.78      |
| 940251     | AE2-007      | 56.06     |
| 941281     | AE2-122 C O2 | 108.49    |
| 941282     | AE2-122 E O2 | 437.79    |
| 941291     | AE2-123 C O2 | 111.49    |
| 941292     | AE2-123 E O2 | 434.78    |
| 941301     | AE2-124 C O2 | 79.28     |
| 941302     | AE2-124 E O2 | 347.88    |
| 941591     | AE2-156      | 5.92      |
| BLUEG      | BLUEG        | 0.32      |
| CALDERWOOD | CALDERWOOD   | 0.06      |
| CANNELTON  | CANNELTON    | 0.02      |
| CATAWBA    | CATAWBA      | 0.06      |
| CHEOAH     | CHEOAH       | 0.06      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| COFFEEN    | COFFEEN      | 0.04      |
| COTTONWOOD | COTTONWOOD   | 0.21      |
| DUCKCREEK  | DUCKCREEK    | 0.07      |
| EDWARDS    | EDWARDS      | 0.03      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| FARMERCITY | FARMERCITY   | 0.03      |
| G-007A     | G-007A       | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.11      |
| NEWTON     | NEWTON       | 0.09      |
| PRAIRIE    | PRAIRIE      | 0.2       |
| SANTEETLA  | SANTEETLA    | 0.02      |
| SMITHLAND  | SMITHLAND    | 0.02      |
| TATANKA    | TATANKA      | 0.04      |
| TILTON     | TILTON       | 0.04      |
| TRIMBLE    | TRIMBLE      | 0.03      |
| TVA        | TVA          | 0.17      |
| UNIONPOWER | UNIONPOWER   | 0.08      |
| VFT        | VFT          | 0.03      |

### 13.5.9 Index 8

| ID       | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|----------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 12355797 | 314481    | 6LANDSTN | DVP           | 314486  | 6LYNHAVN | DVP         | 1      | DVP_P4-2:<br>231T2128 | breaker | 830.0      | 59.63                 | 97.21                  | DC    | 311.84    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314566 | 3CRESWEL     | 0.76      |
| 314638 | 6ELIZ CT     | 0.12      |
| 314639 | 6TANGLEW     | 0.2       |
| 314643 | 3O INLET     | 0.3       |
| 314651 | 6WINFALL     | 0.87      |
| 901082 | W1-029 E     | 19.69     |
| 913392 | Y1-086 E     | 1.64      |
| 916042 | Z1-036 E     | 20.02     |
| 917122 | Z2-027 E     | 0.7       |
| 919151 | AA1-139 C    | 1.78      |
| 919152 | AA1-139 E    | 6.26      |
| 920692 | AA2-178 E    | 1.31      |
| 923831 | AB2-022 C    | 0.21      |
| 923832 | AB2-022 E    | 0.93      |
| 925521 | AC1-027 C    | 0.17      |
| 925522 | AC1-027 E    | 0.78      |
| 933731 | AC2-196 C    | 0.24      |
| 933732 | AC2-196 E    | 1.33      |
| 934061 | AD1-033 C    | 9.77      |
| 934062 | AD1-033 E    | 6.51      |
| 937221 | AD2-160 C O1 | 5.95      |
| 937222 | AD2-160 E O1 | 3.12      |
| 938181 | AE1-027 C    | 2.53      |
| 938182 | AE1-027 E    | 1.33      |
| 938191 | AE1-028 C    | 1.47      |
| 938192 | AE1-028 E    | 0.85      |
| 938531 | AE1-072 C O1 | 16.37     |
| 938532 | AE1-072 E O1 | 8.53      |
| 940491 | AE2-034 C    | 2.68      |
| 940492 | AE2-034 E    | 1.15      |
| 941281 | AE2-122 C O2 | 61.93     |
| 941282 | AE2-122 E O2 | 249.91    |
| 941291 | AE2-123 C O2 | 63.65     |
| 941292 | AE2-123 E O2 | 248.19    |
| 941301 | AE2-124 C O2 | 24.73     |
| 941302 | AE2-124 E O2 | 108.52    |
| 941501 | AE2-147 C    | 6.79      |
| 941502 | AE2-147 E    | 4.53      |
| 941592 | AE2-156 BAT  | 4.48      |
| 942401 | AE2-253 C    | 6.26      |
| 942402 | AE2-253 E    | 2.81      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>942851</b>     | AE2-304 C  | 0.3              |
| <b>942852</b>     | AE2-304 E  | 0.12             |
| <b>CARR</b>       | CARR       | 0.0              |
| <b>CBM-S1</b>     | CBM-S1     | 0.42             |
| <b>CBM-S2</b>     | CBM-S2     | 0.45             |
| <b>CBM-W1</b>     | CBM-W1     | 0.49             |
| <b>CBM-W2</b>     | CBM-W2     | 2.83             |
| <b>CIN</b>        | CIN        | 0.22             |
| <b>CPL</b>        | CPL        | 0.24             |
| <b>G-007</b>      | G-007      | 0.02             |
| <b>IPL</b>        | IPL        | 0.14             |
| <b>LGEE</b>       | LGEE       | 0.06             |
| <b>MEC</b>        | MEC        | 0.46             |
| <b>MECS</b>       | MECS       | 0.24             |
| <b>O-066</b>      | O-066      | 0.11             |
| <b>RENSSELAER</b> | RENSSELAER | 0.0              |
| <b>WEC</b>        | WEC        | 0.06             |

### 13.5.10 Index 9

| ID      | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|------------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840663 | 314911    | 8LADYSMITH | DVP           | 314922  | 8POSSUM | DVP         | 1      | DVP_P1-2: LN 594 | single | 2442.12    | 115.51                | 116.01                 | DC    | 26.53     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.08      |
| 314236 | 6NRTHEST     | 0.13      |
| 314250 | 6ROCKVILLE   | 0.23      |
| 314309 | 6IRON208     | 0.31      |
| 315043 | 1FOUR RIVERA | 2.4       |
| 315044 | 1FOUR RIVERB | 1.86      |
| 315045 | 1FOUR RIVERC | 2.4       |
| 315046 | 1FOUR RIVERD | 1.86      |
| 315047 | 1FOUR RIVERE | 1.86      |
| 315048 | 1FOUR RIVERF | 2.4       |
| 315053 | 1BELMED1     | 15.98     |
| 315054 | 1BELMED2     | 15.98     |
| 315055 | 1BELMED3     | 13.26     |
| 315058 | 1CHESTF3     | 16.72     |
| 315059 | 1CHESTF4     | 27.1      |
| 315060 | 1CHESTF5     | 6.89      |
| 315061 | 1CHESTG7     | 2.7       |
| 315062 | 1CHESTS7     | 1.23      |
| 315063 | 1CHESTG8     | 2.65      |
| 315064 | 1CHESTS8     | 1.36      |
| 315067 | 1DARBY 1     | 1.77      |
| 315068 | 1DARBY 2     | 1.77      |
| 315069 | 1DARBY 3     | 1.77      |
| 315070 | 1DARBY 4     | 1.78      |
| 315074 | 1HOPCGN1     | 7.7       |
| 315075 | 1HOPCGN2     | 7.6       |
| 315083 | 1SPRUNCA     | 9.8       |
| 315084 | 1SPRUNCB     | 9.8       |
| 315085 | 1SPRUNCC     | 7.26      |
| 315086 | 1SPRUNCD     | 7.26      |
| 315090 | 1YORKTN1     | 26.18     |
| 315091 | 1YORKTN2     | 27.17     |
| 315225 | 1N ANNA1     | 25.05     |
| 315226 | 1N ANNA2     | 25.1      |
| 919211 | AA1-145      | 6.94      |
| 924061 | AB2-050      | 0.41      |
| 924241 | AB2-068 O1   | 186.38    |
| 925051 | AB2-160 C O1 | 5.01      |
| 925061 | AB2-161 C O1 | 3.07      |
| 925331 | AB2-190 C    | 18.51     |
| 925861 | AC1-065 C    | 3.03      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926291 | AC1-107 O1   | 281.33    |
| 926411 | AC1-112 C    | 0.23      |
| 926551 | AC1-134      | 1.02      |
| 926731 | AC1-158 C    | 74.2      |
| 926751 | AC1-161 C O1 | 27.71     |
| 926781 | AC1-164 C    | 37.16     |
| 927041 | AC1-191 C O1 | 8.59      |
| 927221 | AC1-216 C O1 | 9.05      |
| 930121 | AB1-027 C    | 0.29      |
| 932041 | AC2-012 C    | 9.28      |
| 932501 | AC2-070 C    | 0.19      |
| 932581 | AC2-078 C O1 | 3.72      |
| 932591 | AC2-079 C O1 | 5.2       |
| 932831 | AC2-110 C    | 1.21      |
| 933061 | AC2-130      | 2.22      |
| 933261 | AC2-137 C    | 0.23      |
| 933291 | AC2-141 C    | 27.71     |
| 934011 | AD1-025 C    | 15.55     |
| 934061 | AD1-033 C    | 6.82      |
| 934141 | AD1-041 C    | 4.75      |
| 934211 | AD1-048 C    | 0.27      |
| 934571 | AD1-082 C    | 7.0       |
| 935161 | AD1-151 C O1 | 14.87     |
| 936041 | AD2-007      | 1.65      |
| 936051 | AD2-008 C    | 2.71      |
| 936151 | AD2-021      | 0.22      |
| 936301 | AD2-039 C    | 1.21      |
| 936391 | AD2-049 C    | 1.64      |
| 936661 | AD2-085 C    | 3.12      |
| 937221 | AD2-160 C O1 | 5.3       |
| 937251 | AD2-164      | 4.39      |
| 937541 | AD2-215 C    | 1.58      |
| 938031 | AE1-004 C    | 1.21      |
| 938181 | AE1-027 C    | 2.12      |
| 938191 | AE1-028 C    | 1.23      |
| 938531 | AE1-072 C O1 | 15.85     |
| 938551 | AE1-074 C    | 2.26      |
| 938631 | AE1-085 C O1 | 9.97      |
| 939191 | AE1-149 C O1 | 9.8       |
| 939311 | AE1-162 C    | 1.96      |
| 939411 | AE1-173 C    | 78.01     |
| 939421 | AE1-174 C    | 0.18      |
| 939431 | AE1-175 C    | 2.21      |
| 939611 | AE1-191 C    | 9.49      |
| 939751 | AE1-206 C O1 | 30.38     |
| 940061 | AE1-248 C O1 | 14.55     |
| 940071 | AE1-249 C    | 6.61      |
| 940231 | AE2-005 C    | 1.21      |
| 940251 | AE2-007      | 157.63    |
| 940431 | AE2-027 C O2 | 11.88     |
| 940541 | AE2-040      | 2.93      |
| 940551 | AE2-041      | 6.42      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 940641     | AE2-051 C O2 | 14.52     |
| 940651     | AE2-052      | 3.28      |
| 940891     | AE2-078 C    | 2.17      |
| 940901     | AE2-079 C    | 2.17      |
| 940911     | AE2-080 C    | 2.17      |
| 941101     | AE2-104 C O2 | 3.17      |
| 941281     | AE2-122 C O2 | 25.82     |
| 941291     | AE2-123 C O2 | 26.53     |
| 941301     | AE2-124 C O2 | 24.13     |
| 941581     | AE2-155 C    | 0.6       |
| 941591     | AE2-156      | 16.31     |
| 941601     | AE2-157 C O2 | 9.71      |
| 942001     | AE2-212 C    | 1.98      |
| 942131     | AE2-225 C    | 1.93      |
| 942151     | AE2-227 C O2 | 2.02      |
| 942161     | AE2-228 C O2 | 1.99      |
| 942171     | AE2-229 C    | 1.93      |
| 942191     | AE2-231 C O2 | 4.77      |
| 942341     | AE2-247 C    | 1.35      |
| 942401     | AE2-253 C    | 5.57      |
| 942531     | AE2-268 C    | 1.54      |
| 942551     | AE2-270      | 24.8      |
| 942921     | AE2-311 C O2 | 39.0      |
| AA2-074    | AA2-074      | 4.73      |
| CARR       | CARR         | 1.85      |
| CBM-S1     | CBM-S1       | 15.75     |
| CBM-S2     | CBM-S2       | 14.42     |
| CBM-W1     | CBM-W1       | 17.83     |
| CBM-W2     | CBM-W2       | 104.2     |
| CIN        | CIN          | 8.22      |
| CPL        | CPL          | 6.95      |
| IPL        | IPL          | 5.19      |
| LGEE       | LGEE         | 2.41      |
| MEC        | MEC          | 17.12     |
| MECS       | MECS         | 7.96      |
| RENSSELAER | RENSSELAER   | 1.46      |
| WEC        | WEC          | 2.17      |
| Z1-043     | Z1-043       | 8.52      |

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| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME            | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839928 | 314919    | 8OX      | DVP           | 314904  | 8CLIFTON | DVP         | 1      | DVP_P4-2:<br>541T569 | breaker | 3144.0     | 99.69                 | 101.38                 | DC    | 118.95    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314093 | 6WARRNTN     | 0.31      |
| 314189 | 6PAPER MILL  | 5.82      |
| 314648 | 6SUNBURY     | 0.72      |
| 314651 | 6WINFALL     | 1.43      |
| 315037 | 1LDYSMT1     | 3.34      |
| 315038 | 1LDYSMT2     | 3.34      |
| 315039 | 1LDYSMT3     | 3.53      |
| 315040 | 1LDYSMT4     | 3.54      |
| 315041 | 1LDYSMT5     | 3.55      |
| 315053 | 1BELMED1     | 14.98     |
| 315054 | 1BELMED2     | 14.98     |
| 315055 | 1BELMED3     | 12.43     |
| 315058 | 1CHESTF3     | 15.76     |
| 315059 | 1CHESTF4     | 25.54     |
| 315073 | 1STONECA     | 5.96      |
| 315074 | 1HOPCGN1     | 7.18      |
| 315075 | 1HOPCGN2     | 7.09      |
| 315083 | 1SPRUNCA     | 9.18      |
| 315084 | 1SPRUNCB     | 9.18      |
| 315085 | 1SPRUNCC     | 6.81      |
| 315086 | 1SPRUNCD     | 6.81      |
| 315090 | 1YORKTN1     | 24.33     |
| 315091 | 1YORKTN2     | 25.25     |
| 315225 | 1N ANNA1     | 23.83     |
| 315226 | 1N ANNA2     | 23.88     |
| 901082 | W1-029 E     | 37.37     |
| 913392 | Y1-086 E     | 1.8       |
| 916042 | Z1-036 E     | 36.63     |
| 916192 | Z1-068 E     | 1.56      |
| 916302 | Z1-086 E     | 7.1       |
| 917122 | Z2-027 E     | 0.87      |
| 919152 | AA1-139 E    | 5.3       |
| 923832 | AB2-022 E    | 1.01      |
| 923842 | AB2-024 E    | 0.98      |
| 923852 | AB2-025 E    | 0.88      |
| 923892 | AB2-029 E    | 1.94      |
| 924241 | AB2-068 O1   | 169.57    |
| 924812 | AB2-134 E O1 | 10.44     |
| 925021 | AB2-158 C    | 1.28      |
| 925022 | AB2-158 E    | 4.68      |
| 925051 | AB2-160 C O1 | 4.66      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925052 | AB2-160 E O1 | 7.61      |
| 925061 | AB2-161 C O1 | 2.82      |
| 925062 | AB2-161 E O1 | 4.6       |
| 925331 | AB2-190 C    | 17.18     |
| 925332 | AB2-190 E    | 7.36      |
| 925522 | AC1-027 E    | 0.95      |
| 925671 | AC1-043 C    | 6.63      |
| 925672 | AC1-043 E    | 10.82     |
| 925861 | AC1-065 C    | 2.98      |
| 925862 | AC1-065 E    | 4.86      |
| 926001 | AC1-076 C    | 4.6       |
| 926002 | AC1-076 E    | 7.47      |
| 926291 | AC1-107 O1   | 255.95    |
| 926412 | AC1-112 E    | 0.98      |
| 926472 | AC1-118 E    | 1.08      |
| 926481 | AC1-120 C O1 | 7.03      |
| 926482 | AC1-120 E O1 | 3.62      |
| 926501 | AC1-121 C O1 | 2.41      |
| 926502 | AC1-121 E O1 | 1.14      |
| 926611 | AC1-143 C O1 | 6.76      |
| 926612 | AC1-143 E O1 | 3.08      |
| 926662 | AC1-147 E    | 1.1       |
| 926731 | AC1-158 C    | 75.01     |
| 926732 | AC1-158 E    | 32.92     |
| 926751 | AC1-161 C O1 | 25.37     |
| 926752 | AC1-161 E O1 | 10.83     |
| 926781 | AC1-164 C    | 34.95     |
| 926782 | AC1-164 E    | 15.7      |
| 927041 | AC1-191 C O1 | 8.61      |
| 927042 | AC1-191 E O1 | 4.29      |
| 927221 | AC1-216 C O1 | 8.39      |
| 927222 | AC1-216 E O1 | 6.6       |
| 930122 | AB1-027 E    | 0.96      |
| 932041 | AC2-012 C    | 8.5       |
| 932042 | AC2-012 E    | 13.87     |
| 932502 | AC2-070 E    | 0.61      |
| 932532 | AC2-073 E    | 1.05      |
| 932581 | AC2-078 C O1 | 3.43      |
| 932582 | AC2-078 E O1 | 5.6       |
| 932591 | AC2-079 C O1 | 4.76      |
| 932592 | AC2-079 E O1 | 7.76      |
| 932781 | AC2-102 C    | 5.37      |
| 932782 | AC2-102 E    | 8.77      |
| 932831 | AC2-110 C    | 1.19      |
| 932832 | AC2-110 E    | 1.95      |
| 933011 | AC2-125      | 2.7       |
| 933021 | AC2-126      | 2.72      |
| 933061 | AC2-130      | 2.08      |
| 933262 | AC2-137 E    | 1.17      |
| 933272 | AC2-138 E    | 0.95      |
| 933291 | AC2-141 C    | 25.37     |
| 933292 | AC2-141 E    | 10.83     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933732 | AC2-196 E    | 0.99      |
| 934011 | AD1-025 C    | 14.42     |
| 934012 | AD1-025 E    | 8.54      |
| 934061 | AD1-033 C    | 6.24      |
| 934062 | AD1-033 E    | 4.16      |
| 934141 | AD1-041 C    | 4.7       |
| 934142 | AD1-041 E    | 3.13      |
| 934191 | AD1-046 C    | 4.88      |
| 934192 | AD1-046 E    | 3.26      |
| 934212 | AD1-048 E    | 1.07      |
| 934392 | AD1-063 E    | 0.94      |
| 934541 | AD1-078 C    | 2.52      |
| 934542 | AD1-078 E    | 1.48      |
| 934571 | AD1-082 C    | 6.43      |
| 934572 | AD1-082 E    | 3.67      |
| 934781 | AD1-105 C    | 7.24      |
| 934782 | AD1-105 E    | 5.03      |
| 934861 | AD1-115 C    | 3.31      |
| 934862 | AD1-115 E    | 5.41      |
| 935112 | AD1-144 E    | 0.78      |
| 935161 | AD1-151 C O1 | 13.8      |
| 935162 | AD1-151 E O1 | 9.2       |
| 935212 | AD1-156 E    | 1.2       |
| 936041 | AD2-007      | 1.53      |
| 936051 | AD2-008 C    | 2.51      |
| 936052 | AD2-008 E    | 5.47      |
| 936151 | AD2-021      | 0.21      |
| 936241 | AD2-030 C    | 2.05      |
| 936242 | AD2-030 E    | 1.05      |
| 936301 | AD2-039 C    | 1.19      |
| 936302 | AD2-039 E    | 1.95      |
| 936341 | AD2-044 C    | 0.24      |
| 936342 | AD2-044 E    | 0.27      |
| 936391 | AD2-049 C    | 1.51      |
| 936392 | AD2-049 E    | 1.51      |
| 936581 | AD2-073 C    | 2.11      |
| 936582 | AD2-073 E    | 1.05      |
| 936591 | AD2-074 C    | 5.15      |
| 936592 | AD2-074 E    | 8.4       |
| 936661 | AD2-085 C    | 2.86      |
| 936662 | AD2-085 E    | 4.66      |
| 937221 | AD2-160 C O1 | 4.84      |
| 937222 | AD2-160 E O1 | 2.54      |
| 937251 | AD2-164      | 4.07      |
| 937541 | AD2-215 C    | 1.45      |
| 937542 | AD2-215 E    | 0.77      |
| 938031 | AE1-004 C    | 1.19      |
| 938032 | AE1-004 E    | 1.95      |
| 938181 | AE1-027 C    | 1.94      |
| 938182 | AE1-027 E    | 1.02      |
| 938191 | AE1-028 C    | 1.13      |
| 938192 | AE1-028 E    | 0.65      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938291 | AE1-044 C O1 | 20.43     |
| 938292 | AE1-044 E O1 | 16.12     |
| 938491 | AE1-068 C O1 | 45.24     |
| 938492 | AE1-068 E O1 | 24.99     |
| 938501 | AE1-069 C O1 | 35.43     |
| 938502 | AE1-069 E O1 | 20.26     |
| 938531 | AE1-072 C O1 | 14.46     |
| 938532 | AE1-072 E O1 | 7.54      |
| 938551 | AE1-074 C    | 2.12      |
| 938552 | AE1-074 E    | 1.07      |
| 938631 | AE1-085 C O1 | 9.19      |
| 938632 | AE1-085 E O1 | 6.13      |
| 938961 | AE1-124 C    | 2.11      |
| 938962 | AE1-124 E    | 1.06      |
| 939191 | AE1-149 C O1 | 9.05      |
| 939192 | AE1-149 E O1 | 6.03      |
| 939221 | AE1-153 C O1 | 13.69     |
| 939222 | AE1-153 E O1 | 9.13      |
| 939231 | AE1-154 C    | 1.72      |
| 939232 | AE1-154 E    | 1.2       |
| 939241 | AE1-155 C    | 14.09     |
| 939242 | AE1-155 E    | 9.39      |
| 939261 | AE1-157 C O1 | 13.79     |
| 939262 | AE1-157 E O1 | 7.48      |
| 939271 | AE1-158 C O1 | 14.07     |
| 939272 | AE1-158 E O1 | 7.2       |
| 939281 | AE1-159 C O1 | 11.86     |
| 939282 | AE1-159 E O1 | 7.02      |
| 939311 | AE1-162 C    | 1.81      |
| 939312 | AE1-162 E    | 1.21      |
| 939411 | AE1-173 C    | 71.22     |
| 939412 | AE1-173 E    | 47.48     |
| 939421 | AE1-174 C    | 0.16      |
| 939422 | AE1-174 E    | 0.25      |
| 939431 | AE1-175 C    | 2.06      |
| 939432 | AE1-175 E    | 1.02      |
| 939611 | AE1-191 C    | 9.4       |
| 939612 | AE1-191 E    | 6.27      |
| 939751 | AE1-206 C O1 | 29.89     |
| 939752 | AE1-206 E O1 | 19.92     |
| 940061 | AE1-248 C O1 | 13.36     |
| 940062 | AE1-248 E O1 | 8.91      |
| 940071 | AE1-249 C    | 6.15      |
| 940072 | AE1-249 E    | 4.59      |
| 940231 | AE2-005 C    | 1.19      |
| 940232 | AE2-005 E    | 1.95      |
| 940251 | AE2-007      | 144.36    |
| 940352 | AE2-019 BAT  | 15.76     |
| 940421 | AE2-026 C    | 3.27      |
| 940422 | AE2-026 E    | 4.44      |
| 940431 | AE2-027 C O2 | 11.02     |
| 940432 | AE2-027 E O2 | 7.35      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940471 | AE2-031 C O2 | 24.41     |
| 940472 | AE2-031 E O2 | 16.27     |
| 940481 | AE2-033 C    | 12.55     |
| 940482 | AE2-033 E    | 8.46      |
| 940541 | AE2-040      | 2.72      |
| 940551 | AE2-041      | 6.3       |
| 940641 | AE2-051 C O2 | 13.32     |
| 940642 | AE2-051 E O2 | 8.88      |
| 940651 | AE2-052      | 3.03      |
| 940891 | AE2-078 C    | 2.0       |
| 940892 | AE2-078 E    | 1.03      |
| 940901 | AE2-079 C    | 2.0       |
| 940902 | AE2-079 E    | 1.03      |
| 940911 | AE2-080 C    | 2.0       |
| 940912 | AE2-080 E    | 1.03      |
| 941031 | AE2-094 C    | 29.58     |
| 941032 | AE2-094 E    | 13.25     |
| 941101 | AE2-104 C O2 | 2.89      |
| 941102 | AE2-104 E O2 | 4.6       |
| 941141 | AE2-108 C    | 1.34      |
| 941142 | AE2-108 E    | 1.85      |
| 941151 | AE2-109 C    | 0.47      |
| 941152 | AE2-109 E    | 0.65      |
| 941281 | AE2-122 C O2 | 23.62     |
| 941282 | AE2-122 E O2 | 95.33     |
| 941291 | AE2-123 C O2 | 24.28     |
| 941292 | AE2-123 E O2 | 94.67     |
| 941301 | AE2-124 C O2 | 22.08     |
| 941302 | AE2-124 E O2 | 96.9      |
| 941361 | AE2-132      | 2.77      |
| 941381 | AE2-134      | 2.94      |
| 941501 | AE2-147 C    | 12.89     |
| 941502 | AE2-147 E    | 8.59      |
| 941581 | AE2-155 C    | 0.56      |
| 941582 | AE2-155 E    | 0.24      |
| 941591 | AE2-156      | 14.94     |
| 941601 | AE2-157 C O2 | 8.93      |
| 941602 | AE2-157 E O2 | 5.95      |
| 941831 | AE2-188      | 7.09      |
| 942001 | AE2-212 C    | 1.84      |
| 942002 | AE2-212 E    | 1.23      |
| 942131 | AE2-225 C    | 1.76      |
| 942132 | AE2-225 E    | 1.18      |
| 942151 | AE2-227 C O2 | 1.9       |
| 942152 | AE2-227 E O2 | 1.27      |
| 942161 | AE2-228 C O2 | 1.86      |
| 942162 | AE2-228 E O2 | 1.24      |
| 942171 | AE2-229 C    | 1.76      |
| 942172 | AE2-229 E    | 1.18      |
| 942191 | AE2-231 C O2 | 5.25      |
| 942192 | AE2-231 E O2 | 3.5       |
| 942211 | AE2-233 C    | 9.66      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942212</b>     | AE2-233 E    | 3.75             |
| <b>942341</b>     | AE2-247 C    | 1.24             |
| <b>942342</b>     | AE2-247 E    | 1.71             |
| <b>942401</b>     | AE2-253 C    | 5.09             |
| <b>942402</b>     | AE2-253 E    | 2.29             |
| <b>942531</b>     | AE2-268 C    | 1.51             |
| <b>942532</b>     | AE2-268 E    | 0.85             |
| <b>942551</b>     | AE2-270      | 23.02            |
| <b>942851</b>     | AE2-304 C    | 0.51             |
| <b>942852</b>     | AE2-304 E    | 0.2              |
| <b>942921</b>     | AE2-311 C O2 | 35.61            |
| <b>942922</b>     | AE2-311 E O2 | 23.74            |
| <b>942931</b>     | AE2-313 C    | 26.73            |
| <b>942932</b>     | AE2-313 E    | 17.82            |
| <b>AA2-074</b>    | AA2-074      | 3.67             |
| <b>BLUEG</b>      | BLUEG        | 0.05             |
| <b>CARR</b>       | CARR         | 1.38             |
| <b>CBM-S1</b>     | CBM-S1       | 5.51             |
| <b>CBM-S2</b>     | CBM-S2       | 10.13            |
| <b>CBM-W2</b>     | CBM-W2       | 28.06            |
| <b>CPL</b>        | CPL          | 5.4              |
| <b>EDWARDS</b>    | EDWARDS      | 0.03             |
| <b>G-007</b>      | G-007        | 3.92             |
| <b>LGEE</b>       | LGEE         | 0.05             |
| <b>MEC</b>        | MEC          | 1.82             |
| <b>O-066</b>      | O-066        | 25.16            |
| <b>RENSSELAER</b> | RENSSELAER   | 1.09             |
| <b>TILTON</b>     | TILTON       | 0.05             |
| <b>TRIMBLE</b>    | TRIMBLE      | 0.03             |

### 13.5.12 Index 11

| ID      | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-------------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839659 | 934060    | AD1-033 TAP | DVP           | 314466  | 6FENTRES | DVP         | 1      | DVP_P4-2:<br>231T2026 | breaker | 830.0      | 74.39                 | 118.28                 | DC    | 546.28    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 916191     | Z1-068 C     | 0.08      |
| 916192     | Z1-068 E     | 4.61      |
| 925521     | AC1-027 C    | 0.65      |
| 925522     | AC1-027 E    | 3.07      |
| 934061     | AD1-033 C    | 36.53     |
| 934062     | AD1-033 E    | 24.36     |
| 941281     | AE2-122 C O2 | 108.49    |
| 941282     | AE2-122 E O2 | 437.79    |
| 941291     | AE2-123 C O2 | 111.49    |
| 941292     | AE2-123 E O2 | 434.78    |
| 941301     | AE2-124 C O2 | 79.28     |
| 941302     | AE2-124 E O2 | 347.88    |
| BLUEG      | BLUEG        | 0.32      |
| CALDERWOOD | CALDERWOOD   | 0.06      |
| CANNELTON  | CANNELTON    | 0.02      |
| CATAWBA    | CATAWBA      | 0.06      |
| CHEOAH     | CHEOAH       | 0.06      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| COFFEEN    | COFFEEN      | 0.04      |
| COTTONWOOD | COTTONWOOD   | 0.21      |
| DUCKCREEK  | DUCKCREEK    | 0.07      |
| EDWARDS    | EDWARDS      | 0.03      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| FARMERCITY | FARMERCITY   | 0.03      |
| G-007A     | G-007A       | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.11      |
| NEWTON     | NEWTON       | 0.09      |
| PRAIRIE    | PRAIRIE      | 0.2       |
| SANTEETLA  | SANTEETLA    | 0.02      |
| SMITHLAND  | SMITHLAND    | 0.02      |
| TATANKA    | TATANKA      | 0.04      |
| TILTON     | TILTON       | 0.04      |
| TRIMBLE    | TRIMBLE      | 0.03      |
| TVA        | TVA          | 0.17      |
| UNIONPOWER | UNIONPOWER   | 0.08      |
| VFT        | VFT          | 0.03      |

### 13.5.13 Index 12

| ID      | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|--------------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840188 | 314209    | 6SKIFF CREEK | DVP           | 314386  | 6KINGS M | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 168.9                 | 171.59                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940491     | AE2-034 C    | 2.86      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O2 | 1.42      |
| 941281     | AE2-122 C O2 | 11.6      |
| 941291     | AE2-123 C O2 | 11.92     |
| 941301     | AE2-124 C O2 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.23      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O2 | 13.78     |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPL        | CPL          | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

### 13.5.14 Index 13

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME           | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|---------|-------------|--------|---------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839472 | 314218    | 6ELMONT  | DVP           | 314908  | 8ELMONT | DVP         | 1      | DVP_P4-2:<br>H2T557 | breaker | 1050.6     | 158.55                | 164.28                 | DC    | 131.83    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314189 | 6PAPERMILL   | 8.73      |
| 314229 | 6MT RD221    | 0.17      |
| 314236 | 6NRTHEST     | 0.23      |
| 314250 | 6ROCKVILLE   | 0.39      |
| 314309 | 6IRON208     | 0.49      |
| 314539 | 3UNCAMP      | 2.16      |
| 314541 | 3WATKINS     | 0.6       |
| 314648 | 6SUNBURY     | 0.8       |
| 314651 | 6WINFALL     | 1.57      |
| 315043 | 1FOUR RIVERA | 4.24      |
| 315044 | 1FOUR RIVERB | 3.29      |
| 315045 | 1FOUR RIVERC | 4.24      |
| 315046 | 1FOUR RIVERD | 3.29      |
| 315047 | 1FOUR RIVERE | 3.29      |
| 315048 | 1FOUR RIVERF | 4.24      |
| 315053 | 1BELMED1     | 25.27     |
| 315054 | 1BELMED2     | 25.27     |
| 315055 | 1BELMED3     | 20.97     |
| 315058 | 1CHESTF3     | 26.83     |
| 315059 | 1CHESTF4     | 43.49     |
| 315067 | 1DARBY 1     | 3.07      |
| 315068 | 1DARBY 2     | 3.08      |
| 315069 | 1DARBY 3     | 3.09      |
| 315070 | 1DARBY 4     | 3.09      |
| 315073 | 1STONECA     | 9.28      |
| 315074 | 1HOPCGN1     | 11.19     |
| 315075 | 1HOPCGN2     | 11.05     |
| 315083 | 1SPRUNCA     | 14.77     |
| 315084 | 1SPRUNCB     | 14.77     |
| 315085 | 1SPRUNCC     | 10.95     |
| 315086 | 1SPRUNCD     | 10.95     |
| 315090 | 1YORKTN1     | 30.6      |
| 315091 | 1YORKTN2     | 31.75     |
| 901082 | W1-029 E     | 41.2      |
| 907092 | X1-038 E     | 5.4       |
| 913392 | Y1-086 E     | 1.98      |
| 916042 | Z1-036 E     | 40.19     |
| 916192 | Z1-068 E     | 1.73      |
| 917122 | Z2-027 E     | 0.95      |
| 919152 | AA1-139 E    | 5.84      |
| 919211 | AA1-145      | 12.27     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 923801 | AB2-015 C O1 | 7.63      |
| 923802 | AB2-015 E O1 | 6.25      |
| 923832 | AB2-022 E    | 1.12      |
| 923842 | AB2-024 E    | 1.47      |
| 923852 | AB2-025 E    | 1.07      |
| 924061 | AB2-050      | 0.72      |
| 924241 | AB2-068 O1   | 175.77    |
| 924511 | AB2-100 C    | 10.3      |
| 924512 | AB2-100 E    | 5.07      |
| 924812 | AB2-134 E O1 | 14.7      |
| 925051 | AB2-160 C O1 | 7.07      |
| 925052 | AB2-160 E O1 | 11.54     |
| 925061 | AB2-161 C O1 | 3.58      |
| 925062 | AB2-161 E O1 | 5.84      |
| 925331 | AB2-190 C    | 24.53     |
| 925332 | AB2-190 E    | 10.51     |
| 925522 | AC1-027 E    | 1.06      |
| 925861 | AC1-065 C    | 4.33      |
| 925862 | AC1-065 E    | 7.06      |
| 926291 | AC1-107 O1   | 265.31    |
| 926411 | AC1-112 C    | 0.42      |
| 926412 | AC1-112 E    | 1.92      |
| 926472 | AC1-118 E    | 1.06      |
| 926551 | AC1-134      | 1.8       |
| 926662 | AC1-147 E    | 1.23      |
| 926751 | AC1-161 C O1 | 26.82     |
| 926752 | AC1-161 E O1 | 11.45     |
| 926781 | AC1-164 C    | 57.92     |
| 926782 | AC1-164 E    | 26.02     |
| 927041 | AC1-191 C O1 | 17.43     |
| 927042 | AC1-191 E O1 | 8.68      |
| 927221 | AC1-216 C O1 | 11.81     |
| 927222 | AC1-216 E O1 | 9.29      |
| 930121 | AB1-027 C    | 0.54      |
| 930122 | AB1-027 E    | 1.89      |
| 932041 | AC2-012 C    | 9.5       |
| 932042 | AC2-012 E    | 15.5      |
| 932501 | AC2-070 C    | 0.35      |
| 932502 | AC2-070 E    | 1.2       |
| 932532 | AC2-073 E    | 1.54      |
| 932581 | AC2-078 C O1 | 4.69      |
| 932582 | AC2-078 E O1 | 7.65      |
| 932591 | AC2-079 C O1 | 5.74      |
| 932592 | AC2-079 E O1 | 9.36      |
| 932831 | AC2-110 C    | 1.73      |
| 932832 | AC2-110 E    | 2.83      |
| 933061 | AC2-130      | 3.44      |
| 933261 | AC2-137 C    | 0.38      |
| 933262 | AC2-137 E    | 2.03      |
| 933272 | AC2-138 E    | 1.07      |
| 933291 | AC2-141 C    | 26.82     |
| 933292 | AC2-141 E    | 11.45     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933732 | AC2-196 E    | 1.09      |
| 934011 | AD1-025 C    | 20.31     |
| 934012 | AD1-025 E    | 12.03     |
| 934061 | AD1-033 C    | 6.88      |
| 934062 | AD1-033 E    | 4.59      |
| 934141 | AD1-041 C    | 6.72      |
| 934142 | AD1-041 E    | 4.48      |
| 934211 | AD1-048 C    | 0.46      |
| 934212 | AD1-048 E    | 1.91      |
| 934392 | AD1-063 E    | 1.38      |
| 934571 | AD1-082 C    | 8.15      |
| 934572 | AD1-082 E    | 4.65      |
| 934781 | AD1-105 C    | 11.44     |
| 934782 | AD1-105 E    | 7.95      |
| 935112 | AD1-144 E    | 0.91      |
| 935161 | AD1-151 C O1 | 19.71     |
| 935162 | AD1-151 E O1 | 13.14     |
| 935212 | AD1-156 E    | 1.68      |
| 936041 | AD2-007      | 2.16      |
| 936051 | AD2-008 C    | 3.54      |
| 936052 | AD2-008 E    | 7.7       |
| 936151 | AD2-021      | 0.36      |
| 936241 | AD2-030 C    | 2.87      |
| 936242 | AD2-030 E    | 1.47      |
| 936301 | AD2-039 C    | 1.73      |
| 936302 | AD2-039 E    | 2.83      |
| 936341 | AD2-044 C    | 0.27      |
| 936342 | AD2-044 E    | 0.3       |
| 936391 | AD2-049 C    | 1.86      |
| 936392 | AD2-049 E    | 1.86      |
| 936581 | AD2-073 C    | 2.22      |
| 936582 | AD2-073 E    | 1.1       |
| 936591 | AD2-074 C    | 6.32      |
| 936592 | AD2-074 E    | 10.32     |
| 936661 | AD2-085 C    | 3.45      |
| 936662 | AD2-085 E    | 5.64      |
| 936711 | AD2-090 C O1 | 6.26      |
| 936712 | AD2-090 E O1 | 4.17      |
| 937221 | AD2-160 C O1 | 5.33      |
| 937222 | AD2-160 E O1 | 2.8       |
| 937251 | AD2-164      | 5.08      |
| 937541 | AD2-215 C    | 1.67      |
| 937542 | AD2-215 E    | 0.89      |
| 938031 | AE1-004 C    | 1.73      |
| 938032 | AE1-004 E    | 2.83      |
| 938181 | AE1-027 C    | 2.14      |
| 938182 | AE1-027 E    | 1.13      |
| 938191 | AE1-028 C    | 1.24      |
| 938192 | AE1-028 E    | 0.72      |
| 938531 | AE1-072 C O1 | 15.94     |
| 938532 | AE1-072 E O1 | 8.31      |
| 938551 | AE1-074 C    | 3.1       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938552 | AE1-074 E    | 1.56      |
| 938631 | AE1-085 C O1 | 12.45     |
| 938632 | AE1-085 E O1 | 8.3       |
| 938771 | AE1-103 C O1 | 3.24      |
| 938772 | AE1-103 E O1 | 4.47      |
| 939071 | AE1-135 C O1 | 18.69     |
| 939072 | AE1-135 E O1 | 12.46     |
| 939191 | AE1-149 C O1 | 12.54     |
| 939192 | AE1-149 E O1 | 8.36      |
| 939241 | AE1-155 C    | 17.01     |
| 939242 | AE1-155 E    | 11.34     |
| 939281 | AE1-159 C O1 | 12.01     |
| 939282 | AE1-159 E O1 | 7.1       |
| 939311 | AE1-162 C    | 2.22      |
| 939312 | AE1-162 E    | 1.48      |
| 939421 | AE1-174 C    | 0.23      |
| 939422 | AE1-174 E    | 0.34      |
| 939431 | AE1-175 C    | 2.86      |
| 939432 | AE1-175 E    | 1.42      |
| 939611 | AE1-191 C    | 13.43     |
| 939612 | AE1-191 E    | 8.96      |
| 939751 | AE1-206 C O1 | 56.7      |
| 939752 | AE1-206 E O1 | 37.8      |
| 940061 | AE1-248 C O1 | 16.95     |
| 940062 | AE1-248 E O1 | 11.3      |
| 940071 | AE1-249 C    | 9.33      |
| 940072 | AE1-249 E    | 6.96      |
| 940231 | AE2-005 C    | 1.73      |
| 940232 | AE2-005 E    | 2.83      |
| 940251 | AE2-007      | 160.86    |
| 940431 | AE2-027 C O2 | 16.68     |
| 940432 | AE2-027 E O2 | 11.12     |
| 940481 | AE2-033 C    | 15.17     |
| 940482 | AE2-033 E    | 10.23     |
| 940541 | AE2-040      | 4.13      |
| 940551 | AE2-041      | 9.23      |
| 940641 | AE2-051 C O2 | 16.67     |
| 940642 | AE2-051 E O2 | 11.11     |
| 940651 | AE2-052      | 4.2       |
| 940891 | AE2-078 C    | 2.59      |
| 940892 | AE2-078 E    | 1.33      |
| 940901 | AE2-079 C    | 2.59      |
| 940902 | AE2-079 E    | 1.33      |
| 940911 | AE2-080 C    | 2.59      |
| 940912 | AE2-080 E    | 1.33      |
| 941101 | AE2-104 C O2 | 3.22      |
| 941102 | AE2-104 E O2 | 5.12      |
| 941141 | AE2-108 C    | 2.12      |
| 941142 | AE2-108 E    | 2.92      |
| 941151 | AE2-109 C    | 0.74      |
| 941152 | AE2-109 E    | 1.02      |
| 941281 | AE2-122 C O2 | 26.18     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 941282     | AE2-122 E O2 | 105.65    |
| 941291     | AE2-123 C O2 | 26.91     |
| 941292     | AE2-123 E O2 | 104.93    |
| 941301     | AE2-124 C O2 | 24.5      |
| 941302     | AE2-124 E O2 | 107.48    |
| 941501     | AE2-147 C    | 14.21     |
| 941502     | AE2-147 E    | 9.47      |
| 941581     | AE2-155 C    | 1.1       |
| 941582     | AE2-155 E    | 0.47      |
| 941591     | AE2-156      | 16.8      |
| 941601     | AE2-157 C O2 | 11.46     |
| 941602     | AE2-157 E O2 | 7.64      |
| 942001     | AE2-212 C    | 2.82      |
| 942002     | AE2-212 E    | 1.88      |
| 942131     | AE2-225 C    | 1.96      |
| 942132     | AE2-225 E    | 1.31      |
| 942151     | AE2-227 C O2 | 3.27      |
| 942152     | AE2-227 E O2 | 2.18      |
| 942161     | AE2-228 C O2 | 2.97      |
| 942162     | AE2-228 E O2 | 1.98      |
| 942171     | AE2-229 C    | 1.96      |
| 942172     | AE2-229 E    | 1.31      |
| 942191     | AE2-231 C O2 | 5.33      |
| 942192     | AE2-231 E O2 | 3.55      |
| 942341     | AE2-247 C    | 1.5       |
| 942342     | AE2-247 E    | 2.07      |
| 942401     | AE2-253 C    | 5.61      |
| 942402     | AE2-253 E    | 2.52      |
| 942471     | AE2-260 C O2 | 12.85     |
| 942472     | AE2-260 E O2 | 18.23     |
| 942531     | AE2-268 C    | 2.21      |
| 942532     | AE2-268 E    | 1.24      |
| 942551     | AE2-270      | 32.87     |
| 942851     | AE2-304 C    | 0.56      |
| 942852     | AE2-304 E    | 0.22      |
| AA2-074    | AA2-074      | 3.26      |
| CARR       | CARR         | 0.78      |
| CBM-S1     | CBM-S1       | 4.14      |
| CBM-S2     | CBM-S2       | 8.5       |
| CBM-W2     | CBM-W2       | 22.9      |
| CIN        | CIN          | 0.19      |
| CPL        | CPL          | 4.79      |
| G-007      | G-007        | 2.36      |
| IPL        | IPL          | 0.05      |
| LGEE       | LGEE         | 0.06      |
| MEC        | MEC          | 1.89      |
| O-066      | O-066        | 15.05     |
| RENSSELAER | RENSSELAER   | 0.61      |
| WEC        | WEC          | 0.04      |

### 13.5.15 Index 14

| ID      | FROM BUS# | FROM BUS  | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|-----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840303 | 314296    | 6PENNIMAN | DVP           | 314415  | 6WALR209 | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 157.51                | 160.2                  | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940491     | AE2-034 C    | 2.86      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O2 | 1.42      |
| 941281     | AE2-122 C O2 | 11.6      |
| 941291     | AE2-123 C O2 | 11.92     |
| 941301     | AE2-124 C O2 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.23      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O2 | 13.78     |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPLE       | CPLE         | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

### 13.5.16 Index 15

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840230 | 314386    | 6KINGS M | DVP           | 314296  | 6PENNINGMAN | DVP         | 1      | DVP_P1-2: LN 557 | single | 441.8      | 161.14                | 163.82                 | DC    | 11.92     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.08      |
| 314507 | 3THOMPSN     | 0.1       |
| 314638 | 6ELIZ CT     | 0.06      |
| 314639 | 6TANGLEW     | 0.12      |
| 314643 | 3O INLET     | 0.13      |
| 315090 | 1YORKTN1     | 22.98     |
| 315091 | 1YORKTN2     | 23.85     |
| 315092 | 1YORKTN3     | 13.98     |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.33      |
| 315108 | 1ELIZAR1     | 0.97      |
| 315109 | 1ELIZAR2     | 0.96      |
| 315110 | 1ELIZAR3     | 0.99      |
| 315116 | 1SURRY 1     | 6.16      |
| 315120 | 1GRAVEL4     | 0.63      |
| 315121 | 1GRAVEL5     | 0.63      |
| 315122 | 1GRAVEL6     | 0.63      |
| 315233 | 1SURRY 2     | 9.95      |
| 315260 | 1GOSPORTA    | 0.11      |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 901081 | W1-029 C     | 0.32      |
| 916041 | Z1-036 C     | 0.31      |
| 916191 | Z1-068 C     | 0.01      |
| 919151 | AA1-139 C    | 0.73      |
| 923801 | AB2-015 C O1 | 2.73      |
| 923831 | AB2-022 C    | 0.11      |
| 924241 | AB2-068 O1   | 102.57    |
| 925521 | AC1-027 C    | 0.1       |
| 926291 | AC1-107 O1   | 154.82    |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.95     |
| 932041 | AC2-012 C    | 4.14      |
| 932591 | AC2-079 C O1 | 1.66      |
| 933291 | AC2-141 C    | 13.95     |
| 933731 | AC2-196 C    | 0.09      |
| 933991 | AD1-023 C    | 4.14      |
| 934061 | AD1-033 C    | 3.07      |
| 934521 | AD1-076 C    | 17.59     |
| 935111 | AD1-144 C    | 0.09      |
| 936391 | AD2-049 C    | 1.14      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 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 | 8.68      |
| 938172     | AE1-026 C2 O | 1.26      |
| 938181     | AE1-027 C    | 0.95      |
| 938191     | AE1-028 C    | 0.55      |
| 938531     | AE1-072 C O1 | 7.03      |
| 938771     | AE1-103 C O1 | 1.17      |
| 939311     | AE1-162 C    | 0.78      |
| 939411     | AE1-173 C    | 27.56     |
| 939421     | AE1-174 C    | 0.16      |
| 939431     | AE1-175 C    | 1.08      |
| 940251     | AE2-007      | 70.58     |
| 940491     | AE2-034 C    | 2.86      |
| 940891     | AE2-078 C    | 0.95      |
| 940901     | AE2-079 C    | 0.95      |
| 940911     | AE2-080 C    | 0.95      |
| 941101     | AE2-104 C O2 | 1.42      |
| 941281     | AE2-122 C O2 | 11.6      |
| 941291     | AE2-123 C O2 | 11.92     |
| 941301     | AE2-124 C O2 | 10.84     |
| 941501     | AE2-147 C    | 6.08      |
| 941591     | AE2-156      | 7.23      |
| 942131     | AE2-225 C    | 0.86      |
| 942171     | AE2-229 C    | 0.86      |
| 942341     | AE2-247 C    | 0.43      |
| 942401     | AE2-253 C    | 2.49      |
| 942851     | AE2-304 C    | 0.24      |
| 942921     | AE2-311 C O2 | 13.78     |
| CARR       | CARR         | 0.19      |
| CBM-S1     | CBM-S1       | 2.44      |
| CBM-S2     | CBM-S2       | 3.12      |
| CBM-W1     | CBM-W1       | 2.03      |
| CBM-W2     | CBM-W2       | 15.52     |
| CIN        | CIN          | 0.94      |
| CPL        | CPL          | 1.65      |
| IPL        | IPL          | 0.58      |
| LGEE       | LGEE         | 0.27      |
| MEC        | MEC          | 2.24      |
| MECS       | MECS         | 0.68      |
| RENSSELAER | RENSSELAER   | 0.15      |
| WEC        | WEC          | 0.25      |

### 13.5.17 Index 16

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839781 | 314449    | 6CHESAPK | DVP           | 314448  | 3CHESAPK | DVP         | 1      | DVP_P4-2:<br>215822-5 | breaker | 293.9      | 112.76                | 116.08                 | DC    | 21.63     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940251 | AE2-007      | 263.29    |
| 941281 | AE2-122 C O2 | 4.3       |
| 941282 | AE2-122 E O2 | 17.33     |
| 941291 | AE2-123 C O2 | 4.41      |
| 941292 | AE2-123 E O2 | 17.21     |
| 941301 | AE2-124 C O2 | 4.66      |
| 941302 | AE2-124 E O2 | 20.46     |
| 941592 | AE2-156 BAT  | 16.31     |
| CBM-N  | CBM-N        | 0.01      |
| CBM-S1 | CBM-S1       | 0.1       |
| CBM-S2 | CBM-S2       | 0.09      |
| CBM-W1 | CBM-W1       | 0.14      |
| CBM-W2 | CBM-W2       | 0.68      |
| CIN    | CIN          | 0.06      |
| CPL    | CPL          | 0.05      |
| G-007A | G-007A       | 0.02      |
| IPL    | IPL          | 0.04      |
| LGEE   | LGEE         | 0.02      |
| MEC    | MEC          | 0.12      |
| MECS   | MECS         | 0.07      |
| NYISO  | NYISO        | 0.03      |
| VFT    | VFT          | 0.05      |
| WEC    | WEC          | 0.02      |

### 13.5.18 Index 17

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME             | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 1839822 | 314449    | 6CHESAPK | DVP           | 314448  | 3CHESAPK | DVP         | 2      | DVP_P4-2:<br>215822-6 | breaker | 293.9      | 104.93                | 108.02                 | DC    | 20.12     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 940251 | AE2-007      | 244.98    |
| 941281 | AE2-122 C O2 | 4.0       |
| 941282 | AE2-122 E O2 | 16.13     |
| 941291 | AE2-123 C O2 | 4.11      |
| 941292 | AE2-123 E O2 | 16.02     |
| 941301 | AE2-124 C O2 | 4.34      |
| 941302 | AE2-124 E O2 | 19.03     |
| 941592 | AE2-156 BAT  | 15.17     |
| CBM-N  | CBM-N        | 0.01      |
| CBM-S1 | CBM-S1       | 0.09      |
| CBM-S2 | CBM-S2       | 0.08      |
| CBM-W1 | CBM-W1       | 0.12      |
| CBM-W2 | CBM-W2       | 0.64      |
| CIN    | CIN          | 0.05      |
| CPL    | CPL          | 0.04      |
| G-007A | G-007A       | 0.01      |
| IPL    | IPL          | 0.03      |
| LGEE   | LGEE         | 0.02      |
| MEC    | MEC          | 0.11      |
| MECS   | MECS         | 0.07      |
| NYISO  | NYISO        | 0.02      |
| VFT    | VFT          | 0.04      |
| WEC    | WEC          | 0.01      |

### 13.5.19 Index 18

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME            | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901348 | 314574    | 6EVERETS | DVP           | 936530  | AD2-068 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 449.32     | 136.34                | 138.33                 | DC    | 9.01      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.07      |
| 314589 | 3MURPHYS     | 0.04      |
| 314638 | 6ELIZ CT     | 0.07      |
| 314639 | 6TANGLEW     | 0.14      |
| 314643 | 3O INLET     | 0.12      |
| 315098 | 1CHESPKA     | 0.1       |
| 315099 | 1CHESPKB     | 0.24      |
| 315115 | 1S HAMPT1    | 0.5       |
| 315126 | 1ROARAP2     | 0.41      |
| 315128 | 1ROARAP4     | 0.39      |
| 315136 | 1ROSEMG1     | 0.62      |
| 315137 | 1ROSEMS1     | 0.38      |
| 315138 | 1ROSEMG2     | 0.29      |
| 315139 | 1GASTONA     | 0.96      |
| 315141 | 1GASTONB     | 0.96      |
| 315260 | 1GOSPORTA    | 0.08      |
| 315261 | 1GOSPORTB    | 0.1       |
| 315262 | 1GOSPORTC    | 0.08      |
| 315292 | 1DOMTR78     | 1.14      |
| 315293 | 1DOMTR9      | 0.93      |
| 315294 | 1DOMTR10     | 1.69      |
| 901081 | W1-029 C     | 0.42      |
| 916041 | Z1-036 C     | 0.51      |
| 916191 | Z1-068 C     | 0.01      |
| 917331 | Z2-043 C     | 0.2       |
| 917511 | Z2-088 C OP1 | 1.34      |
| 918491 | AA1-063AC OP | 0.61      |
| 918511 | AA1-065 C OP | 1.15      |
| 918531 | AA1-067 C    | 0.36      |
| 918561 | AA1-072 C    | 0.03      |
| 919151 | AA1-139 C    | 0.66      |
| 919691 | AA2-053 C    | 0.54      |
| 920041 | AA2-088 C OP | 0.39      |
| 920671 | AA2-174 C    | 0.02      |
| 920691 | AA2-178 C    | 0.95      |
| 923801 | AB2-015 C O1 | 3.81      |
| 923831 | AB2-022 C    | 0.12      |
| 923911 | AB2-031 C O1 | 0.79      |
| 923991 | AB2-040 C O1 | 0.32      |
| 924491 | AB2-098 C    | 0.99      |
| 924501 | AB2-099 C    | 0.47      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 924511 | AB2-100 C    | 3.88      |
| 925061 | AB2-161 C O1 | 1.01      |
| 925121 | AB2-169 C    | 1.03      |
| 925171 | AB2-174 C O1 | 2.41      |
| 925521 | AC1-027 C    | 0.07      |
| 926071 | AC1-086 C    | 8.9       |
| 926201 | AC1-098 C    | 2.58      |
| 926211 | AC1-099 C    | 0.87      |
| 926661 | AC1-147 C    | 0.08      |
| 927021 | AC1-189 C    | 12.0      |
| 930861 | AB1-132 C O1 | 0.74      |
| 931231 | AB1-173 C    | 0.1       |
| 931241 | AB1-173AC    | 0.1       |
| 932041 | AC2-012 C    | 3.0       |
| 932591 | AC2-079 C O1 | 1.89      |
| 932631 | AC2-084 C    | 3.68      |
| 933731 | AC2-196 C    | 0.07      |
| 933991 | AD1-023 C    | 12.68     |
| 934061 | AD1-033 C    | 2.36      |
| 934201 | AD1-047 C    | 2.84      |
| 934521 | AD1-076 C    | 50.93     |
| 934571 | AD1-082 C    | 2.31      |
| 935111 | AD1-144 C    | 0.07      |
| 936401 | AD2-051 C O1 | 7.58      |
| 936661 | AD2-085 C    | 1.13      |
| 936701 | AD2-089 C    | 5.03      |
| 936711 | AD2-090 C O1 | 3.34      |
| 937221 | AD2-160 C O1 | 2.04      |
| 937541 | AD2-215 C    | 0.59      |
| 937571 | AD2-169 C    | 3.66      |
| 938171 | AE1-026 C1 O | 27.49     |
| 938172 | AE1-026 C2 O | 3.98      |
| 938181 | AE1-027 C    | 0.77      |
| 938191 | AE1-028 C    | 0.44      |
| 938221 | AE1-035 C    | 2.35      |
| 938531 | AE1-072 C O1 | 6.59      |
| 938661 | AE1-088      | 4.36      |
| 938771 | AE1-103 C O1 | 1.57      |
| 939071 | AE1-135 C O1 | 6.73      |
| 940061 | AE1-248 C O1 | 4.8       |
| 940251 | AE2-007      | 50.77     |
| 940491 | AE2-034 C    | 6.83      |
| 940521 | AE2-037 C O2 | 11.03     |
| 941101 | AE2-104 C O2 | 1.26      |
| 941281 | AE2-122 C O2 | 8.76      |
| 941291 | AE2-123 C O2 | 9.01      |
| 941301 | AE2-124 C O2 | 8.16      |
| 941501 | AE2-147 C    | 7.92      |
| 941541 | AE2-151 C    | 0.94      |
| 942131 | AE2-225 C    | 0.77      |
| 942171 | AE2-229 C    | 0.77      |
| 942341 | AE2-247 C    | 0.49      |

| <b>Bus #</b> | <b>Bus</b>   | <b>MW Impact</b> |
|--------------|--------------|------------------|
| 942371       | AE2-250 C O2 | 2.87             |
| 942401       | AE2-253 C    | 2.14             |
| 942471       | AE2-260 C O2 | 4.66             |
| 942851       | AE2-304 C    | 0.35             |
| 943171       | AE2-346 C    | 1.41             |
| AC1-131      | AC1-131      | 6.95             |
| BLUEG        | BLUEG        | 9.16             |
| CALDERWOOD   | CALDERWOOD   | 1.99             |
| CANNELTON    | CANNELTON    | 0.63             |
| CATAWBA      | CATAWBA      | 1.96             |
| CBM-N        | CBM-N        | 0.29             |
| CHEOAH       | CHEOAH       | 1.86             |
| CHILHOWEE    | CHILHOWEE    | 0.64             |
| COFFEEN      | COFFEEN      | 1.09             |
| COTTONWOOD   | COTTONWOOD   | 6.67             |
| DUCKCREEK    | DUCKCREEK    | 2.22             |
| EDWARDS      | EDWARDS      | 0.99             |
| ELMERSMITH   | ELMERSMITH   | 1.12             |
| FARMERCITY   | FARMERCITY   | 0.79             |
| G-007A       | G-007A       | 1.31             |
| GIBSON       | GIBSON       | 0.4              |
| HAMLET       | HAMLET       | 4.21             |
| NEWTON       | NEWTON       | 2.83             |
| NYISO        | NYISO        | 1.24             |
| PRAIRIE      | PRAIRIE      | 6.0              |
| SANTEETLA    | SANTEETLA    | 0.55             |
| SMITHLAND    | SMITHLAND    | 0.54             |
| TATANKA      | TATANKA      | 1.34             |
| TILTON       | TILTON       | 1.16             |
| TRIMBLE      | TRIMBLE      | 1.0              |
| TVA          | TVA          | 5.58             |
| UNIONPOWER   | UNIONPOWER   | 2.77             |
| VFT          | VFT          | 3.49             |

### 13.5.20 Index 19

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME            | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|-------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901943 | 314686    | 6CLOVER  | DVP           | 934610  | AD1-087 TAP | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 814.98     | 107.31                | 108.68                 | DC    | 11.17     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.04      |
| 314507 | 3THOMPSN     | 0.1       |
| 315090 | 1YORKTN1     | 10.65     |
| 315091 | 1YORKTN2     | 11.05     |
| 315092 | 1YORKTN3     | 6.44      |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.31      |
| 315102 | 1BRUNSWICKG1 | 4.13      |
| 315103 | 1BRUNSWICKG2 | 4.13      |
| 315104 | 1BRUNSWICKG3 | 4.13      |
| 315105 | 1BRUNSWICKS1 | 8.59      |
| 315108 | 1ELIZAR1     | 0.93      |
| 315109 | 1ELIZAR2     | 0.92      |
| 315110 | 1ELIZAR3     | 0.94      |
| 315116 | 1SURRY 1     | 6.74      |
| 315153 | 1CLOVER1     | 16.29     |
| 315154 | 1CLOVER2     | 16.08     |
| 315191 | 1BEARGRDN G1 | 1.24      |
| 315192 | 1BEARGRDN G2 | 1.24      |
| 315193 | 1BEARGRDN S1 | 2.54      |
| 315233 | 1SURRY 2     | 7.49      |
| 315260 | 1GOSPORTA    | 0.1       |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 916191 | Z1-068 C     | 0.01      |
| 916301 | Z1-086 C     | 24.14     |
| 920291 | AA2-127      | 0.26      |
| 924031 | AB2-045 C    | 0.15      |
| 925521 | AC1-027 C    | 0.09      |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.14     |
| 932041 | AC2-012 C    | 3.97      |
| 932511 | AC2-071 C    | 0.15      |
| 933291 | AC2-141 C    | 13.14     |
| 933731 | AC2-196 C    | 0.08      |
| 934061 | AD1-033 C    | 2.86      |
| 934233 | AD1-050 BAT  | 5.08      |
| 934621 | AD1-088 C    | 17.85     |
| 937251 | AD2-164      | 1.77      |
| 938181 | AE1-027 C    | 0.87      |
| 938191 | AE1-028 C    | 0.51      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 938491     | AE1-068 C O1 | 38.23     |
| 938501     | AE1-069 C O1 | 30.93     |
| 939311     | AE1-162 C    | 0.81      |
| 939411     | AE1-173 C    | 43.23     |
| 940251     | AE2-007      | 67.63     |
| 940471     | AE2-031 C O2 | 22.98     |
| 940641     | AE2-051 C O2 | 6.07      |
| 940891     | AE2-078 C    | 0.87      |
| 940901     | AE2-079 C    | 0.87      |
| 940911     | AE2-080 C    | 0.87      |
| 941031     | AE2-094 C    | 23.49     |
| 941281     | AE2-122 C O2 | 10.87     |
| 941291     | AE2-123 C O2 | 11.17     |
| 941301     | AE2-124 C O2 | 10.18     |
| 941591     | AE2-156      | 6.96      |
| 941791     | AE2-182 C    | 3.23      |
| 942211     | AE2-233 C    | 7.68      |
| 942921     | AE2-311 C O2 | 21.61     |
| 942931     | AE2-313 C    | 23.68     |
| 943051     | AE2-328 C    | 11.8      |
| AC1-131    | AC1-131      | 9.78      |
| BLUEG      | BLUEG        | 18.52     |
| CALDERWOOD | CALDERWOOD   | 3.67      |
| CANNELTON  | CANNELTON    | 1.25      |
| CATAWBA    | CATAWBA      | 3.52      |
| CBM-N      | CBM-N        | 0.67      |
| CHEOAH     | CHEOAH       | 3.42      |
| CHILHOWEE  | CHILHOWEE    | 1.19      |
| COFFEEN    | COFFEEN      | 2.13      |
| COTTONWOOD | COTTONWOOD   | 12.22     |
| DUCKCREEK  | DUCKCREEK    | 4.38      |
| EDWARDS    | EDWARDS      | 1.96      |
| ELMERSMITH | ELMERSMITH   | 2.2       |
| FARMERCITY | FARMERCITY   | 1.53      |
| G-007A     | G-007A       | 3.0       |
| GIBSON     | GIBSON       | 0.79      |
| HAMLET     | HAMLET       | 6.6       |
| NEWTON     | NEWTON       | 5.55      |
| NYISO      | NYISO        | 2.89      |
| PRAIRIE    | PRAIRIE      | 11.53     |
| SANTEETLA  | SANTEETLA    | 1.02      |
| SMITHLAND  | SMITHLAND    | 1.02      |
| TATANKA    | TATANKA      | 2.59      |
| TILTON     | TILTON       | 2.32      |
| TRIMBLE    | TRIMBLE      | 2.04      |
| TVA        | TVA          | 10.32     |
| UNIONPOWER | UNIONPOWER   | 5.07      |
| VFT        | VFT          | 7.99      |

### 13.5.21 Index 20

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840157 | 314903    | 8CHCKAHM | DVP           | 314908  | 8ELMONT | DVP         | 1      | DVP_P1-2: LN 563 | single | 2442.12    | 148.35                | 150.43                 | DC    | 50.64     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.19      |
| 314507 | 3THOMPSN     | 0.43      |
| 314638 | 6ELIZ CT     | 0.28      |
| 314639 | 6TANGLEW     | 0.5       |
| 314643 | 3O INLET     | 0.56      |
| 315074 | 1HOPCGN1     | 9.52      |
| 315075 | 1HOPCGN2     | 9.4       |
| 315090 | 1YORKTN1     | 50.95     |
| 315091 | 1YORKTN2     | 52.87     |
| 315092 | 1YORKTN3     | 30.89     |
| 315098 | 1CHESPKA     | 0.56      |
| 315099 | 1CHESPKB     | 1.4       |
| 315108 | 1ELIZAR1     | 4.14      |
| 315109 | 1ELIZAR2     | 4.07      |
| 315110 | 1ELIZAR3     | 4.2       |
| 315116 | 1SURRY 1     | 28.48     |
| 315120 | 1GRAVEL4     | 2.93      |
| 315121 | 1GRAVEL5     | 2.89      |
| 315122 | 1GRAVEL6     | 2.93      |
| 315131 | 1EDGECEMA    | 11.15     |
| 315132 | 1EDGECEMB    | 11.15     |
| 315233 | 1SURRY 2     | 37.58     |
| 315260 | 1GOSPORTA    | 0.45      |
| 315261 | 1GOSPORTB    | 0.57      |
| 315262 | 1GOSPORTC    | 0.49      |
| 901081 | W1-029 C     | 1.38      |
| 916041 | Z1-036 C     | 1.34      |
| 916191 | Z1-068 C     | 0.06      |
| 919151 | AA1-139 C    | 3.13      |
| 919701 | AA2-057 C    | 8.79      |
| 923801 | AB2-015 C O1 | 12.96     |
| 923831 | AB2-022 C    | 0.47      |
| 923841 | AB2-024 C    | 0.47      |
| 923911 | AB2-031 C O1 | 2.78      |
| 924241 | AB2-068 O1   | 607.0     |
| 924491 | AB2-098 C    | 0.76      |
| 924501 | AB2-099 C    | 0.82      |
| 924511 | AB2-100 C    | 14.25     |
| 925061 | AB2-161 C O1 | 4.78      |
| 925171 | AB2-174 C O1 | 8.68      |
| 925331 | AB2-190 C    | 27.02     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925521 | AC1-027 C    | 0.42      |
| 925591 | AC1-034 C    | 8.21      |
| 925861 | AC1-065 C    | 5.05      |
| 926071 | AC1-086 C    | 26.3      |
| 926201 | AC1-098 C    | 7.92      |
| 926211 | AC1-099 C    | 2.65      |
| 926291 | AC1-107 O1   | 916.22    |
| 926661 | AC1-147 C    | 0.48      |
| 926751 | AC1-161 C O1 | 56.99     |
| 926781 | AC1-164 C    | 64.03     |
| 927021 | AC1-189 C    | 11.37     |
| 927141 | AC1-208 C    | 11.41     |
| 927221 | AC1-216 C O1 | 13.51     |
| 932041 | AC2-012 C    | 17.66     |
| 932581 | AC2-078 C O1 | 5.08      |
| 932591 | AC2-079 C O1 | 8.71      |
| 932631 | AC2-084 C    | 11.29     |
| 932831 | AC2-110 C    | 2.02      |
| 933061 | AC2-130      | 2.81      |
| 933291 | AC2-141 C    | 56.99     |
| 933731 | AC2-196 C    | 0.38      |
| 933991 | AD1-023 C    | 19.44     |
| 934011 | AD1-025 C    | 23.23     |
| 934061 | AD1-033 C    | 13.04     |
| 934141 | AD1-041 C    | 8.0       |
| 934201 | AD1-047 C    | 9.95      |
| 934331 | AD1-057 C O1 | 12.33     |
| 934521 | AD1-076 C    | 81.69     |
| 934571 | AD1-082 C    | 10.9      |
| 935111 | AD1-144 C    | 0.35      |
| 935161 | AD1-151 C O1 | 21.71     |
| 936041 | AD2-007      | 2.47      |
| 936051 | AD2-008 C    | 4.04      |
| 936151 | AD2-021      | 0.3       |
| 936241 | AD2-030 C    | 3.51      |
| 936301 | AD2-039 C    | 2.02      |
| 936391 | AD2-049 C    | 3.09      |
| 936401 | AD2-051 C O1 | 12.17     |
| 936531 | AD2-068 C    | 6.41      |
| 936591 | AD2-074 C    | 7.02      |
| 936661 | AD2-085 C    | 5.21      |
| 936701 | AD2-089 C    | 9.09      |
| 936711 | AD2-090 C O1 | 10.57     |
| 937221 | AD2-160 C O1 | 10.08     |
| 937251 | AD2-164      | 8.44      |
| 937541 | AD2-215 C    | 2.93      |
| 937571 | AD2-169 C    | 12.48     |
| 938031 | AE1-004 C    | 2.02      |
| 938171 | AE1-026 C1 O | 41.09     |
| 938172 | AE1-026 C2 O | 5.94      |
| 938181 | AE1-027 C    | 4.05      |
| 938191 | AE1-028 C    | 2.35      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938221 | AE1-035 C    | 3.18      |
| 938491 | AE1-068 C O1 | 82.21     |
| 938501 | AE1-069 C O1 | 64.27     |
| 938531 | AE1-072 C O1 | 30.01     |
| 938631 | AE1-085 C O1 | 13.85     |
| 938661 | AE1-088      | 2.52      |
| 938771 | AE1-103 C O1 | 5.52      |
| 939071 | AE1-135 C O1 | 25.53     |
| 939191 | AE1-149 C O1 | 13.01     |
| 939241 | AE1-155 C    | 18.61     |
| 939311 | AE1-162 C    | 3.48      |
| 939411 | AE1-173 C    | 139.64    |
| 939421 | AE1-174 C    | 0.63      |
| 939431 | AE1-175 C    | 4.2       |
| 939611 | AE1-191 C    | 16.0      |
| 940061 | AE1-248 C O1 | 22.66     |
| 940231 | AE2-005 C    | 2.02      |
| 940251 | AE2-007      | 300.6     |
| 940471 | AE2-031 C O2 | 44.1      |
| 940481 | AE2-033 C    | 19.16     |
| 940491 | AE2-034 C    | 12.98     |
| 940521 | AE2-037 C O2 | 10.99     |
| 940551 | AE2-041      | 11.04     |
| 940571 | AE2-044 C    | 5.38      |
| 940641 | AE2-051 C O2 | 19.6      |
| 940651 | AE2-052      | 4.36      |
| 940891 | AE2-078 C    | 3.73      |
| 940901 | AE2-079 C    | 3.73      |
| 940911 | AE2-080 C    | 3.73      |
| 941031 | AE2-094 C    | 53.94     |
| 941101 | AE2-104 C O2 | 5.93      |
| 941281 | AE2-122 C O2 | 49.27     |
| 941291 | AE2-123 C O2 | 50.64     |
| 941301 | AE2-124 C O2 | 46.05     |
| 941501 | AE2-147 C    | 26.21     |
| 941541 | AE2-151 C    | 1.51      |
| 941591 | AE2-156      | 30.9      |
| 941601 | AE2-157 C O2 | 14.84     |
| 941951 | AE2-207      | 3.47      |
| 942131 | AE2-225 C    | 3.61      |
| 942171 | AE2-229 C    | 3.61      |
| 942211 | AE2-233 C    | 17.62     |
| 942341 | AE2-247 C    | 2.26      |
| 942371 | AE2-250 C O2 | 11.08     |
| 942401 | AE2-253 C    | 10.6      |
| 942471 | AE2-260 C O2 | 17.59     |
| 942531 | AE2-268 C    | 2.64      |
| 942551 | AE2-270      | 36.21     |
| 942711 | AE2-287 C O2 | 14.61     |
| 942851 | AE2-304 C    | 1.03      |
| 942921 | AE2-311 C O2 | 69.82     |
| 942931 | AE2-313 C    | 48.46     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>943171</b>     | AE2-346 C  | 2.45             |
| <b>AA2-074</b>    | AA2-074    | 6.33             |
| <b>CARR</b>       | CARR       | 1.23             |
| <b>CBM-S1</b>     | CBM-S1     | 12.44            |
| <b>CBM-S2</b>     | CBM-S2     | 17.46            |
| <b>CBM-W1</b>     | CBM-W1     | 8.49             |
| <b>CBM-W2</b>     | CBM-W2     | 77.13            |
| <b>CIN</b>        | CIN        | 4.08             |
| <b>CPL</b>        | CPL        | 9.31             |
| <b>IPL</b>        | IPL        | 2.49             |
| <b>LGEE</b>       | LGEE       | 1.19             |
| <b>MEC</b>        | MEC        | 10.4             |
| <b>MECS</b>       | MECS       | 1.96             |
| <b>RENSSELAER</b> | RENSSELAER | 0.97             |
| <b>WEC</b>        | WEC        | 1.08             |

### 13.5.22 Index 21

| ID      | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME        | Type   | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840370 | 314905    | 8CHANCE  | DVP           | 314900  | 8BRISTER | DVP         | 1      | DVP_P1-2: LN 594 | single | 2442.12    | 131.26                | 131.86                 | DC    | 31.97     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.1       |
| 314236 | 6NRTHEST     | 0.16      |
| 314250 | 6ROCKVILLE   | 0.28      |
| 314309 | 6IRON208     | 0.37      |
| 315037 | 1LDYSMT1     | 3.81      |
| 315038 | 1LDYSMT2     | 3.8       |
| 315039 | 1LDYSMT3     | 4.02      |
| 315040 | 1LDYSMT4     | 4.03      |
| 315041 | 1LDYSMT5     | 4.04      |
| 315043 | 1FOUR RIVERA | 3.02      |
| 315044 | 1FOUR RIVERB | 2.34      |
| 315045 | 1FOUR RIVERC | 3.02      |
| 315046 | 1FOUR RIVERD | 2.34      |
| 315047 | 1FOUR RIVERE | 2.34      |
| 315048 | 1FOUR RIVERF | 3.02      |
| 315053 | 1BELMED1     | 19.48     |
| 315054 | 1BELMED2     | 19.48     |
| 315055 | 1BELMED3     | 16.17     |
| 315058 | 1CHESTF3     | 20.44     |
| 315059 | 1CHESTF4     | 33.13     |
| 315067 | 1DARBY 1     | 2.16      |
| 315068 | 1DARBY 2     | 2.16      |
| 315069 | 1DARBY 3     | 2.17      |
| 315070 | 1DARBY 4     | 2.17      |
| 315074 | 1HOPCGN1     | 9.37      |
| 315075 | 1HOPCGN2     | 9.25      |
| 315083 | 1SPRUNCA     | 11.93     |
| 315084 | 1SPRUNCB     | 11.93     |
| 315085 | 1SPRUNCC     | 8.84      |
| 315086 | 1SPRUNCD     | 8.84      |
| 315090 | 1YORKTN1     | 31.8      |
| 315091 | 1YORKTN2     | 33.0      |
| 315225 | 1N ANNA1     | 30.98     |
| 315226 | 1N ANNA2     | 31.05     |
| 919211 | AA1-145      | 8.72      |
| 923801 | AB2-015 C O1 | 9.06      |
| 924061 | AB2-050      | 0.51      |
| 924241 | AB2-068 O1   | 226.15    |
| 924501 | AB2-099 C    | 0.59      |
| 924511 | AB2-100 C    | 11.8      |
| 925051 | AB2-160 C O1 | 6.09      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925061 | AB2-161 C O1 | 3.71      |
| 925331 | AB2-190 C    | 22.46     |
| 925861 | AC1-065 C    | 3.76      |
| 926001 | AC1-076 C    | 4.92      |
| 926291 | AC1-107 O1   | 341.36    |
| 926411 | AC1-112 C    | 0.28      |
| 926551 | AC1-134      | 1.28      |
| 926731 | AC1-158 C    | 93.16     |
| 926751 | AC1-161 C O1 | 33.44     |
| 926781 | AC1-164 C    | 45.47     |
| 927041 | AC1-191 C O1 | 10.76     |
| 927221 | AC1-216 C O1 | 10.98     |
| 930121 | AB1-027 C    | 0.36      |
| 932041 | AC2-012 C    | 11.19     |
| 932501 | AC2-070 C    | 0.23      |
| 932581 | AC2-078 C O1 | 4.49      |
| 932591 | AC2-079 C O1 | 6.26      |
| 932831 | AC2-110 C    | 1.5       |
| 933011 | AC2-125      | 3.08      |
| 933021 | AC2-126      | 3.1       |
| 933061 | AC2-130      | 2.7       |
| 933261 | AC2-137 C    | 0.29      |
| 933291 | AC2-141 C    | 33.44     |
| 933991 | AD1-023 C    | 13.49     |
| 934011 | AD1-025 C    | 18.87     |
| 934061 | AD1-033 C    | 8.21      |
| 934141 | AD1-041 C    | 5.9       |
| 934211 | AD1-048 C    | 0.34      |
| 934521 | AD1-076 C    | 56.18     |
| 934541 | AD1-078 C    | 3.04      |
| 934571 | AD1-082 C    | 8.45      |
| 934781 | AD1-105 C    | 7.77      |
| 935161 | AD1-151 C O1 | 18.05     |
| 936041 | AD2-007      | 2.0       |
| 936051 | AD2-008 C    | 3.28      |
| 936151 | AD2-021      | 0.27      |
| 936241 | AD2-030 C    | 2.56      |
| 936301 | AD2-039 C    | 1.5       |
| 936341 | AD2-044 C    | 0.26      |
| 936391 | AD2-049 C    | 1.98      |
| 936591 | AD2-074 C    | 5.92      |
| 936661 | AD2-085 C    | 3.76      |
| 936711 | AD2-090 C O1 | 7.49      |
| 937221 | AD2-160 C O1 | 6.37      |
| 937251 | AD2-164      | 5.32      |
| 937541 | AD2-215 C    | 1.91      |
| 938031 | AE1-004 C    | 1.5       |
| 938171 | AE1-026 C1 O | 28.67     |
| 938172 | AE1-026 C2 O | 4.15      |
| 938181 | AE1-027 C    | 2.56      |
| 938191 | AE1-028 C    | 1.48      |
| 938221 | AE1-035 C    | 2.27      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938491 | AE1-068 C O1 | 59.76     |
| 938501 | AE1-069 C O1 | 46.84     |
| 938531 | AE1-072 C O1 | 19.07     |
| 938551 | AE1-074 C    | 2.74      |
| 938561 | AE1-075 C    | 2.13      |
| 938631 | AE1-085 C O1 | 12.05     |
| 938771 | AE1-103 C O1 | 3.84      |
| 939071 | AE1-135 C O1 | 21.27     |
| 939191 | AE1-149 C O1 | 11.85     |
| 939241 | AE1-155 C    | 16.04     |
| 939261 | AE1-157 C O1 | 16.17     |
| 939271 | AE1-158 C O1 | 16.5      |
| 939311 | AE1-162 C    | 2.37      |
| 939411 | AE1-173 C    | 93.79     |
| 939421 | AE1-174 C    | 0.21      |
| 939431 | AE1-175 C    | 2.69      |
| 939611 | AE1-191 C    | 11.81     |
| 939751 | AE1-206 C O1 | 37.97     |
| 940061 | AE1-248 C O1 | 17.55     |
| 940071 | AE1-249 C    | 8.03      |
| 940231 | AE2-005 C    | 1.5       |
| 940251 | AE2-007      | 190.05    |
| 940431 | AE2-027 C O2 | 14.41     |
| 940471 | AE2-031 C O2 | 32.22     |
| 940481 | AE2-033 C    | 16.54     |
| 940491 | AE2-034 C    | 8.77      |
| 940541 | AE2-040      | 3.55      |
| 940551 | AE2-041      | 7.96      |
| 940641 | AE2-051 C O2 | 17.49     |
| 940651 | AE2-052      | 3.97      |
| 940891 | AE2-078 C    | 2.63      |
| 940901 | AE2-079 C    | 2.63      |
| 940911 | AE2-080 C    | 2.63      |
| 941031 | AE2-094 C    | 39.03     |
| 941101 | AE2-104 C O2 | 3.81      |
| 941141 | AE2-108 C    | 1.44      |
| 941151 | AE2-109 C    | 0.5       |
| 941281 | AE2-122 C O2 | 31.11     |
| 941291 | AE2-123 C O2 | 31.97     |
| 941301 | AE2-124 C O2 | 29.08     |
| 941381 | AE2-134      | 3.14      |
| 941501 | AE2-147 C    | 17.01     |
| 941581 | AE2-155 C    | 0.73      |
| 941591 | AE2-156      | 19.67     |
| 941601 | AE2-157 C O2 | 11.72     |
| 942001 | AE2-212 C    | 2.41      |
| 942131 | AE2-225 C    | 2.32      |
| 942151 | AE2-227 C O2 | 2.47      |
| 942161 | AE2-228 C O2 | 2.42      |
| 942171 | AE2-229 C    | 2.32      |
| 942191 | AE2-231 C O2 | 6.25      |
| 942211 | AE2-233 C    | 12.75     |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942341</b>     | AE2-247 C    | 1.63             |
| <b>942371</b>     | AE2-250 C O2 | 9.17             |
| <b>942401</b>     | AE2-253 C    | 6.7              |
| <b>942471</b>     | AE2-260 C O2 | 14.65            |
| <b>942531</b>     | AE2-268 C    | 1.91             |
| <b>942551</b>     | AE2-270      | 30.11            |
| <b>942851</b>     | AE2-304 C    | 0.67             |
| <b>942921</b>     | AE2-311 C O2 | 46.89            |
| <b>942931</b>     | AE2-313 C    | 35.26            |
| <b>943171</b>     | AE2-346 C    | 1.78             |
| <b>AA2-074</b>    | AA2-074      | 5.17             |
| <b>CARR</b>       | CARR         | 1.69             |
| <b>CBM-S1</b>     | CBM-S1       | 12.53            |
| <b>CBM-S2</b>     | CBM-S2       | 15.01            |
| <b>CBM-W1</b>     | CBM-W1       | 9.07             |
| <b>CBM-W2</b>     | CBM-W2       | 77.48            |
| <b>CIN</b>        | CIN          | 4.6              |
| <b>CPLE</b>       | CPLE         | 7.61             |
| <b>IPL</b>        | IPL          | 2.84             |
| <b>LGEE</b>       | LGEE         | 1.38             |
| <b>MEC</b>        | MEC          | 10.87            |
| <b>MECS</b>       | MECS         | 2.05             |
| <b>RENSSELAER</b> | RENSSELAER   | 1.34             |
| <b>WEC</b>        | WEC          | 1.18             |

### 13.5.23 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 |
|---------|-----------|----------|---------------|---------|------------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840036 | 314908    | 8ELMONT  | DVP           | 314911  | 8LADYSMITH | DVP         | 1      | DVP_P1-2: LN 576 | single | 2442.12    | 164.61                | 165.6                  | DC    | 52.71     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.17      |
| 314236 | 6NRTHEST     | 0.26      |
| 314309 | 6IRON208     | 0.62      |
| 314421 | 6WINCHST     | 0.2       |
| 315053 | 1BELMED1     | 31.5      |
| 315054 | 1BELMED2     | 31.5      |
| 315055 | 1BELMED3     | 26.14     |
| 315058 | 1CHESTF3     | 33.46     |
| 315059 | 1CHESTF4     | 54.23     |
| 315060 | 1CHESTF5     | 13.99     |
| 315061 | 1CHESTG7     | 5.48      |
| 315062 | 1CHESTS7     | 2.49      |
| 315063 | 1CHESTG8     | 5.38      |
| 315064 | 1CHESTS8     | 2.77      |
| 315067 | 1DARBY 1     | 3.58      |
| 315068 | 1DARBY 2     | 3.58      |
| 315069 | 1DARBY 3     | 3.6       |
| 315070 | 1DARBY 4     | 3.6       |
| 315074 | 1HOPCGN1     | 15.43     |
| 315075 | 1HOPCGN2     | 15.23     |
| 315076 | 1HOPPOLC     | 2.16      |
| 315077 | 1HOPHCF1     | 3.37      |
| 315078 | 1HOPHCF2     | 3.37      |
| 315079 | 1HOPHCF3     | 3.37      |
| 315080 | 1HOPHCF4     | 5.12      |
| 315083 | 1SPRUNCA     | 19.06     |
| 315084 | 1SPRUNCB     | 19.06     |
| 315085 | 1SPRUNCC     | 14.13     |
| 315086 | 1SPRUNCD     | 14.13     |
| 315090 | 1YORKTN1     | 53.19     |
| 315091 | 1YORKTN2     | 55.2      |
| 315092 | 1YORKTN3     | 32.17     |
| 315233 | 1SURRY 2     | 34.94     |
| 923801 | AB2-015 C O1 | 14.83     |
| 924241 | AB2-068 O1   | 427.69    |
| 924501 | AB2-099 C    | 0.97      |
| 924511 | AB2-100 C    | 19.0      |
| 925051 | AB2-160 C O1 | 9.87      |
| 925061 | AB2-161 C O1 | 6.05      |
| 925331 | AB2-190 C    | 37.05     |
| 925861 | AC1-065 C    | 6.02      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926291 | AC1-107 O1   | 645.57    |
| 926411 | AC1-112 C    | 0.47      |
| 926751 | AC1-161 C O1 | 55.47     |
| 926781 | AC1-164 C    | 77.58     |
| 927041 | AC1-191 C O1 | 17.01     |
| 927221 | AC1-216 C O1 | 18.11     |
| 930121 | AB1-027 C    | 0.6       |
| 932041 | AC2-012 C    | 18.46     |
| 932501 | AC2-070 C    | 0.39      |
| 932581 | AC2-078 C O1 | 7.31      |
| 932591 | AC2-079 C O1 | 10.25     |
| 932831 | AC2-110 C    | 2.41      |
| 933061 | AC2-130      | 4.5       |
| 933261 | AC2-137 C    | 0.48      |
| 933291 | AC2-141 C    | 55.47     |
| 933991 | AD1-023 C    | 22.13     |
| 934011 | AD1-025 C    | 31.13     |
| 934061 | AD1-033 C    | 13.54     |
| 934141 | AD1-041 C    | 9.39      |
| 934211 | AD1-048 C    | 0.56      |
| 934521 | AD1-076 C    | 92.19     |
| 934571 | AD1-082 C    | 13.8      |
| 935161 | AD1-151 C O1 | 29.78     |
| 936041 | AD2-007      | 3.3       |
| 936051 | AD2-008 C    | 5.42      |
| 936151 | AD2-021      | 0.45      |
| 936241 | AD2-030 C    | 4.04      |
| 936301 | AD2-039 C    | 2.41      |
| 936391 | AD2-049 C    | 3.3       |
| 936401 | AD2-051 C O1 | 14.41     |
| 936661 | AD2-085 C    | 6.15      |
| 936711 | AD2-090 C O1 | 12.24     |
| 937221 | AD2-160 C O1 | 10.5      |
| 937251 | AD2-164      | 8.88      |
| 937541 | AD2-215 C    | 3.15      |
| 938031 | AE1-004 C    | 2.41      |
| 938171 | AE1-026 C1 O | 47.0      |
| 938172 | AE1-026 C2 O | 6.8       |
| 938181 | AE1-027 C    | 4.21      |
| 938191 | AE1-028 C    | 2.44      |
| 938221 | AE1-035 C    | 3.72      |
| 938491 | AE1-068 C O1 | 93.03     |
| 938501 | AE1-069 C O1 | 72.97     |
| 938531 | AE1-072 C O1 | 31.41     |
| 938551 | AE1-074 C    | 4.27      |
| 938631 | AE1-085 C O1 | 19.6      |
| 938661 | AE1-088      | 2.91      |
| 938771 | AE1-103 C O1 | 6.28      |
| 939071 | AE1-135 C O1 | 34.22     |
| 939191 | AE1-149 C O1 | 19.26     |
| 939311 | AE1-162 C    | 3.92      |
| 939411 | AE1-173 C    | 149.1     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 939421  | AE1-174 C    | 0.68      |
| 939431  | AE1-175 C    | 4.54      |
| 939611  | AE1-191 C    | 18.79     |
| 939751  | AE1-206 C O1 | 50.23     |
| 940061  | AE1-248 C O1 | 28.67     |
| 940071  | AE1-249 C    | 13.03     |
| 940231  | AE2-005 C    | 2.41      |
| 940251  | AE2-007      | 313.38    |
| 940431  | AE2-027 C O2 | 23.32     |
| 940471  | AE2-031 C O2 | 50.13     |
| 940481  | AE2-033 C    | 26.48     |
| 940491  | AE2-034 C    | 14.4      |
| 940541  | AE2-040      | 5.76      |
| 940551  | AE2-041      | 12.87     |
| 940641  | AE2-051 C O2 | 27.88     |
| 940651  | AE2-052      | 6.45      |
| 940891  | AE2-078 C    | 4.35      |
| 940901  | AE2-079 C    | 4.35      |
| 940911  | AE2-080 C    | 4.35      |
| 941031  | AE2-094 C    | 60.66     |
| 941101  | AE2-104 C O2 | 6.28      |
| 941281  | AE2-122 C O2 | 51.29     |
| 941291  | AE2-123 C O2 | 52.7      |
| 941301  | AE2-124 C O2 | 47.94     |
| 941501  | AE2-147 C    | 28.0      |
| 941541  | AE2-151 C    | 1.79      |
| 941581  | AE2-155 C    | 1.23      |
| 941591  | AE2-156      | 32.43     |
| 941601  | AE2-157 C O2 | 19.13     |
| 942001  | AE2-212 C    | 3.9       |
| 942131  | AE2-225 C    | 3.82      |
| 942151  | AE2-227 C O2 | 4.07      |
| 942161  | AE2-228 C O2 | 3.94      |
| 942171  | AE2-229 C    | 3.82      |
| 942211  | AE2-233 C    | 19.82     |
| 942341  | AE2-247 C    | 2.67      |
| 942371  | AE2-250 C O2 | 14.77     |
| 942401  | AE2-253 C    | 11.05     |
| 942471  | AE2-260 C O2 | 23.57     |
| 942531  | AE2-268 C    | 3.08      |
| 942551  | AE2-270      | 49.66     |
| 942851  | AE2-304 C    | 1.11      |
| 942921  | AE2-311 C O2 | 74.55     |
| 942931  | AE2-313 C    | 54.81     |
| 943171  | AE2-346 C    | 2.9       |
| AA2-074 | AA2-074      | 8.65      |
| CARR    | CARR         | 2.59      |
| CBM-S1  | CBM-S1       | 26.68     |
| CBM-S2  | CBM-S2       | 26.03     |
| CBM-W1  | CBM-W1       | 27.93     |
| CBM-W2  | CBM-W2       | 174.07    |
| CIN     | CIN          | 13.04     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CPL</b>        | CPL        | 12.72            |
| <b>IPL</b>        | IPL        | 8.21             |
| <b>LGEE</b>       | LGEE       | 3.84             |
| <b>MEC</b>        | MEC        | 27.76            |
| <b>MECS</b>       | MECS       | 11.64            |
| <b>RENSSELAER</b> | RENSSELAER | 2.05             |
| <b>WEC</b>        | WEC        | 3.42             |
| <b>Z1-043</b>     | Z1-043     | 13.47            |

### 13.5.24 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 |
|---------|-----------|------------|---------------|---------|---------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840490 | 314911    | 8LADYSMITH | DVP           | 314905  | 8CHANCE | DVP         | 1      | DVP_P1-2: LN 573 | single | 2738.22    | 120.41                | 120.96                 | DC    | 32.49     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314229 | 6MT RD221    | 0.1       |
| 314236 | 6NRTHEST     | 0.16      |
| 314250 | 6ROCKVILLE   | 0.28      |
| 314309 | 6IRON208     | 0.38      |
| 315037 | 1LDYSMT1     | 3.9       |
| 315038 | 1LDYSMT2     | 3.9       |
| 315039 | 1LDYSMT3     | 4.13      |
| 315040 | 1LDYSMT4     | 4.14      |
| 315041 | 1LDYSMT5     | 4.15      |
| 315043 | 1FOUR RIVERA | 3.08      |
| 315044 | 1FOUR RIVERB | 2.39      |
| 315045 | 1FOUR RIVERC | 3.08      |
| 315046 | 1FOUR RIVERD | 2.39      |
| 315047 | 1FOUR RIVERE | 2.39      |
| 315048 | 1FOUR RIVERF | 3.08      |
| 315053 | 1BELMED1     | 19.81     |
| 315054 | 1BELMED2     | 19.81     |
| 315055 | 1BELMED3     | 16.44     |
| 315058 | 1CHESTF3     | 20.8      |
| 315059 | 1CHESTF4     | 33.71     |
| 315067 | 1DARBY 1     | 2.2       |
| 315068 | 1DARBY 2     | 2.2       |
| 315069 | 1DARBY 3     | 2.21      |
| 315070 | 1DARBY 4     | 2.21      |
| 315074 | 1HOPCGN1     | 9.53      |
| 315075 | 1HOPCGN2     | 9.41      |
| 315083 | 1SPRUNCA     | 12.12     |
| 315084 | 1SPRUNCB     | 12.12     |
| 315085 | 1SPRUNCC     | 8.99      |
| 315086 | 1SPRUNCD     | 8.99      |
| 315090 | 1YORKTN1     | 32.35     |
| 315091 | 1YORKTN2     | 33.57     |
| 315225 | 1N ANNA1     | 31.47     |
| 315226 | 1N ANNA2     | 31.54     |
| 919211 | AA1-145      | 8.91      |
| 923801 | AB2-015 C O1 | 9.19      |
| 923911 | AB2-031 C O1 | 2.27      |
| 924061 | AB2-050      | 0.52      |
| 924241 | AB2-068 O1   | 230.43    |
| 924501 | AB2-099 C    | 0.6       |
| 924511 | AB2-100 C    | 11.97     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925051 | AB2-160 C O1 | 6.19      |
| 925061 | AB2-161 C O1 | 3.77      |
| 925171 | AB2-174 C O1 | 7.15      |
| 925331 | AB2-190 C    | 22.84     |
| 925861 | AC1-065 C    | 3.83      |
| 926291 | AC1-107 O1   | 347.82    |
| 926411 | AC1-112 C    | 0.28      |
| 926551 | AC1-134      | 1.31      |
| 926751 | AC1-161 C O1 | 33.98     |
| 926781 | AC1-164 C    | 46.3      |
| 927041 | AC1-191 C O1 | 10.97     |
| 927221 | AC1-216 C O1 | 11.16     |
| 930121 | AB1-027 C    | 0.36      |
| 932041 | AC2-012 C    | 11.38     |
| 932501 | AC2-070 C    | 0.24      |
| 932581 | AC2-078 C O1 | 4.57      |
| 932591 | AC2-079 C O1 | 6.36      |
| 932831 | AC2-110 C    | 1.53      |
| 933011 | AC2-125      | 3.16      |
| 933021 | AC2-126      | 3.18      |
| 933061 | AC2-130      | 2.75      |
| 933261 | AC2-137 C    | 0.29      |
| 933291 | AC2-141 C    | 33.98     |
| 933991 | AD1-023 C    | 13.69     |
| 934011 | AD1-025 C    | 19.19     |
| 934061 | AD1-033 C    | 8.35      |
| 934141 | AD1-041 C    | 6.01      |
| 934201 | AD1-047 C    | 8.14      |
| 934211 | AD1-048 C    | 0.34      |
| 934521 | AD1-076 C    | 57.01     |
| 934571 | AD1-082 C    | 8.58      |
| 934781 | AD1-105 C    | 7.94      |
| 935161 | AD1-151 C O1 | 18.36     |
| 936041 | AD2-007      | 2.04      |
| 936051 | AD2-008 C    | 3.34      |
| 936151 | AD2-021      | 0.27      |
| 936241 | AD2-030 C    | 2.61      |
| 936301 | AD2-039 C    | 1.53      |
| 936341 | AD2-044 C    | 0.27      |
| 936391 | AD2-049 C    | 2.02      |
| 936401 | AD2-051 C O1 | 8.94      |
| 936581 | AD2-073 C    | 2.27      |
| 936591 | AD2-074 C    | 6.04      |
| 936661 | AD2-085 C    | 3.82      |
| 936711 | AD2-090 C O1 | 7.6       |
| 937221 | AD2-160 C O1 | 6.48      |
| 937251 | AD2-164      | 5.41      |
| 937541 | AD2-215 C    | 1.94      |
| 938031 | AE1-004 C    | 1.53      |
| 938171 | AE1-026 C1 O | 29.09     |
| 938172 | AE1-026 C2 O | 4.21      |
| 938181 | AE1-027 C    | 2.6       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938191 | AE1-028 C    | 1.51      |
| 938221 | AE1-035 C    | 2.3       |
| 938491 | AE1-068 C O1 | 60.62     |
| 938501 | AE1-069 C O1 | 47.5      |
| 938531 | AE1-072 C O1 | 19.37     |
| 938551 | AE1-074 C    | 2.79      |
| 938561 | AE1-075 C    | 2.13      |
| 938631 | AE1-085 C O1 | 12.25     |
| 938661 | AE1-088      | 1.8       |
| 938771 | AE1-103 C O1 | 3.89      |
| 939071 | AE1-135 C O1 | 21.58     |
| 939191 | AE1-149 C O1 | 12.05     |
| 939241 | AE1-155 C    | 16.37     |
| 939261 | AE1-157 C O1 | 16.56     |
| 939271 | AE1-158 C O1 | 16.9      |
| 939311 | AE1-162 C    | 2.41      |
| 939411 | AE1-173 C    | 95.24     |
| 939421 | AE1-174 C    | 0.22      |
| 939431 | AE1-175 C    | 2.74      |
| 939611 | AE1-191 C    | 12.03     |
| 939751 | AE1-206 C O1 | 38.74     |
| 940061 | AE1-248 C O1 | 17.84     |
| 940071 | AE1-249 C    | 8.16      |
| 940231 | AE2-005 C    | 1.53      |
| 940251 | AE2-007      | 193.14    |
| 940431 | AE2-027 C O2 | 14.65     |
| 940471 | AE2-031 C O2 | 32.68     |
| 940481 | AE2-033 C    | 16.79     |
| 940491 | AE2-034 C    | 8.9       |
| 940541 | AE2-040      | 3.61      |
| 940551 | AE2-041      | 8.11      |
| 940641 | AE2-051 C O2 | 17.76     |
| 940651 | AE2-052      | 4.04      |
| 940891 | AE2-078 C    | 2.67      |
| 940901 | AE2-079 C    | 2.67      |
| 940911 | AE2-080 C    | 2.67      |
| 941031 | AE2-094 C    | 39.6      |
| 941101 | AE2-104 C O2 | 3.87      |
| 941141 | AE2-108 C    | 1.47      |
| 941151 | AE2-109 C    | 0.51      |
| 941281 | AE2-122 C O2 | 31.61     |
| 941291 | AE2-123 C O2 | 32.49     |
| 941301 | AE2-124 C O2 | 29.55     |
| 941501 | AE2-147 C    | 17.28     |
| 941541 | AE2-151 C    | 1.11      |
| 941581 | AE2-155 C    | 0.74      |
| 941591 | AE2-156      | 19.99     |
| 941601 | AE2-157 C O2 | 11.91     |
| 942001 | AE2-212 C    | 2.45      |
| 942131 | AE2-225 C    | 2.36      |
| 942151 | AE2-227 C O2 | 2.52      |
| 942161 | AE2-228 C O2 | 2.47      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 942171     | AE2-229 C    | 2.36      |
| 942191     | AE2-231 C O2 | 6.4       |
| 942211     | AE2-233 C    | 12.94     |
| 942341     | AE2-247 C    | 1.65      |
| 942371     | AE2-250 C O2 | 9.3       |
| 942401     | AE2-253 C    | 6.81      |
| 942471     | AE2-260 C O2 | 14.86     |
| 942531     | AE2-268 C    | 1.94      |
| 942551     | AE2-270      | 30.62     |
| 942851     | AE2-304 C    | 0.68      |
| 942921     | AE2-311 C O2 | 47.62     |
| 942931     | AE2-313 C    | 35.76     |
| 943171     | AE2-346 C    | 1.8       |
| AA2-074    | AA2-074      | 5.23      |
| CARR       | CARR         | 1.69      |
| CBM-S1     | CBM-S1       | 12.54     |
| CBM-S2     | CBM-S2       | 15.13     |
| CBM-W1     | CBM-W1       | 8.96      |
| CBM-W2     | CBM-W2       | 77.41     |
| CIN        | CIN          | 4.55      |
| CPL        | CPL          | 7.68      |
| IPL        | IPL          | 2.81      |
| LGEE       | LGEE         | 1.37      |
| MEC        | MEC          | 10.81     |
| MECS       | MECS         | 1.96      |
| RENSSELAER | RENSSELAER   | 1.34      |
| WEC        | WEC          | 1.16      |

### 13.5.25 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 |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840594 | 314918    | 8NO ANNA | DVP           | 314934  | 8SPOTSYL | DVP         | 1      | DVP_P1-2: LN 568 | single | 3218.56    | 117.31                | 118.33                 | DC    | 32.9      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314250 | 6ROCKVILLE   | 0.28      |
| 314314 | 3LOCKS       | 0.24      |
| 314507 | 3THOMPSN     | 0.28      |
| 315053 | 1BELMED1     | 19.22     |
| 315054 | 1BELMED2     | 19.22     |
| 315055 | 1BELMED3     | 15.95     |
| 315058 | 1CHESTF3     | 19.83     |
| 315059 | 1CHESTF4     | 32.15     |
| 315065 | 1CHESTF6     | 16.55     |
| 315074 | 1HOPCGN1     | 9.23      |
| 315075 | 1HOPCGN2     | 9.12      |
| 315083 | 1SPRUNCA     | 11.97     |
| 315084 | 1SPRUNCB     | 11.97     |
| 315085 | 1SPRUNCC     | 8.87      |
| 315086 | 1SPRUNCD     | 8.87      |
| 315090 | 1YORKTN1     | 31.59     |
| 315091 | 1YORKTN2     | 32.79     |
| 315098 | 1CHESPKA     | 0.37      |
| 315099 | 1CHESPKB     | 0.91      |
| 315102 | 1BRUNSWICKG1 | 6.61      |
| 315103 | 1BRUNSWICKG2 | 6.61      |
| 315104 | 1BRUNSWICKG3 | 6.61      |
| 315105 | 1BRUNSWICKS1 | 13.73     |
| 315108 | 1ELIZAR1     | 2.69      |
| 315109 | 1ELIZAR2     | 2.64      |
| 315110 | 1ELIZAR3     | 2.73      |
| 315116 | 1SURRY 1     | 20.59     |
| 315225 | 1N ANNA1     | 44.12     |
| 315226 | 1N ANNA2     | 44.22     |
| 315233 | 1SURRY 2     | 20.76     |
| 315260 | 1GOSPORTA    | 0.29      |
| 315261 | 1GOSPORTB    | 0.37      |
| 315262 | 1GOSPORTC    | 0.32      |
| 916191 | Z1-068 C     | 0.04      |
| 916301 | Z1-086 C     | 40.19     |
| 923801 | AB2-015 C O1 | 9.39      |
| 923911 | AB2-031 C O1 | 2.36      |
| 924241 | AB2-068 O1   | 206.47    |
| 924501 | AB2-099 C    | 0.62      |
| 924511 | AB2-100 C    | 12.38     |
| 925021 | AB2-158 C    | 1.58      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925051 | AB2-160 C O1 | 6.09      |
| 925061 | AB2-161 C O1 | 3.79      |
| 925171 | AB2-174 C O1 | 7.43      |
| 925331 | AB2-190 C    | 22.37     |
| 925521 | AC1-027 C    | 0.28      |
| 925821 | AC1-061      | 0.0       |
| 925861 | AC1-065 C    | 3.58      |
| 926071 | AC1-086 C    | 21.67     |
| 926291 | AC1-107 O1   | 311.65    |
| 926661 | AC1-147 C    | 0.31      |
| 926751 | AC1-161 C O1 | 34.38     |
| 926781 | AC1-164 C    | 43.04     |
| 927041 | AC1-191 C O1 | 9.86      |
| 927221 | AC1-216 C O1 | 10.95     |
| 932041 | AC2-012 C    | 11.5      |
| 932581 | AC2-078 C O1 | 4.57      |
| 932591 | AC2-079 C O1 | 6.42      |
| 932831 | AC2-110 C    | 1.43      |
| 933061 | AC2-130      | 2.61      |
| 933291 | AC2-141 C    | 34.38     |
| 933501 | AC2-165 C    | 10.38     |
| 933731 | AC2-196 C    | 0.25      |
| 933991 | AD1-023 C    | 14.06     |
| 934011 | AD1-025 C    | 18.82     |
| 934061 | AD1-033 C    | 8.46      |
| 934141 | AD1-041 C    | 5.63      |
| 934201 | AD1-047 C    | 8.45      |
| 934521 | AD1-076 C    | 58.49     |
| 934571 | AD1-082 C    | 8.63      |
| 935161 | AD1-151 C O1 | 17.98     |
| 935211 | AD1-156 C    | 0.29      |
| 936041 | AD2-007      | 2.0       |
| 936051 | AD2-008 C    | 3.28      |
| 936151 | AD2-021      | 0.25      |
| 936241 | AD2-030 C    | 2.44      |
| 936301 | AD2-039 C    | 1.43      |
| 936391 | AD2-049 C    | 1.99      |
| 936401 | AD2-051 C O1 | 9.22      |
| 936661 | AD2-085 C    | 3.85      |
| 936711 | AD2-090 C O1 | 7.78      |
| 937221 | AD2-160 C O1 | 6.57      |
| 937251 | AD2-164      | 5.31      |
| 937541 | AD2-215 C    | 1.95      |
| 937571 | AD2-169 C    | 10.51     |
| 938031 | AE1-004 C    | 1.43      |
| 938171 | AE1-026 C1 O | 29.89     |
| 938172 | AE1-026 C2 O | 4.32      |
| 938181 | AE1-027 C    | 2.63      |
| 938191 | AE1-028 C    | 1.53      |
| 938221 | AE1-035 C    | 2.37      |
| 938491 | AE1-068 C O1 | 65.72     |
| 938501 | AE1-069 C O1 | 51.5      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938531 | AE1-072 C O1 | 19.65     |
| 938551 | AE1-074 C    | 2.84      |
| 938561 | AE1-075 C    | 2.31      |
| 938631 | AE1-085 C O1 | 12.25     |
| 938661 | AE1-088      | 1.86      |
| 938771 | AE1-103 C O1 | 3.97      |
| 939071 | AE1-135 C O1 | 22.31     |
| 939191 | AE1-149 C O1 | 12.03     |
| 939231 | AE1-154 C    | 2.13      |
| 939311 | AE1-162 C    | 2.41      |
| 939411 | AE1-173 C    | 100.66    |
| 939421 | AE1-174 C    | 0.21      |
| 939431 | AE1-175 C    | 2.63      |
| 939611 | AE1-191 C    | 11.26     |
| 939751 | AE1-206 C O1 | 33.78     |
| 940061 | AE1-248 C O1 | 17.93     |
| 940071 | AE1-249 C    | 8.04      |
| 940231 | AE2-005 C    | 1.43      |
| 940251 | AE2-007      | 195.35    |
| 940421 | AE2-026 C    | 4.04      |
| 940431 | AE2-027 C O2 | 14.48     |
| 940471 | AE2-031 C O2 | 35.43     |
| 940481 | AE2-033 C    | 17.31     |
| 940491 | AE2-034 C    | 9.11      |
| 940521 | AE2-037 C O2 | 8.31      |
| 940541 | AE2-040      | 3.56      |
| 940551 | AE2-041      | 7.58      |
| 940641 | AE2-051 C O2 | 18.27     |
| 940651 | AE2-052      | 4.03      |
| 940891 | AE2-078 C    | 2.64      |
| 940901 | AE2-079 C    | 2.64      |
| 940911 | AE2-080 C    | 2.64      |
| 941031 | AE2-094 C    | 42.94     |
| 941101 | AE2-104 C O2 | 3.93      |
| 941281 | AE2-122 C O2 | 32.01     |
| 941291 | AE2-123 C O2 | 32.9      |
| 941301 | AE2-124 C O2 | 29.92     |
| 941501 | AE2-147 C    | 17.57     |
| 941541 | AE2-151 C    | 1.14      |
| 941581 | AE2-155 C    | 0.68      |
| 941591 | AE2-156      | 20.19     |
| 941601 | AE2-157 C O2 | 11.96     |
| 942001 | AE2-212 C    | 2.41      |
| 942131 | AE2-225 C    | 2.39      |
| 942151 | AE2-227 C O2 | 2.4       |
| 942161 | AE2-228 C O2 | 2.41      |
| 942171 | AE2-229 C    | 2.39      |
| 942191 | AE2-231 C O2 | 5.17      |
| 942211 | AE2-233 C    | 14.03     |
| 942341 | AE2-247 C    | 1.67      |
| 942371 | AE2-250 C O2 | 9.65      |
| 942401 | AE2-253 C    | 6.91      |

| <b>Bus #</b> | <b>Bus</b>   | <b>MW Impact</b> |
|--------------|--------------|------------------|
| 942471       | AE2-260 C O2 | 15.36            |
| 942531       | AE2-268 C    | 1.82             |
| 942551       | AE2-270      | 29.98            |
| 942851       | AE2-304 C    | 0.7              |
| 942921       | AE2-311 C O2 | 50.33            |
| 942931       | AE2-313 C    | 38.79            |
| 943171       | AE2-346 C    | 1.86             |
| AA2-074      | AA2-074      | 5.59             |
| CARR         | CARR         | 1.83             |
| CBM-S1       | CBM-S1       | 13.99            |
| CBM-S2       | CBM-S2       | 16.27            |
| CBM-W1       | CBM-W1       | 11.09            |
| CBM-W2       | CBM-W2       | 87.6             |
| CIN          | CIN          | 5.48             |
| CPL          | CPL          | 8.22             |
| IPL          | IPL          | 3.4              |
| LGEE         | LGEE         | 1.63             |
| MEC          | MEC          | 12.64            |
| MECS         | MECS         | 3.14             |
| RENSSELAER   | RENSSELAER   | 1.45             |
| WEC          | WEC          | 1.41             |

### 13.5.26 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 |
|---------|-----------|----------|---------------|---------|----------|-------------|--------|------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 1840561 | 314934    | 8SPOTSYL | DVP           | 314916  | 8MORRSVL | DVP         | 1      | DVP_P1-2: LN 568 | single | 3218.56    | 118.54                | 119.55                 | DC    | 32.68     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314250 | 6ROCKVILLE   | 0.28      |
| 314314 | 3LOCKS       | 0.24      |
| 314507 | 3THOMPSN     | 0.28      |
| 315053 | 1BELMED1     | 19.13     |
| 315054 | 1BELMED2     | 19.13     |
| 315055 | 1BELMED3     | 15.88     |
| 315058 | 1CHESTF3     | 19.75     |
| 315059 | 1CHESTF4     | 32.01     |
| 315065 | 1CHESTF6     | 16.47     |
| 315074 | 1HOPCGN1     | 9.19      |
| 315075 | 1HOPCGN2     | 9.07      |
| 315083 | 1SPRUNCA     | 11.91     |
| 315084 | 1SPRUNCB     | 11.91     |
| 315085 | 1SPRUNCC     | 8.83      |
| 315086 | 1SPRUNCD     | 8.83      |
| 315090 | 1YORKTN1     | 31.43     |
| 315091 | 1YORKTN2     | 32.61     |
| 315098 | 1CHESPKA     | 0.36      |
| 315099 | 1CHESPKB     | 0.91      |
| 315108 | 1ELIZAR1     | 2.67      |
| 315109 | 1ELIZAR2     | 2.63      |
| 315110 | 1ELIZAR3     | 2.71      |
| 315116 | 1SURRY 1     | 20.47     |
| 315120 | 1GRAVEL4     | 2.11      |
| 315225 | 1N ANNA1     | 43.17     |
| 315226 | 1N ANNA2     | 43.26     |
| 315233 | 1SURRY 2     | 20.64     |
| 315260 | 1GOSPORTA    | 0.29      |
| 315261 | 1GOSPORTB    | 0.37      |
| 315262 | 1GOSPORTC    | 0.32      |
| 916191 | Z1-068 C     | 0.04      |
| 916301 | Z1-086 C     | 39.85     |
| 923801 | AB2-015 C O1 | 9.34      |
| 923911 | AB2-031 C O1 | 2.35      |
| 924241 | AB2-068 O1   | 206.02    |
| 924501 | AB2-099 C    | 0.62      |
| 924511 | AB2-100 C    | 12.3      |
| 925021 | AB2-158 C    | 1.69      |
| 925051 | AB2-160 C O1 | 6.06      |
| 925061 | AB2-161 C O1 | 3.76      |
| 925171 | AB2-174 C O1 | 7.39      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 925331 | AB2-190 C    | 22.25     |
| 925521 | AC1-027 C    | 0.27      |
| 925821 | AC1-061      | 0.0       |
| 925861 | AC1-065 C    | 3.57      |
| 926001 | AC1-076 C    | 6.0       |
| 926291 | AC1-107 O1   | 310.98    |
| 926661 | AC1-147 C    | 0.31      |
| 926731 | AC1-158 C    | 197.69    |
| 926751 | AC1-161 C O1 | 34.15     |
| 926781 | AC1-164 C    | 42.89     |
| 927041 | AC1-191 C O1 | 9.84      |
| 927221 | AC1-216 C O1 | 10.89     |
| 932041 | AC2-012 C    | 11.43     |
| 932581 | AC2-078 C O1 | 4.54      |
| 932591 | AC2-079 C O1 | 6.38      |
| 932831 | AC2-110 C    | 1.43      |
| 933061 | AC2-130      | 2.6       |
| 933291 | AC2-141 C    | 34.15     |
| 933501 | AC2-165 C    | 10.45     |
| 933731 | AC2-196 C    | 0.24      |
| 933991 | AD1-023 C    | 13.98     |
| 934011 | AD1-025 C    | 18.72     |
| 934061 | AD1-033 C    | 8.4       |
| 934141 | AD1-041 C    | 5.61      |
| 934201 | AD1-047 C    | 8.41      |
| 934521 | AD1-076 C    | 58.13     |
| 934541 | AD1-078 C    | 3.63      |
| 934571 | AD1-082 C    | 8.58      |
| 935161 | AD1-151 C O1 | 17.88     |
| 935211 | AD1-156 C    | 0.29      |
| 936041 | AD2-007      | 1.99      |
| 936051 | AD2-008 C    | 3.26      |
| 936151 | AD2-021      | 0.25      |
| 936241 | AD2-030 C    | 2.43      |
| 936301 | AD2-039 C    | 1.43      |
| 936391 | AD2-049 C    | 1.98      |
| 936401 | AD2-051 C O1 | 9.17      |
| 936661 | AD2-085 C    | 3.83      |
| 936711 | AD2-090 C O1 | 7.74      |
| 937221 | AD2-160 C O1 | 6.52      |
| 937251 | AD2-164      | 5.28      |
| 937541 | AD2-215 C    | 1.94      |
| 938031 | AE1-004 C    | 1.43      |
| 938171 | AE1-026 C1 O | 29.71     |
| 938172 | AE1-026 C2 O | 4.3       |
| 938181 | AE1-027 C    | 2.61      |
| 938191 | AE1-028 C    | 1.52      |
| 938221 | AE1-035 C    | 2.36      |
| 938491 | AE1-068 C O1 | 65.16     |
| 938501 | AE1-069 C O1 | 51.06     |
| 938531 | AE1-072 C O1 | 19.52     |
| 938551 | AE1-074 C    | 2.83      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 938561 | AE1-075 C    | 2.32      |
| 938631 | AE1-085 C O1 | 12.17     |
| 938771 | AE1-103 C O1 | 3.95      |
| 939071 | AE1-135 C O1 | 22.18     |
| 939191 | AE1-149 C O1 | 11.96     |
| 939231 | AE1-154 C    | 2.27      |
| 939311 | AE1-162 C    | 2.39      |
| 939411 | AE1-173 C    | 99.84     |
| 939421 | AE1-174 C    | 0.21      |
| 939431 | AE1-175 C    | 2.62      |
| 939611 | AE1-191 C    | 11.21     |
| 939751 | AE1-206 C O1 | 33.72     |
| 940061 | AE1-248 C O1 | 17.82     |
| 940071 | AE1-249 C    | 8.0       |
| 940231 | AE2-005 C    | 1.43      |
| 940251 | AE2-007      | 194.07    |
| 940421 | AE2-026 C    | 4.31      |
| 940431 | AE2-027 C O2 | 14.4      |
| 940471 | AE2-031 C O2 | 35.14     |
| 940481 | AE2-033 C    | 17.19     |
| 940491 | AE2-034 C    | 9.05      |
| 940541 | AE2-040      | 3.54      |
| 940551 | AE2-041      | 7.55      |
| 940641 | AE2-051 C O2 | 18.14     |
| 940651 | AE2-052      | 4.0       |
| 940891 | AE2-078 C    | 2.62      |
| 940901 | AE2-079 C    | 2.62      |
| 940911 | AE2-080 C    | 2.62      |
| 941031 | AE2-094 C    | 42.57     |
| 941101 | AE2-104 C O2 | 3.9       |
| 941281 | AE2-122 C O2 | 31.8      |
| 941291 | AE2-123 C O2 | 32.68     |
| 941301 | AE2-124 C O2 | 29.72     |
| 941381 | AE2-134      | 3.83      |
| 941501 | AE2-147 C    | 17.46     |
| 941541 | AE2-151 C    | 1.14      |
| 941581 | AE2-155 C    | 0.68      |
| 941591 | AE2-156      | 20.06     |
| 941601 | AE2-157 C O2 | 11.89     |
| 942001 | AE2-212 C    | 2.4       |
| 942131 | AE2-225 C    | 2.38      |
| 942151 | AE2-227 C O2 | 2.39      |
| 942161 | AE2-228 C O2 | 2.39      |
| 942171 | AE2-229 C    | 2.38      |
| 942211 | AE2-233 C    | 13.91     |
| 942341 | AE2-247 C    | 1.66      |
| 942371 | AE2-250 C O2 | 9.6       |
| 942401 | AE2-253 C    | 6.86      |
| 942471 | AE2-260 C O2 | 15.27     |
| 942531 | AE2-268 C    | 1.81      |
| 942551 | AE2-270      | 29.82     |
| 942851 | AE2-304 C    | 0.69      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>942921</b>     | AE2-311 C O2 | 49.92            |
| <b>942931</b>     | AE2-313 C    | 38.45            |
| <b>943171</b>     | AE2-346 C    | 1.85             |
| <b>AA2-074</b>    | AA2-074      | 5.57             |
| <b>CARR</b>       | CARR         | 1.84             |
| <b>CBM-S1</b>     | CBM-S1       | 13.99            |
| <b>CBM-S2</b>     | CBM-S2       | 16.22            |
| <b>CBM-W1</b>     | CBM-W1       | 11.12            |
| <b>CBM-W2</b>     | CBM-W2       | 87.62            |
| <b>CIN</b>        | CIN          | 5.49             |
| <b>CPL</b>        | CPL          | 8.18             |
| <b>IPL</b>        | IPL          | 3.41             |
| <b>LGEE</b>       | LGEE         | 1.64             |
| <b>MEC</b>        | MEC          | 12.66            |
| <b>MECS</b>       | MECS         | 3.15             |
| <b>RENSSELAER</b> | RENSSELAER   | 1.46             |
| <b>WEC</b>        | WEC          | 1.42             |

### 13.5.27 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 |
|---------|-----------|-------------|---------------|---------|------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901874 | 934610    | AD1-087 TAP | DVP           | 314697  | 6SEGE HILL | DVP         | 1      | DVP_P1-2: LN 570_FSA | single | 814.98     | 112.94                | 114.3                  | DC    | 11.17     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314421 | 6WINCHST     | 0.04      |
| 314507 | 3THOMPSN     | 0.1       |
| 315090 | 1YORKTN1     | 10.65     |
| 315091 | 1YORKTN2     | 11.05     |
| 315092 | 1YORKTN3     | 6.44      |
| 315098 | 1CHESPKA     | 0.13      |
| 315099 | 1CHESPKB     | 0.31      |
| 315102 | 1BRUNSWICKG1 | 4.13      |
| 315103 | 1BRUNSWICKG2 | 4.13      |
| 315104 | 1BRUNSWICKG3 | 4.13      |
| 315105 | 1BRUNSWICKS1 | 8.59      |
| 315108 | 1ELIZAR1     | 0.93      |
| 315109 | 1ELIZAR2     | 0.92      |
| 315110 | 1ELIZAR3     | 0.94      |
| 315116 | 1SURRY 1     | 6.74      |
| 315153 | 1CLOVER1     | 16.29     |
| 315154 | 1CLOVER2     | 16.08     |
| 315191 | 1BEARGRDN G1 | 1.24      |
| 315192 | 1BEARGRDN G2 | 1.24      |
| 315193 | 1BEARGRDN S1 | 2.54      |
| 315233 | 1SURRY 2     | 7.49      |
| 315260 | 1GOSPORTA    | 0.1       |
| 315261 | 1GOSPORTB    | 0.13      |
| 315262 | 1GOSPORTC    | 0.11      |
| 916191 | Z1-068 C     | 0.01      |
| 916301 | Z1-086 C     | 24.14     |
| 920291 | AA2-127      | 0.26      |
| 924031 | AB2-045 C    | 0.15      |
| 925521 | AC1-027 C    | 0.09      |
| 926661 | AC1-147 C    | 0.11      |
| 926751 | AC1-161 C O1 | 13.14     |
| 932041 | AC2-012 C    | 3.97      |
| 932511 | AC2-071 C    | 0.15      |
| 933291 | AC2-141 C    | 13.14     |
| 933731 | AC2-196 C    | 0.08      |
| 934061 | AD1-033 C    | 2.86      |
| 934233 | AD1-050 BAT  | 5.08      |
| 934611 | AD1-087 C O1 | 20.5      |
| 934621 | AD1-088 C    | 17.85     |
| 935171 | AD1-152 C O1 | 20.38     |
| 937251 | AD2-164      | 1.77      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 937481     | AD2-202 C O1 | 5.65      |
| 938181     | AE1-027 C    | 0.87      |
| 938191     | AE1-028 C    | 0.51      |
| 938491     | AE1-068 C O1 | 38.23     |
| 938501     | AE1-069 C O1 | 30.93     |
| 939311     | AE1-162 C    | 0.81      |
| 939411     | AE1-173 C    | 43.23     |
| 940251     | AE2-007      | 67.63     |
| 940471     | AE2-031 C O2 | 22.98     |
| 940641     | AE2-051 C O2 | 6.07      |
| 940891     | AE2-078 C    | 0.87      |
| 940901     | AE2-079 C    | 0.87      |
| 940911     | AE2-080 C    | 0.87      |
| 941031     | AE2-094 C    | 23.49     |
| 941281     | AE2-122 C O2 | 10.87     |
| 941291     | AE2-123 C O2 | 11.17     |
| 941301     | AE2-124 C O2 | 10.18     |
| 941591     | AE2-156      | 6.96      |
| 941791     | AE2-182 C    | 3.23      |
| 942211     | AE2-233 C    | 7.68      |
| 942921     | AE2-311 C O2 | 21.61     |
| 942931     | AE2-313 C    | 23.68     |
| 943051     | AE2-328 C    | 11.8      |
| AC1-131    | AC1-131      | 9.78      |
| BLUEG      | BLUEG        | 18.52     |
| CALDERWOOD | CALDERWOOD   | 3.67      |
| CANNELTON  | CANNELTON    | 1.25      |
| CATAWBA    | CATAWBA      | 3.52      |
| CBM-N      | CBM-N        | 0.67      |
| CHEOAH     | CHEOAH       | 3.42      |
| CHILHOWEE  | CHILHOWEE    | 1.19      |
| COFFEEN    | COFFEEN      | 2.13      |
| COTTONWOOD | COTTONWOOD   | 12.22     |
| DUCKCREEK  | DUCKCREEK    | 4.38      |
| EDWARDS    | EDWARDS      | 1.96      |
| ELMERSMITH | ELMERSMITH   | 2.2       |
| FARMERCITY | FARMERCITY   | 1.53      |
| G-007A     | G-007A       | 3.0       |
| GIBSON     | GIBSON       | 0.79      |
| HAMLET     | HAMLET       | 6.6       |
| NEWTON     | NEWTON       | 5.55      |
| NYISO      | NYISO        | 2.89      |
| PRAIRIE    | PRAIRIE      | 11.53     |
| SANTEETLA  | SANTEETLA    | 1.02      |
| SMITHLAND  | SMITHLAND    | 1.02      |
| TATANKA    | TATANKA      | 2.59      |
| TILTON     | TILTON       | 2.32      |
| TRIMBLE    | TRIMBLE      | 2.04      |
| TVA        | TVA          | 10.32     |
| UNIONPOWER | UNIONPOWER   | 5.07      |
| VFT        | VFT          | 7.99      |

### 13.5.28 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 |
|---------|-----------|-------------|---------------|---------|---------------|-------------|--------|----------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 7901389 | 936530    | AD2-068 TAP | DVP           | 304451  | 6GREENVILLE T | CPL         | 1      | DVP_P1-2: LN 570_FSA | single | 478.0      | 131.98                | 133.85                 | DC    | 9.01      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 314507 | 3THOMPSN     | 0.07      |
| 314589 | 3MURPHYS     | 0.04      |
| 314638 | 6ELIZ CT     | 0.07      |
| 314639 | 6TANGLEW     | 0.14      |
| 314643 | 3O INLET     | 0.12      |
| 315098 | 1CHESPKA     | 0.1       |
| 315099 | 1CHESPKB     | 0.24      |
| 315115 | 1S HAMPT1    | 0.5       |
| 315126 | 1ROARAP2     | 0.41      |
| 315128 | 1ROARAP4     | 0.39      |
| 315136 | 1ROSEMG1     | 0.62      |
| 315137 | 1ROSEMS1     | 0.38      |
| 315138 | 1ROSEMG2     | 0.29      |
| 315139 | 1GASTONA     | 0.96      |
| 315141 | 1GASTONB     | 0.96      |
| 315260 | 1GOSPORTA    | 0.08      |
| 315261 | 1GOSPORTB    | 0.1       |
| 315262 | 1GOSPORTC    | 0.08      |
| 315292 | 1DOMTR78     | 1.14      |
| 315293 | 1DOMTR9      | 0.93      |
| 315294 | 1DOMTR10     | 1.69      |
| 901081 | W1-029 C     | 0.42      |
| 916041 | Z1-036 C     | 0.51      |
| 916191 | Z1-068 C     | 0.01      |
| 917331 | Z2-043 C     | 0.2       |
| 917511 | Z2-088 C OP1 | 1.34      |
| 918491 | AA1-063AC OP | 0.61      |
| 918511 | AA1-065 C OP | 1.15      |
| 918531 | AA1-067 C    | 0.36      |
| 918561 | AA1-072 C    | 0.03      |
| 919151 | AA1-139 C    | 0.66      |
| 919691 | AA2-053 C    | 0.54      |
| 920041 | AA2-088 C OP | 0.39      |
| 920671 | AA2-174 C    | 0.02      |
| 920691 | AA2-178 C    | 0.95      |
| 923801 | AB2-015 C O1 | 3.81      |
| 923831 | AB2-022 C    | 0.12      |
| 923911 | AB2-031 C O1 | 0.79      |
| 923991 | AB2-040 C O1 | 0.32      |
| 924491 | AB2-098 C    | 0.99      |
| 924501 | AB2-099 C    | 0.47      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 924511 | AB2-100 C    | 3.88      |
| 925061 | AB2-161 C O1 | 1.01      |
| 925121 | AB2-169 C    | 1.03      |
| 925171 | AB2-174 C O1 | 2.41      |
| 925521 | AC1-027 C    | 0.07      |
| 926071 | AC1-086 C    | 8.9       |
| 926201 | AC1-098 C    | 2.58      |
| 926211 | AC1-099 C    | 0.87      |
| 926661 | AC1-147 C    | 0.08      |
| 927021 | AC1-189 C    | 12.0      |
| 930861 | AB1-132 C O1 | 0.74      |
| 931231 | AB1-173 C    | 0.1       |
| 931241 | AB1-173AC    | 0.1       |
| 932041 | AC2-012 C    | 3.0       |
| 932591 | AC2-079 C O1 | 1.89      |
| 932631 | AC2-084 C    | 3.68      |
| 933731 | AC2-196 C    | 0.07      |
| 933991 | AD1-023 C    | 12.68     |
| 934061 | AD1-033 C    | 2.36      |
| 934201 | AD1-047 C    | 2.84      |
| 934521 | AD1-076 C    | 50.93     |
| 934571 | AD1-082 C    | 2.31      |
| 935111 | AD1-144 C    | 0.07      |
| 936401 | AD2-051 C O1 | 7.58      |
| 936531 | AD2-068 C    | 18.65     |
| 936661 | AD2-085 C    | 1.13      |
| 936701 | AD2-089 C    | 5.03      |
| 936711 | AD2-090 C O1 | 3.34      |
| 937221 | AD2-160 C O1 | 2.04      |
| 937541 | AD2-215 C    | 0.59      |
| 937571 | AD2-169 C    | 3.66      |
| 938171 | AE1-026 C1 O | 27.49     |
| 938172 | AE1-026 C2 O | 3.98      |
| 938181 | AE1-027 C    | 0.77      |
| 938191 | AE1-028 C    | 0.44      |
| 938221 | AE1-035 C    | 2.35      |
| 938531 | AE1-072 C O1 | 6.59      |
| 938661 | AE1-088      | 4.36      |
| 938771 | AE1-103 C O1 | 1.57      |
| 939071 | AE1-135 C O1 | 6.73      |
| 940061 | AE1-248 C O1 | 4.8       |
| 940251 | AE2-007      | 50.77     |
| 940491 | AE2-034 C    | 6.83      |
| 940521 | AE2-037 C O2 | 11.03     |
| 941101 | AE2-104 C O2 | 1.26      |
| 941281 | AE2-122 C O2 | 8.76      |
| 941291 | AE2-123 C O2 | 9.01      |
| 941301 | AE2-124 C O2 | 8.16      |
| 941501 | AE2-147 C    | 7.92      |
| 941541 | AE2-151 C    | 0.94      |
| 942131 | AE2-225 C    | 0.77      |
| 942171 | AE2-229 C    | 0.77      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 942341     | AE2-247 C    | 0.49      |
| 942371     | AE2-250 C O2 | 2.87      |
| 942401     | AE2-253 C    | 2.14      |
| 942471     | AE2-260 C O2 | 4.66      |
| 942851     | AE2-304 C    | 0.35      |
| 943171     | AE2-346 C    | 1.41      |
| AC1-131    | AC1-131      | 6.95      |
| BLUEG      | BLUEG        | 9.16      |
| CALDERWOOD | CALDERWOOD   | 1.99      |
| CANNELTON  | CANNELTON    | 0.63      |
| CATAWBA    | CATAWBA      | 1.96      |
| CBM-N      | CBM-N        | 0.29      |
| CHEOAH     | CHEOAH       | 1.86      |
| CHILHOWEE  | CHILHOWEE    | 0.64      |
| COFFEEN    | COFFEEN      | 1.09      |
| COTTONWOOD | COTTONWOOD   | 6.67      |
| DUCKCREEK  | DUCKCREEK    | 2.22      |
| EDWARDS    | EDWARDS      | 0.99      |
| ELMERSMITH | ELMERSMITH   | 1.12      |
| FARMERCITY | FARMERCITY   | 0.79      |
| G-007A     | G-007A       | 1.31      |
| GIBSON     | GIBSON       | 0.4       |
| HAMLET     | HAMLET       | 4.21      |
| NEWTON     | NEWTON       | 2.83      |
| NYISO      | NYISO        | 1.24      |
| PRAIRIE    | PRAIRIE      | 6.0       |
| SANTEETLA  | SANTEETLA    | 0.55      |
| SMITHLAND  | SMITHLAND    | 0.54      |
| TATANKA    | TATANKA      | 1.34      |
| TILTON     | TILTON       | 1.16      |
| TRIMBLE    | TRIMBLE      | 1.0       |
| TVA        | TVA          | 5.58      |
| UNIONPOWER | UNIONPOWER   | 2.77      |
| VFT        | VFT          | 3.49      |

## Short Circuit

## 13.6 Short Circuit

The following Breakers are overduty: None

## Affected Systems

## **14 Affected Systems**

### **14.1 LG&E**

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

### **14.2 MISO**

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

### **14.3 TVA**

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

### **14.4 Duke Energy Progress**

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

### **14.5 NYISO**

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

# Attachment 1

## System Configuration

