



Generation Interconnection

Feasibility Study Report

for

Queue Project AE2-321

BELVIDERE-MARENGO

67 MW Capacity / 100 MW Energy

July, 2019

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1 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 and inverters 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 or inverters 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.

2 General

The Interconnection Customer (IC), has proposed a solar generating facility located in McHenry County, Illinois. The installed facilities will have a total capability of 100 MW with 67 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 1, 2021. This study does not imply a TO commitment to this in-service date.

| | |
|----------------------------|--------------------------|
| Queue Number | AE2-321 |
| Project Name | BELVIDERE-MARENGO |
| State | Illinois |
| County | McHenry |
| Transmission Owner | ComEd |
| MFO | 100 |
| MWE | 100 |
| MWC | 67 |
| Fuel | Solar |
| Basecase Study Year | 2022 |

2.1 Primary Point of Interconnection

Queue Position AE2-321, a 100 MW solar generator facility, proposes to interconnect with the ComEd transmission system by tying to Belvidere-Marengo 138kV line 12205, approximately 11.2 miles from Belvidere TSS122

2.2 Cost Summary

The AE2-321 project will be responsible for the following costs:

| Description | Total Cost |
|--|---------------------|
| Attachment Facilities | \$ 1,000,000 |
| Direct Connection Network Upgrade | \$17,000,000 |
| Non Direct Connection Network Upgrades | \$ 2,250,000 |
| Total Costs | \$20,250,000 |

In addition, the AE2-321 project may be responsible for a contribution to the following costs

| Description | Total Cost |
|-----------------|--------------|
| System Upgrades | \$78,437,560 |

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

3 Transmission Owner Scope of Work

4 Attachment Facilities

The generator lead for AE2-321 will interconnect to a new 138 kV Interconnection Substation (see details in Direct Connection section below). The required Attachment Facilities are one 138 kV line MOD, one dead-end structure and one set of revenue-metering as shown in the one-line diagram.

| Scope of Work | Cost Estimate |
|--|---------------|
| Installation of one 138 kV line MOD, one dead-end structure and one set of revenue metering (see notes below on cost estimate) | \$ 1,000,000 |

5 Direct Connection Cost Estimate

In order to accommodate interconnection of AE2-321, a new 138kV Interconnection Substation TSS 901 Thorne Road would need to be built looping in the 138 kV line 12205 between TSS 122 Belvidere and TSS 123 Marengo line tap, as shown in the one-line diagram below.

The scope of work includes installation of three 138 kV circuit breakers in “breaker-and-a-half” bus configuration and tie in the Interconnection Substation to the 138kV line 12205 between TSS 122 Belvidere and TSS 123 Marengo line tap, as shown in the one-line diagram below.

The Interconnection Customer is responsible for constructing all the facilities on the Interconnection Customer side of the Point of Interconnection (POI). It is assumed for the purposes of this report that the IC will obtain the site for the Interconnection Substation and right-of-way between the Interconnection Substation and the 138kV transmission line.

In the event that the IC exercises the option to build the Interconnecting Substation, the IC will be required to construct all interconnection facilities that will be turned over to ComEd in accordance with ComEd published standards and the PJM Tariff.

ComEd would design, engineer and construct the tie in of the Interconnection Substation to 138 kV Line 12205. The preliminary cost estimate for Direct Connection Network Upgrade is given in the following tables.

For Option to Build Direct Connection cost estimates:

| Scope of Work | Cost Estimate |
|---|---------------|
| Installation of a new 138 kV substation as described above | N/A |
| Transmission line tie in work (foundations, structures, conductors) | \$2,000,000 |
| ComEd oversight and testing | \$1,500,000 |
| Total Cost Estimate (see notes below on cost estimate) | \$3,500,000 |

For ComEd building the interconnecting substation cost estimates:

| Scope of Work | Cost Estimate |
|---|---------------|
| Installation of a new 138 kV substation as described above | \$ 15,000,000 |
| Transmission line tie in work (foundations, structures, conductors) | \$ 2,000,000 |
| Total Cost Estimate (see notes below on cost estimate) | \$ 17,000,000 |

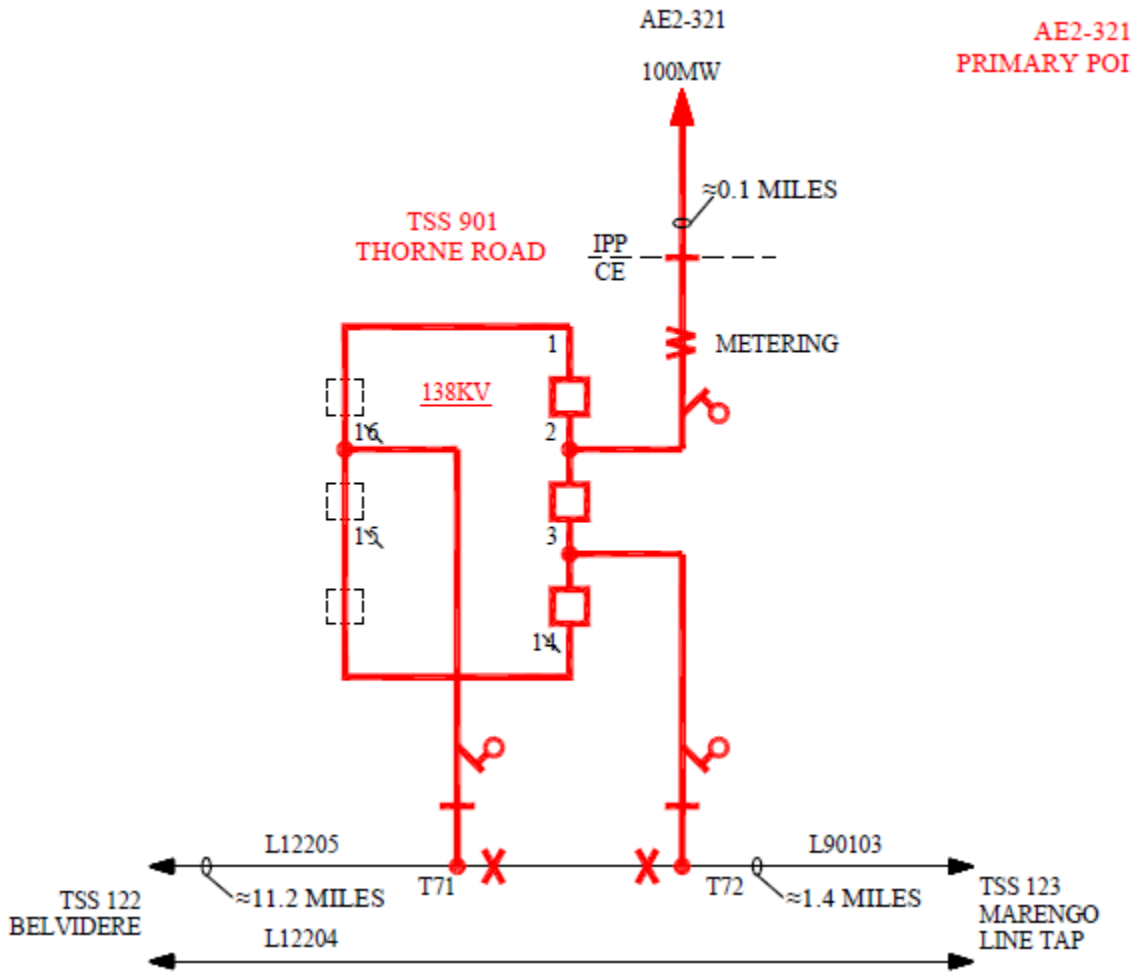
6 Non-Direct Connection Cost Estimate

| Scope of Work | Cost Estimate |
|---|----------------------|
| Relay/communications/SCADA upgrades at TSS 122 Belvidere | \$750,000 |
| Relay/communications/SCADA upgrades at TSS 151 Woodstock | \$ 750,000 |
| Relay/communications/SCADA upgrades at TSS 123 Marengo line tap | \$750,000 |
| Total Cost Estimate (see notes below on cost estimate) | \$2,250,000 |

7 Schedule

Normally it takes about 24-months to engineer, design, procure material and construct 138 V facilities after ISA/ICSA are signed.

8 Transmission Owner Analysis



Notes on Cost Estimate:

- 1) These estimates are Order-of-Magnitude estimates of the costs that ComEd would bill to the customer for this interconnection. These estimates are based on a one-line electrical diagram of the project and the information provided by the Interconnection Customer.
- 2) There were no site visits performed for these estimates. There may be costs related to specific site related issues that are not identified in these estimates. The site reviews will be performed during the Facilities Study or during detailed engineering.
- 3) These estimates are not a guarantee of the maximum amount payable by the Interconnection Customer and the actual costs of ComEd's work may differ significantly from these estimates. Interconnection Customer will be responsible for paying actual costs of ComEd's work in accordance with Sections 212.1 and 217 of the PJM Open Access Transmission Tariff.
- 4) The Interconnection Customer is responsible for all engineering, procurement, testing and construction of all equipment on the Interconnection Customer's side of the POI.
- 5) These cost estimates do not include cost of acquiring right-of-way for the transmission line and purchasing any additional land, if needed, for the line terminations. The need and cost for acquiring property and associated legal costs will be investigation during Facilities Study for this project.

9 Interconnection Customer Requirements

In the event that the IC exercises the option to build the Interconnecting Substation, the IC will be required to construct all interconnection facilities that will be turned over to ComEd in accordance with ComEd published standards and the PJM Tariff.

ComEd interconnection requirements can be found at <https://www.pjm.com/planning/design-engineering/to-tech-standards/private-comed.aspx>

To the extent that these Applicable Technical Requirements and Standards may conflict with the terms and conditions of the Tariff, the Tariff shall control.

ComEd distribution line drops to move customer cranes and heavy equipment is not part of PJM process. The customer should directly contact ComEd New Business Group to arrange for line drops, if needed.

10 Revenue Metering and SCADA 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 Network Impacts for Primary Point of Interconnection

The Queue Project AE2-321 was evaluated as a 100.0 MW (Capacity 67.0 MW) injection tapping the Belvidere to Marengo 138kV line in the ComEd area. Project AE2-321 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-321 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

12 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 |
|---------|-----------|--------------|---------------|---------|--------------|-------------|--------|-----------------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 8986530 | 270759 | GARDEN PR; R | CE | 270883 | SILVER LK; R | CE | 1 | COMED_P1-2_345-L0626__B-R-A | single | 1479.0 | 99.86 | 100.01 | DC | 4.97 |

13 Multiple Facility Contingency

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

None

14 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 |
|---------|-----------|--------------|---------------|---------|------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985829 | 270926 | WILTON ; B | CE | 275232 | WILTON ;3M | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.63 | 163.71 | DC | 14.9 |
| 8985838 | 270927 | WILTON ; R | CE | 275233 | WILTON ;4M | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.42 | 163.51 | DC | 15.22 |
| 7432236 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0 | 139.22 | 139.32 | DC | 9.86 |
| 7432237 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_023-65-BT2-3__ | breaker | 971.0 | 138.12 | 138.22 | DC | 9.94 |
| 7432238 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_112-65-BT4-5__ | breaker | 971.0 | 138.11 | 138.21 | DC | 9.93 |
| 7432239 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_112-65-BT3-4__ | breaker | 971.0 | 138.11 | 138.21 | DC | 9.93 |
| 7432240 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_023-65-BT4-5__ | breaker | 971.0 | 138.1 | 138.2 | DC | 9.93 |
| 8985831 | 275232 | WILTON ;3M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.63 | 163.71 | DC | 14.9 |
| 8985837 | 275233 | WILTON ;4M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.42 | 163.51 | DC | 15.22 |

15 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 |
|---------|-----------|--------------|---------------|---------|----------|-------------|--------|----------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 7432959 | 255113 | 17STILLWELL | NIPS | 243219 | 05DUMONT | AEP | 1 | AEP_P1-2_#695A | operation | 1409.0 | 170.8 | 170.88 | DC | 14.38 |
| 7433116 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P1-2_#695A | operation | 971.0 | 138.1 | 138.2 | DC | 9.93 |

16 System Reinforcements

| ID | Index | Facility | Upgrade Description | Cost |
|---------|-------|---|--|--------------|
| 8985831 | 5 | WILTON ;3M 345.0 kV - WILTON ; 765.0 kV Ckt 1 | n5145 (286) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : \$11,000,000 Time Estimate : 36-40 Months | \$11,000,000 |
| 8985829 | 2 | WILTON ; B 345.0 kV - WILTON ;3M 345.0 kV Ckt 1 | n5145 (286) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : \$11,000,000 Time Estimate : 36-40 Months | \$11,000,000 |
| 8985838 | 3 | WILTON ; R 345.0 kV - WILTON ;4M 345.0 kV Ckt 1 | n5145 (286) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : \$11,000,000 Time Estimate : 36-40 Months | \$11,000,000 |
| 8985837 | 6 | WILTON ;4M 345.0 kV - WILTON ; 765.0 kV Ckt 1 | n5145 (286) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : \$11,000,000 Time Estimate : 36-40 Months | \$11,000,000 |

| ID | Index | Facility | Upgrade Description | Cost |
|---|-------|---|--|---------------------|
| 7432238,7432239,7432236,7432237,7432240 | 4 | UNIV PK N;RP 345.0 kV - 05OLIVE 345.0 kV Ckt 1 | <p>AEP_AE1_REF_r0001 (120) : A Sag Study will be required on the 40.64 miles of ACSR/PE 1414 62/19 conductor to mitigate the overload. The new ratings after sag study will be: S/N: 971 MVA, S/E: 1419 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between \$162,560 (no remediation required, just sag study) and \$81.28 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$162,560 Time Estimate : 6-12 Months</p> <p>AEP_AE1_REF_r0002 (121) : Replace 5 Jumpers (Sub cond 2156 ACSR 84/19 STD at Olive station, estimated cost : \$175,000 Project Type : FAC Cost : \$175,000 Time Estimate : 6-12 Months</p> <p>ce-001 (272) : AEP owns limit on L97008. CE has a sag limit on 2 types of conductors as well. CE would need to address sag limit of 2 types of conductors to reach required rating. A preliminary estimate for sag mitigation is \$21.4M with an estimated construction timeline of 30 months. Upon completion of the sag mitigation the new ratings will become 1091/1399/1483/1674 MVA SN/SLTE/SSTE/SLD. Project Type : FAC Cost : \$21,400,000 Time Estimate : 30.0 Months</p> | \$21,737,560 |
| 8986530 | 1 | GARDEN PR; R 345.0 kV - SILVER LK; R 345.0 kV Ckt 1 | <p>ce-012a (293) : ComEd 345kV L15616 SN rating is 1201 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to re-conductor the line and station bus work. A preliminary estimate for this upgrade is \$45.7M with a estimated construction timeline of 30 months. Upon completion of the upgrade the ratings will be 1248/1441/1667/1982 MVA SN/SLTE/SSTE/SLD. Project Type : FAC Cost : \$45,700,000 Time Estimate : 30.0 Months</p> | \$45,700,000 |
| | | | TOTAL COST | \$78,437,560 |

If “No Reinforcement Needed. Not a valid violation” was provided as the Upgrade Description for a facility in the System Reinforcements table then that facility met one of the following conditions:

- a. The loading on the facility at your queue position was less than 100%; therefore, the facility is not yet overloaded, but may be overloaded by end of the AE2 queue.
- b. The TO reviewed their ratings on the facility and determined that the current rating was greater than the rating in PJM’s model. This new rating was greater than the loading at your queue position making the violation invalid.

c. The TO reviewed the contingency and determined that contingency was not valid; therefore the violation is invalid. Any contingency corrections will be assessed and corrected in the AE2 impact study phase.

17 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 gauge 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.

—

17.1 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 |
|---------|-----------|--------------|---------------|---------|--------------|-------------|--------|----------------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 8986530 | 270759 | GARDEN PR; R | CE | 270883 | SILVER LK; R | CE | 1 | COMED_P1-2_345-L0626_B-R-A | single | 1479.0 | 99.86 | 100.01 | DC | 4.97 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 49.79 |
| 274656 | BYRON ;1U | 37.44 |
| 274657 | BYRON ;2U | 36.66 |
| 274715 | NELSON EC;1C | 1.95 |
| 274716 | NELSON EC;1S | 2.7 |
| 274717 | NELSON EC;2C | 1.95 |
| 274718 | NELSON EC;2S | 2.7 |
| 274760 | LEE CO EC;1U | 1.73 |
| 274761 | LEE CO EC;2U | 1.72 |
| 274762 | LEE CO EC;3U | 1.72 |
| 274763 | LEE CO EC;4U | 1.7 |
| 274764 | LEE CO EC;5U | 1.72 |
| 274765 | LEE CO EC;6U | 1.73 |
| 274766 | LEE CO EC;7U | 1.7 |
| 274767 | LEE CO EC;8U | 1.7 |
| 274822 | ROCKFORD ;11 | 2.81 |
| 274823 | ROCKFORD ;21 | 2.88 |
| 274824 | ROCKFORD ;12 | 2.79 |
| 274856 | ECOGROVE ;U1 | 0.53 |
| 274857 | BIG SKY ;U1 | 0.52 |
| 274858 | BIG SKY ;U2 | 0.52 |
| 290266 | R-018 | 0.2 |
| 295110 | SUBLETTE C | 0.06 |
| 905471 | W4-084 | 0.06 |
| 907361 | X1-087 | 0.4 |
| 919221 | AA1-146 | 19.97 |
| 919581 | AA2-030 | 19.97 |
| 924471 | AB2-096 | 174.28 |
| 925161 | AB2-173 | 3.56 |
| 926431 | AC1-114 | 5.02 |
| 927511 | AC1-113 1 | 2.51 |
| 927521 | AC1-113 2 | 2.51 |
| 927531 | AC1-185 1 | 1.07 |
| 927541 | AC1-185 2 | 1.07 |
| 927551 | AC1-185 3 | 1.07 |
| 927561 | AC1-185 4 | 1.07 |
| 927571 | AC1-185 5 | 1.07 |
| 927581 | AC1-185 6 | 1.07 |
| 927591 | AC1-185 7 | 1.07 |
| 927601 | AC1-185 8 | 1.07 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 932881 | AC2-115 1 | 5.02 |
| 932891 | AC2-115 2 | 5.02 |
| 932921 | AC2-116 | 1.76 |
| 933341 | AC2-147 C | 1.25 |
| 933911 | AD1-013 C | 1.52 |
| 934431 | AD1-067 C | 0.11 |
| 934651 | AD1-096 C | 1.65 |
| 934701 | AD1-098 C O1 | 5.89 |
| 934971 | AD1-129 C | 1.34 |
| 936791 | AD2-102 C | 24.46 |
| 937001 | AD2-134 C | 2.29 |
| 937311 | AD2-172 C | 4.53 |
| 937531 | AD2-214 C | 4.53 |
| 938861 | AE1-114 C O1 | 5.67 |
| 939051 | AE1-134 1 | 1.55 |
| 939061 | AE1-134 2 | 1.55 |
| 939691 | AE1-199 | 1.98 |
| 939921 | AE1-228 C O1 | 8.22 |
| 940501 | AE2-035 C | 4.53 |
| 940881 | AE2-077 C | 6.43 |
| 941131 | AE2-107 C | 5.04 |
| 942991 | AE2-321 C O1 | 4.97 |
| 950081 | J384 | 2.72 |
| 950101 | J390 | 87.03 |
| 952431 | J760 | 5.46 |
| 952511 | J584 C | 1.1 |
| 953111 | J807 C | 0.61 |
| 953681 | J818 | 14.77 |
| 953691 | J819 C | 1.53 |
| 953901 | J850 | 21.8 |
| 954001 | J864 | 4.54 |
| BLUEG | BLUEG | 1.91 |
| CANNELTON | CANNELTON | 0.03 |
| CARR | CARR | 0.18 |
| CATAWBA | CATAWBA | 0.01 |
| CBM-S1 | CBM-S1 | 1.39 |
| CBM-W1 | CBM-W1 | 18.3 |
| CBM-W2 | CBM-W2 | 24.26 |
| ELMERSMITH | ELMERSMITH | 0.01 |
| GIBSON | GIBSON | 0.04 |
| HAMLET | HAMLET | 0.05 |
| MEC | MEC | 27.63 |
| RENSSELAER | RENSSELAER | 0.14 |
| TILTON | TILTON | 0.13 |
| TRIMBLE | TRIMBLE | 0.23 |
| WEC | WEC | 0.69 |

17.2 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 |
|---------|-----------|-----------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985829 | 270926 | WILTON ;B | CE | 275232 | WILTON ;3M | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.63 | 163.71 | DC | 14.9 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 14.78 |
| 274722 | S-055 E | 13.73 |
| 274772 | LINCOLN ;3U | 2.67 |
| 274773 | LINCOLN ;4U | 2.67 |
| 274774 | LINCOLN ;5U | 2.67 |
| 274775 | LINCOLN ;6U | 2.67 |
| 274776 | LINCOLN ;7U | 2.67 |
| 274777 | LINCOLN ;8U | 2.67 |
| 274788 | SE CHICAG;5U | 5.44 |
| 274789 | SE CHICAG;6U | 5.44 |
| 274790 | SE CHICAG;7U | 5.44 |
| 274791 | SE CHICAG;8U | 5.44 |
| 274792 | SE CHICAG;9U | 5.4 |
| 274793 | SE CHICAG;0U | 5.4 |
| 274794 | SE CHICAG;1U | 5.4 |
| 274795 | SE CHICAG;2U | 5.4 |
| 274859 | EASYR;U1 E | 13.43 |
| 274860 | EASYR;U2 E | 13.43 |
| 274888 | PILOT HIL;1E | 23.57 |
| 274890 | CAYUG;1U E | 20.22 |
| 274891 | CAYUG;2U E | 20.22 |
| 275149 | KEMPTON ;1E | 23.57 |
| 290021 | O50 E | 23.7 |
| 290051 | GSG-6; E | 12.77 |
| 290108 | LEEDK;1U E | 29.68 |
| 293061 | N-015 E | 19.41 |
| 293644 | O22 E1 | 12.53 |
| 293645 | O22 E2 | 24.32 |
| 294392 | P-010 E | 24.65 |
| 294763 | P-046 E | 11.45 |
| 295109 | WESTBROOK E | 6.84 |
| 295111 | SUBLETTE E | 3.17 |
| 296125 | R-030 C3 | 4.97 |
| 296128 | R-030 E3 | 19.89 |
| 296271 | R-030 C2 | 4.91 |
| 296272 | R-030 E2 | 19.65 |
| 296308 | R-030 C1 | 4.91 |
| 296309 | R-030 E1 | 19.65 |
| 910542 | X3-005 E | 0.89 |
| 914641 | Y2-103 | 54.9 |
| 915011 | Y3-013 1 | 4.58 |
| 915021 | Y3-013 2 | 4.58 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 915031 | Y3-013 3 | 4.58 |
| 916221 | Z1-073 E | 6.59 |
| 916502 | Z1-106 E1 | 1.54 |
| 916504 | Z1-106 E2 | 1.54 |
| 916512 | Z1-107 E | 3.16 |
| 916522 | Z1-108 E | 3.04 |
| 917502 | Z2-087 E | 25.7 |
| 918052 | AA1-018 E | 20.09 |
| 919581 | AA2-030 | 18.9 |
| 920272 | AA2-123 E | 2.98 |
| 924041 | AB2-047 C O1 | 4.74 |
| 924042 | AB2-047 E O1 | 31.72 |
| 924471 | AB2-096 | 51.72 |
| 925161 | AB2-173 | 3.83 |
| 925302 | AB2-191 E | 1.69 |
| 926311 | AC1-109 1 | 2.34 |
| 926321 | AC1-109 2 | 2.34 |
| 926331 | AC1-110 1 | 2.32 |
| 926341 | AC1-110 2 | 2.32 |
| 926351 | AC1-111 1 | 0.93 |
| 926361 | AC1-111 2 | 0.93 |
| 926371 | AC1-111 3 | 0.93 |
| 926381 | AC1-111 4 | 0.93 |
| 926391 | AC1-111 5 | 0.93 |
| 926401 | AC1-111 6 | 0.93 |
| 926431 | AC1-114 | 2.91 |
| 926821 | AC1-168 C O1 | 1.43 |
| 926822 | AC1-168 E O1 | 9.57 |
| 927091 | AC1-204 1 | 88.75 |
| 927101 | AC1-204 2 | 88.75 |
| 927451 | AC1-142A 1 | 5.11 |
| 927461 | AC1-142A 2 | 5.11 |
| 927511 | AC1-113 1 | 1.45 |
| 927521 | AC1-113 2 | 1.45 |
| 927531 | AC1-185 1 | 0.84 |
| 927541 | AC1-185 2 | 0.84 |
| 927551 | AC1-185 3 | 0.84 |
| 927561 | AC1-185 4 | 0.84 |
| 927571 | AC1-185 5 | 0.84 |
| 927581 | AC1-185 6 | 0.84 |
| 927591 | AC1-185 7 | 0.84 |
| 927601 | AC1-185 8 | 0.84 |
| 930481 | AB1-089 | 80.32 |
| 930501 | AB1-091 O1 | 93.8 |
| 930741 | AB1-122 1O1 | 89.17 |
| 930751 | AB1-122 2O1 | 90.13 |
| 932881 | AC2-115 1 | 2.91 |
| 932891 | AC2-115 2 | 2.91 |
| 932921 | AC2-116 | 1.02 |
| 932931 | AC2-117 | 6.51 |
| 933341 | AC2-147 C | 1.07 |
| 933342 | AC2-147 E | 1.74 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 933411 | AC2-154 C | 3.2 |
| 933412 | AC2-154 E | 5.22 |
| 933431 | AC2-156 C O1 | 1.17 |
| 933432 | AC2-156 E O1 | 1.91 |
| 933911 | AD1-013 C | 2.25 |
| 933912 | AD1-013 E | 3.59 |
| 933931 | AD1-016 C | 1.13 |
| 933932 | AD1-016 E | 1.85 |
| 934101 | AD1-039 1 | 8.74 |
| 934111 | AD1-039 2 | 8.83 |
| 934401 | AD1-064 C O1 | 3.91 |
| 934402 | AD1-064 E O1 | 18.33 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.67 |
| 934651 | AD1-096 C | 1.09 |
| 934652 | AD1-096 E | 1.78 |
| 934701 | AD1-098 C O1 | 8.41 |
| 934702 | AD1-098 E O1 | 6.14 |
| 934721 | AD1-100 C | 29.39 |
| 934722 | AD1-100 E | 137.14 |
| 934871 | AD1-116 C | 1.17 |
| 934872 | AD1-116 E | 1.91 |
| 934971 | AD1-129 C | 1.1 |
| 934972 | AD1-129 E | 0.74 |
| 935001 | AD1-133 C O1 | 27.36 |
| 935002 | AD1-133 E O1 | 18.24 |
| 936291 | AD2-038 C O1 | 2.88 |
| 936292 | AD2-038 E O1 | 19.25 |
| 936371 | AD2-047 C O1 | 2.86 |
| 936372 | AD2-047 E O1 | 30.81 |
| 936461 | AD2-060 | 3.37 |
| 936511 | AD2-066 C O1 | 10.34 |
| 936512 | AD2-066 E O1 | 6.89 |
| 936781 | AD2-101 C | 5.82 |
| 936782 | AD2-101 E | 27.26 |
| 936791 | AD2-102 C | 14.68 |
| 936792 | AD2-102 E | 14.11 |
| 937001 | AD2-134 C | 3.34 |
| 937002 | AD2-134 E | 13.79 |
| 937031 | AD2-137 C O1 | 7.17 |
| 937032 | AD2-137 E O1 | 33.55 |
| 937051 | AD2-140 C O1 | 7.53 |
| 937052 | AD2-140 E O1 | 35.24 |
| 937061 | AD2-141 C O1 | 7.48 |
| 937062 | AD2-141 E O1 | 35.28 |
| 937071 | AD2-142 C O1 | 15.05 |
| 937072 | AD2-142 E O1 | 70.47 |
| 937121 | AD2-148 C O1 | 4.5 |
| 937122 | AD2-148 E O1 | 21.09 |
| 937131 | AD2-149 C O1 | 4.5 |
| 937132 | AD2-149 E O1 | 21.09 |
| 937141 | AD2-150 C O1 | 4.5 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937142 | AD2-150 E O1 | 21.09 |
| 937181 | AD2-155 C O1 | 4.5 |
| 937182 | AD2-155 E O1 | 21.09 |
| 937311 | AD2-172 C | 3.01 |
| 937312 | AD2-172 E | 4.15 |
| 937321 | AD2-175 C | 20.99 |
| 937322 | AD2-175 E | 13.99 |
| 937331 | AD2-176 C O1 | 8.96 |
| 937332 | AD2-176 E O1 | 5.97 |
| 937401 | AD2-194 1 | 9.54 |
| 937411 | AD2-194 2 | 9.54 |
| 938012 | AE1-002 E O1 | 14.38 |
| 938511 | AE1-070 1 | 11.21 |
| 938521 | AE1-070 2 | 10.26 |
| 938851 | AE1-113 C O1 | 10.72 |
| 938852 | AE1-113 E O1 | 33.71 |
| 938861 | AE1-114 C O1 | 4.39 |
| 938862 | AE1-114 E O1 | 16.8 |
| 939051 | AE1-134 1 | 1.67 |
| 939061 | AE1-134 2 | 1.67 |
| 939321 | AE1-163 C O1 | 7.23 |
| 939322 | AE1-163 E O1 | 44.39 |
| 939351 | AE1-166 C O1 | 14.5 |
| 939352 | AE1-166 E O1 | 13.38 |
| 939401 | AE1-172 C O1 | 9.5 |
| 939402 | AE1-172 E O1 | 44.49 |
| 939691 | AE1-199 | 2.92 |
| 939701 | AE1-201 C | 2.45 |
| 939702 | AE1-201 E | 0.54 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.45 |
| 939742 | AE1-205 E O1 | 17.19 |
| 939861 | AE1-222 1 | 98.48 |
| 939871 | AE1-222 2 | 99.53 |
| 939921 | AE1-228 C O1 | 12.28 |
| 939922 | AE1-228 E O1 | 8.19 |
| 940101 | AE1-252 C O1 | 16.2 |
| 940102 | AE1-252 E O1 | 10.8 |
| 940501 | AE2-035 C | 3.01 |
| 940502 | AE2-035 E | 4.15 |
| 940621 | AE2-049 C O1 | 11.53 |
| 940622 | AE2-049 E O1 | 7.69 |
| 940631 | AE2-050 C O1 | 15.38 |
| 940632 | AE2-050 E O1 | 10.26 |
| 940752 | AE2-062 E | 0.16 |
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.85 |
| 940882 | AE2-077 E | 6.28 |
| 941131 | AE2-107 C | 8.93 |
| 941132 | AE2-107 E | 5.96 |
| 941551 | AE2-152 C | 18.59 |
| 941552 | AE2-152 E | 9.29 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 941561 | AE2-153 C O1 | 6.06 |
| 941562 | AE2-153 E O1 | 28.37 |
| 941731 | AE2-173 | 7.31 |
| 942111 | AE2-223 C | 2.88 |
| 942112 | AE2-223 E | 19.28 |
| 942421 | AE2-255 C O1 | 3.7 |
| 942422 | AE2-255 E O1 | 11.11 |
| 942651 | AE2-281 C | 1.03 |
| 942652 | AE2-281 E | 6.34 |
| 942881 | AE2-307 C | 28.2 |
| 942882 | AE2-307 E | 10.26 |
| 942911 | AE2-310 C | 11.2 |
| 942912 | AE2-310 E | 3.02 |
| 942991 | AE2-321 C O1 | 9.98 |
| 942992 | AE2-321 E O1 | 4.92 |
| 943121 | AE2-341 C | 15.61 |
| 943122 | AE2-341 E | 7.67 |
| BLUEG | BLUEG | 8.02 |
| CALDERWOOD | CALDERWOOD | 0.11 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.97 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.72 |
| CBM-W1 | CBM-W1 | 37.33 |
| CBM-W2 | CBM-W2 | 70.69 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.03 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.73 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.74 |
| MEC | MEC | 46.43 |
| O-066 | O-066 | 17.5 |
| RENSSELAER | RENSSELAER | 0.77 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.95 |
| WEC | WEC | 9.73 |
| Z1-043 | Z1-043 | 35.42 |

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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 |
|---------|-----------|-----------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985838 | 270927 | WILTON ;R | CE | 275233 | WILTON ;4M | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.42 | 163.51 | DC | 15.22 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 15.09 |
| 274722 | S-055 E | 14.02 |
| 274772 | LINCOLN ;3U | 2.74 |
| 274773 | LINCOLN ;4U | 2.74 |
| 274774 | LINCOLN ;5U | 2.74 |
| 274775 | LINCOLN ;6U | 2.74 |
| 274776 | LINCOLN ;7U | 2.74 |
| 274777 | LINCOLN ;8U | 2.74 |
| 274788 | SE CHICAG;5U | 5.56 |
| 274789 | SE CHICAG;6U | 5.56 |
| 274790 | SE CHICAG;7U | 5.56 |
| 274791 | SE CHICAG;8U | 5.56 |
| 274792 | SE CHICAG;9U | 5.52 |
| 274793 | SE CHICAG;0U | 5.52 |
| 274794 | SE CHICAG;1U | 5.52 |
| 274795 | SE CHICAG;2U | 5.52 |
| 274859 | EASYSR;U1 E | 13.72 |
| 274860 | EASYSR;U2 E | 13.72 |
| 274888 | PILOT HIL;1E | 24.06 |
| 274890 | CAYUG;1U E | 20.62 |
| 274891 | CAYUG;2U E | 20.62 |
| 275149 | KEMPTON ;1E | 24.06 |
| 290021 | O50 E | 24.2 |
| 290051 | GSG-6; E | 13.05 |
| 290108 | LEEDK;1U E | 30.31 |
| 293061 | N-015 E | 19.81 |
| 293516 | O-009 E1 | 2.14 |
| 293517 | O-009 E2 | 1.09 |
| 293518 | O-009 E3 | 1.2 |
| 293644 | O22 E1 | 12.79 |
| 293645 | O22 E2 | 24.83 |
| 293715 | O-029 E | 12.21 |
| 293716 | O-029 E | 6.69 |
| 293717 | O-029 E | 6.15 |
| 294392 | P-010 E | 25.16 |
| 294763 | P-046 E | 11.69 |
| 295109 | WESTBROOK E | 6.98 |
| 295111 | SUBLETTE E | 3.24 |
| 296125 | R-030 C3 | 5.07 |
| 296128 | R-030 E3 | 20.29 |
| 296271 | R-030 C2 | 5.01 |
| 296272 | R-030 E2 | 20.05 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 296308 | R-030 C1 | 5.01 |
| 296309 | R-030 E1 | 20.05 |
| 910542 | X3-005 E | 0.91 |
| 914641 | Y2-103 | 56.07 |
| 915011 | Y3-013 1 | 4.67 |
| 915021 | Y3-013 2 | 4.67 |
| 915031 | Y3-013 3 | 4.67 |
| 916221 | Z1-073 E | 6.73 |
| 916502 | Z1-106 E1 | 1.58 |
| 916504 | Z1-106 E2 | 1.58 |
| 916512 | Z1-107 E | 3.23 |
| 916522 | Z1-108 E | 3.1 |
| 917502 | Z2-087 E | 26.22 |
| 918052 | AA1-018 E | 20.53 |
| 919221 | AA1-146 | 21.95 |
| 919581 | AA2-030 | 21.95 |
| 920272 | AA2-123 E | 3.05 |
| 924041 | AB2-047 C O1 | 4.84 |
| 924042 | AB2-047 E O1 | 32.36 |
| 924471 | AB2-096 | 52.83 |
| 925161 | AB2-173 | 3.91 |
| 925302 | AB2-191 E | 1.73 |
| 926311 | AC1-109 1 | 2.39 |
| 926321 | AC1-109 2 | 2.39 |
| 926331 | AC1-110 1 | 2.37 |
| 926341 | AC1-110 2 | 2.37 |
| 926351 | AC1-111 1 | 0.95 |
| 926361 | AC1-111 2 | 0.95 |
| 926371 | AC1-111 3 | 0.95 |
| 926381 | AC1-111 4 | 0.95 |
| 926391 | AC1-111 5 | 0.95 |
| 926401 | AC1-111 6 | 0.95 |
| 926431 | AC1-114 | 2.97 |
| 926821 | AC1-168 C O1 | 1.46 |
| 926822 | AC1-168 E O1 | 9.77 |
| 927091 | AC1-204 1 | 90.65 |
| 927101 | AC1-204 2 | 90.65 |
| 927451 | AC1-142A 1 | 5.22 |
| 927461 | AC1-142A 2 | 5.22 |
| 927511 | AC1-113 1 | 1.48 |
| 927521 | AC1-113 2 | 1.48 |
| 927531 | AC1-185 1 | 0.86 |
| 927541 | AC1-185 2 | 0.86 |
| 927551 | AC1-185 3 | 0.86 |
| 927561 | AC1-185 4 | 0.86 |
| 927571 | AC1-185 5 | 0.86 |
| 927581 | AC1-185 6 | 0.86 |
| 927591 | AC1-185 7 | 0.86 |
| 927601 | AC1-185 8 | 0.86 |
| 930481 | AB1-089 | 82.03 |
| 930501 | AB1-091 O1 | 95.74 |
| 930741 | AB1-122 1O1 | 91.06 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 930751 | AB1-122 2O1 | 92.05 |
| 932881 | AC2-115 1 | 2.97 |
| 932891 | AC2-115 2 | 2.97 |
| 932921 | AC2-116 | 1.04 |
| 932931 | AC2-117 | 6.65 |
| 933341 | AC2-147 C | 1.09 |
| 933342 | AC2-147 E | 1.78 |
| 933411 | AC2-154 C | 3.27 |
| 933412 | AC2-154 E | 5.33 |
| 933431 | AC2-156 C O1 | 1.19 |
| 933432 | AC2-156 E O1 | 1.95 |
| 933911 | AD1-013 C | 2.3 |
| 933912 | AD1-013 E | 3.67 |
| 933931 | AD1-016 C | 1.16 |
| 933932 | AD1-016 E | 1.89 |
| 934101 | AD1-039 1 | 8.92 |
| 934111 | AD1-039 2 | 9.02 |
| 934401 | AD1-064 C O1 | 4.0 |
| 934402 | AD1-064 E O1 | 18.72 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.69 |
| 934651 | AD1-096 C | 1.11 |
| 934652 | AD1-096 E | 1.81 |
| 934701 | AD1-098 C O1 | 8.59 |
| 934702 | AD1-098 E O1 | 6.27 |
| 934721 | AD1-100 C | 29.97 |
| 934722 | AD1-100 E | 139.86 |
| 934871 | AD1-116 C | 1.2 |
| 934872 | AD1-116 E | 1.95 |
| 934971 | AD1-129 C | 1.13 |
| 934972 | AD1-129 E | 0.75 |
| 935001 | AD1-133 C O1 | 27.93 |
| 935002 | AD1-133 E O1 | 18.62 |
| 936291 | AD2-038 C O1 | 2.94 |
| 936292 | AD2-038 E O1 | 19.66 |
| 936371 | AD2-047 C O1 | 2.92 |
| 936372 | AD2-047 E O1 | 31.45 |
| 936461 | AD2-060 | 3.44 |
| 936511 | AD2-066 C O1 | 10.56 |
| 936512 | AD2-066 E O1 | 7.04 |
| 936781 | AD2-101 C | 5.94 |
| 936782 | AD2-101 E | 27.82 |
| 936791 | AD2-102 C | 14.99 |
| 936792 | AD2-102 E | 14.41 |
| 937001 | AD2-134 C | 3.41 |
| 937002 | AD2-134 E | 14.09 |
| 937031 | AD2-137 C O1 | 7.3 |
| 937032 | AD2-137 E O1 | 34.17 |
| 937051 | AD2-140 C O1 | 7.67 |
| 937052 | AD2-140 E O1 | 35.89 |
| 937061 | AD2-141 C O1 | 7.62 |
| 937062 | AD2-141 E O1 | 35.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937071 | AD2-142 C O1 | 15.33 |
| 937072 | AD2-142 E O1 | 71.78 |
| 937121 | AD2-148 C O1 | 4.6 |
| 937122 | AD2-148 E O1 | 21.53 |
| 937131 | AD2-149 C O1 | 4.6 |
| 937132 | AD2-149 E O1 | 21.53 |
| 937141 | AD2-150 C O1 | 4.6 |
| 937142 | AD2-150 E O1 | 21.53 |
| 937181 | AD2-155 C O1 | 4.6 |
| 937182 | AD2-155 E O1 | 21.53 |
| 937311 | AD2-172 C | 3.07 |
| 937312 | AD2-172 E | 4.24 |
| 937321 | AD2-175 C | 21.42 |
| 937322 | AD2-175 E | 14.28 |
| 937331 | AD2-176 C O1 | 9.15 |
| 937332 | AD2-176 E O1 | 6.1 |
| 937401 | AD2-194 1 | 9.75 |
| 937411 | AD2-194 2 | 9.75 |
| 938012 | AE1-002 E O1 | 14.65 |
| 938511 | AE1-070 1 | 11.45 |
| 938521 | AE1-070 2 | 10.48 |
| 938851 | AE1-113 C O1 | 10.95 |
| 938852 | AE1-113 E O1 | 34.43 |
| 938861 | AE1-114 C O1 | 4.49 |
| 938862 | AE1-114 E O1 | 17.15 |
| 939051 | AE1-134 1 | 1.71 |
| 939061 | AE1-134 2 | 1.71 |
| 939321 | AE1-163 C O1 | 7.38 |
| 939322 | AE1-163 E O1 | 45.35 |
| 939351 | AE1-166 C O1 | 14.79 |
| 939352 | AE1-166 E O1 | 13.65 |
| 939401 | AE1-172 C O1 | 9.69 |
| 939402 | AE1-172 E O1 | 45.37 |
| 939691 | AE1-199 | 2.98 |
| 939701 | AE1-201 C | 2.5 |
| 939702 | AE1-201 E | 0.55 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.7 |
| 939742 | AE1-205 E O1 | 17.54 |
| 939861 | AE1-222 1 | 100.56 |
| 939871 | AE1-222 2 | 101.65 |
| 939921 | AE1-228 C O1 | 12.54 |
| 939922 | AE1-228 E O1 | 8.36 |
| 940101 | AE1-252 C O1 | 16.52 |
| 940102 | AE1-252 E O1 | 11.01 |
| 940501 | AE2-035 C | 3.07 |
| 940502 | AE2-035 E | 4.24 |
| 940621 | AE2-049 C O1 | 11.77 |
| 940622 | AE2-049 E O1 | 7.85 |
| 940631 | AE2-050 C O1 | 15.7 |
| 940632 | AE2-050 E O1 | 10.47 |
| 940752 | AE2-062 E | 0.16 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.93 |
| 940882 | AE2-077 E | 6.42 |
| 941131 | AE2-107 C | 9.12 |
| 941132 | AE2-107 E | 6.08 |
| 941551 | AE2-152 C | 18.96 |
| 941552 | AE2-152 E | 9.48 |
| 941561 | AE2-153 C O1 | 6.18 |
| 941562 | AE2-153 E O1 | 28.96 |
| 941731 | AE2-173 | 7.45 |
| 942111 | AE2-223 C | 2.94 |
| 942112 | AE2-223 E | 19.67 |
| 942421 | AE2-255 C O1 | 3.78 |
| 942422 | AE2-255 E O1 | 11.34 |
| 942651 | AE2-281 C | 1.05 |
| 942652 | AE2-281 E | 6.48 |
| 942881 | AE2-307 C | 28.78 |
| 942882 | AE2-307 E | 10.47 |
| 942911 | AE2-310 C | 11.43 |
| 942912 | AE2-310 E | 3.09 |
| 942991 | AE2-321 C O1 | 10.2 |
| 942992 | AE2-321 E O1 | 5.02 |
| 943121 | AE2-341 C | 15.94 |
| 943122 | AE2-341 E | 7.83 |
| BLUEG | BLUEG | 8.2 |
| CALDERWOOD | CALDERWOOD | 0.12 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.99 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.75 |
| CBM-W1 | CBM-W1 | 38.13 |
| CBM-W2 | CBM-W2 | 72.15 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.04 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.79 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.76 |
| MEC | MEC | 47.41 |
| O-066 | O-066 | 17.87 |
| RENSSELAER | RENSSELAER | 0.78 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.98 |
| WEC | WEC | 9.93 |
| Z1-043 | Z1-043 | 36.17 |

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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 |
|---------|-----------|--------------|---------------|---------|---------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 7432236 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0 | 139.22 | 139.32 | DC | 9.86 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 9.77 |
| 274722 | S-055 E | 9.13 |
| 274808 | UNIV PK N;4U | 1.28 |
| 274809 | UNIV PK N;5U | 1.28 |
| 274811 | UNIV PK N;7U | 1.28 |
| 274812 | UNIV PK N;8U | 1.28 |
| 274814 | UNIV PK N;0U | 1.28 |
| 274815 | UNIV PK N;XU | 1.28 |
| 274832 | U4-027 | 8.59 |
| 274859 | EASYR;U1 E | 8.82 |
| 274860 | EASYR;U2 E | 8.82 |
| 274888 | PILOT HIL;1E | 14.83 |
| 274890 | CAYUG;1U E | 10.67 |
| 274891 | CAYUG;2U E | 10.67 |
| 275149 | KEMPTON ;1E | 14.83 |
| 290021 | O50 E | 15.58 |
| 290051 | GSG-6; E | 8.41 |
| 290108 | LEEDK;1U E | 19.56 |
| 293061 | N-015 E | 12.57 |
| 293516 | O-009 E1 | 7.24 |
| 293517 | O-009 E2 | 3.68 |
| 293518 | O-009 E3 | 4.05 |
| 293644 | O22 E1 | 7.86 |
| 293645 | O22 E2 | 15.26 |
| 293715 | O-029 E | 7.82 |
| 293716 | O-029 E | 4.29 |
| 293717 | O-029 E | 3.94 |
| 293771 | O-035 E | 5.08 |
| 294392 | P-010 E | 15.97 |
| 294401 | BSHIL;1U E | 6.79 |
| 294410 | BSHIL;2U E | 6.79 |
| 294763 | P-046 E | 7.54 |
| 295109 | WESTBROOK E | 4.5 |
| 295111 | SUBLETTE E | 2.08 |
| 910542 | X3-005 E | 0.51 |
| 914641 | Y2-103 | 36.51 |
| 915011 | Y3-013 1 | 3.04 |
| 915021 | Y3-013 2 | 3.04 |
| 915031 | Y3-013 3 | 3.04 |
| 916211 | Z1-072 E | 3.84 |
| 916221 | Z1-073 E | 4.34 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 916502 | Z1-106 E1 | 1.02 |
| 916504 | Z1-106 E2 | 1.02 |
| 916512 | Z1-107 E | 2.17 |
| 916522 | Z1-108 E | 2.01 |
| 918052 | AA1-018 E | 14.26 |
| 919221 | AA1-146 | 14.08 |
| 919581 | AA2-030 | 14.08 |
| 919621 | AA2-039 C | 1.65 |
| 919622 | AA2-039 E | 11.07 |
| 920272 | AA2-123 E | 1.98 |
| 924471 | AB2-096 | 34.19 |
| 925161 | AB2-173 | 2.51 |
| 925302 | AB2-191 E | 1.11 |
| 925581 | AC1-033 C | 1.11 |
| 925582 | AC1-033 E | 7.44 |
| 926311 | AC1-109 1 | 1.55 |
| 926321 | AC1-109 2 | 1.55 |
| 926331 | AC1-110 1 | 1.53 |
| 926341 | AC1-110 2 | 1.53 |
| 926351 | AC1-111 1 | 0.62 |
| 926361 | AC1-111 2 | 0.62 |
| 926371 | AC1-111 3 | 0.62 |
| 926381 | AC1-111 4 | 0.62 |
| 926391 | AC1-111 5 | 0.62 |
| 926401 | AC1-111 6 | 0.62 |
| 926431 | AC1-114 | 1.92 |
| 926821 | AC1-168 C O1 | 0.92 |
| 926822 | AC1-168 E O1 | 6.16 |
| 927091 | AC1-204 1 | 59.04 |
| 927101 | AC1-204 2 | 59.09 |
| 927201 | AC1-214 C O1 | 1.63 |
| 927202 | AC1-214 E O1 | 5.18 |
| 927451 | AC1-142A 1 | 3.45 |
| 927461 | AC1-142A 2 | 3.44 |
| 927511 | AC1-113 1 | 0.96 |
| 927521 | AC1-113 2 | 0.96 |
| 927531 | AC1-185 1 | 0.55 |
| 927541 | AC1-185 2 | 0.55 |
| 927551 | AC1-185 3 | 0.55 |
| 927561 | AC1-185 4 | 0.55 |
| 927571 | AC1-185 5 | 0.55 |
| 927581 | AC1-185 6 | 0.55 |
| 927591 | AC1-185 7 | 0.55 |
| 927601 | AC1-185 8 | 0.55 |
| 930481 | AB1-089 | 52.99 |
| 930501 | AB1-091 O1 | 57.0 |
| 930741 | AB1-122 1O1 | 58.08 |
| 930751 | AB1-122 2O1 | 59.55 |
| 932881 | AC2-115 1 | 1.92 |
| 932891 | AC2-115 2 | 1.92 |
| 932921 | AC2-116 | 0.67 |
| 932931 | AC2-117 | 10.38 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 933341 | AC2-147 C | 0.7 |
| 933342 | AC2-147 E | 1.14 |
| 933411 | AC2-154 C | 2.01 |
| 933412 | AC2-154 E | 3.28 |
| 933431 | AC2-156 C O1 | 0.77 |
| 933432 | AC2-156 E O1 | 1.26 |
| 933911 | AD1-013 C | 1.48 |
| 933912 | AD1-013 E | 2.37 |
| 933931 | AD1-016 C | 0.75 |
| 933932 | AD1-016 E | 1.22 |
| 934051 | AD1-031 C O1 | 2.26 |
| 934052 | AD1-031 E O1 | 3.68 |
| 934101 | AD1-039 1 | 5.69 |
| 934111 | AD1-039 2 | 5.84 |
| 934401 | AD1-064 C O1 | 2.59 |
| 934402 | AD1-064 E O1 | 12.1 |
| 934431 | AD1-067 C | 0.11 |
| 934432 | AD1-067 E | 0.44 |
| 934651 | AD1-096 C | 0.72 |
| 934652 | AD1-096 E | 1.17 |
| 934701 | AD1-098 C O1 | 5.53 |
| 934702 | AD1-098 E O1 | 4.04 |
| 934721 | AD1-100 C | 15.54 |
| 934722 | AD1-100 E | 72.54 |
| 934871 | AD1-116 C | 0.83 |
| 934872 | AD1-116 E | 1.36 |
| 934971 | AD1-129 C | 0.73 |
| 934972 | AD1-129 E | 0.49 |
| 935001 | AD1-133 C O1 | 16.63 |
| 935002 | AD1-133 E O1 | 11.09 |
| 936291 | AD2-038 C O1 | 1.97 |
| 936292 | AD2-038 E O1 | 13.16 |
| 936371 | AD2-047 C O1 | 1.8 |
| 936372 | AD2-047 E O1 | 19.38 |
| 936461 | AD2-060 | 2.12 |
| 936511 | AD2-066 C O1 | 6.81 |
| 936512 | AD2-066 E O1 | 4.54 |
| 936781 | AD2-101 C | 3.5 |
| 936782 | AD2-101 E | 16.38 |
| 936791 | AD2-102 C | 9.68 |
| 936792 | AD2-102 E | 9.3 |
| 937001 | AD2-134 C | 2.2 |
| 937002 | AD2-134 E | 9.08 |
| 937031 | AD2-137 C O1 | 2.69 |
| 937032 | AD2-137 E O1 | 12.58 |
| 937051 | AD2-140 C O1 | 2.69 |
| 937052 | AD2-140 E O1 | 12.58 |
| 937061 | AD2-141 C O1 | 2.67 |
| 937062 | AD2-141 E O1 | 12.6 |
| 937071 | AD2-142 C O1 | 5.38 |
| 937072 | AD2-142 E O1 | 25.17 |
| 937121 | AD2-148 C O1 | 2.74 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937122 | AD2-148 E O1 | 12.81 |
| 937131 | AD2-149 C O1 | 2.74 |
| 937132 | AD2-149 E O1 | 12.81 |
| 937141 | AD2-150 C O1 | 2.74 |
| 937142 | AD2-150 E O1 | 12.81 |
| 937181 | AD2-155 C O1 | 2.74 |
| 937182 | AD2-155 E O1 | 12.81 |
| 937311 | AD2-172 C | 1.98 |
| 937312 | AD2-172 E | 2.73 |
| 937321 | AD2-175 C | 12.74 |
| 937322 | AD2-175 E | 8.5 |
| 937331 | AD2-176 C O1 | 5.92 |
| 937332 | AD2-176 E O1 | 3.95 |
| 937401 | AD2-194 1 | 6.35 |
| 937411 | AD2-194 2 | 6.35 |
| 937531 | AD2-214 C | 3.52 |
| 937532 | AD2-214 E | 1.66 |
| 938012 | AE1-002 E O1 | 5.39 |
| 938511 | AE1-070 1 | 7.46 |
| 938521 | AE1-070 2 | 6.83 |
| 938851 | AE1-113 C O1 | 7.05 |
| 938852 | AE1-113 E O1 | 22.17 |
| 938861 | AE1-114 C O1 | 2.89 |
| 938862 | AE1-114 E O1 | 11.04 |
| 939051 | AE1-134 1 | 1.09 |
| 939061 | AE1-134 2 | 1.09 |
| 939321 | AE1-163 C O1 | 4.94 |
| 939322 | AE1-163 E O1 | 30.35 |
| 939351 | AE1-166 C O1 | 8.26 |
| 939352 | AE1-166 E O1 | 7.63 |
| 939401 | AE1-172 C O1 | 4.9 |
| 939402 | AE1-172 E O1 | 22.92 |
| 939631 | AE1-193 C O1 | 5.51 |
| 939632 | AE1-193 E O1 | 36.9 |
| 939681 | AE1-198 C O1 | 16.37 |
| 939682 | AE1-198 E O1 | 13.91 |
| 939691 | AE1-199 | 1.92 |
| 939701 | AE1-201 C | 1.62 |
| 939702 | AE1-201 E | 0.36 |
| 939732 | AE1-204 E | 0.24 |
| 939861 | AE1-222 1 | 64.14 |
| 939871 | AE1-222 2 | 65.77 |
| 939921 | AE1-228 C O1 | 8.09 |
| 939922 | AE1-228 E O1 | 5.39 |
| 940101 | AE1-252 C O1 | 8.34 |
| 940102 | AE1-252 E O1 | 5.56 |
| 940501 | AE2-035 C | 1.98 |
| 940502 | AE2-035 E | 2.73 |
| 940621 | AE2-049 C O1 | 7.3 |
| 940622 | AE2-049 E O1 | 4.87 |
| 940631 | AE2-050 C O1 | 9.78 |
| 940632 | AE2-050 E O1 | 6.52 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940752 | AE2-062 E | 0.1 |
| 940762 | AE2-063 E | 0.1 |
| 940881 | AE2-077 C | 2.54 |
| 940882 | AE2-077 E | 4.14 |
| 941131 | AE2-107 C | 5.89 |
| 941132 | AE2-107 E | 3.93 |
| 941551 | AE2-152 C | 10.59 |
| 941552 | AE2-152 E | 5.3 |
| 941561 | AE2-153 C O1 | 3.82 |
| 941562 | AE2-153 E O1 | 17.9 |
| 942421 | AE2-255 C O1 | 2.44 |
| 942422 | AE2-255 E O1 | 7.3 |
| 942651 | AE2-281 C | 0.71 |
| 942652 | AE2-281 E | 4.34 |
| 942881 | AE2-307 C | 17.93 |
| 942882 | AE2-307 E | 6.52 |
| 942911 | AE2-310 C | 7.09 |
| 942912 | AE2-310 E | 1.92 |
| 942991 | AE2-321 C O1 | 6.6 |
| 942992 | AE2-321 E O1 | 3.25 |
| 943121 | AE2-341 C | 10.31 |
| 943122 | AE2-341 E | 5.06 |
| 990901 | L-005 E | 8.02 |
| BLUEG | BLUEG | 4.52 |
| CALDERWOOD | CALDERWOOD | 0.06 |
| CANNELTON | CANNELTON | 0.07 |
| CARR | CARR | 0.62 |
| CATAWBA | CATAWBA | 0.24 |
| CBM-S1 | CBM-S1 | 1.13 |
| CBM-W1 | CBM-W1 | 21.91 |
| CBM-W2 | CBM-W2 | 42.89 |
| CHEOAH | CHEOAH | 0.06 |
| CHILHOWEE | CHILHOWEE | 0.02 |
| ELMERSMITH | ELMERSMITH | 0.07 |
| G-007 | G-007 | 1.74 |
| GIBSON | GIBSON | 0.03 |
| HAMLET | HAMLET | 0.45 |
| MEC | MEC | 29.98 |
| O-066 | O-066 | 11.15 |
| RENSSELAER | RENSSELAER | 0.49 |
| SANTEETLA | SANTEETLA | 0.02 |
| TRIMBLE | TRIMBLE | 0.53 |
| WEC | WEC | 6.45 |
| Z1-043 | Z1-043 | 22.8 |

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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 |
|---------|-----------|------------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985831 | 275232 | WILTON ;3M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.63 | 163.71 | DC | 14.9 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 14.78 |
| 274722 | S-055 E | 13.73 |
| 274772 | LINCOLN ;3U | 2.67 |
| 274773 | LINCOLN ;4U | 2.67 |
| 274774 | LINCOLN ;5U | 2.67 |
| 274775 | LINCOLN ;6U | 2.67 |
| 274776 | LINCOLN ;7U | 2.67 |
| 274777 | LINCOLN ;8U | 2.67 |
| 274788 | SE CHICAG;5U | 5.44 |
| 274789 | SE CHICAG;6U | 5.44 |
| 274790 | SE CHICAG;7U | 5.44 |
| 274791 | SE CHICAG;8U | 5.44 |
| 274792 | SE CHICAG;9U | 5.4 |
| 274793 | SE CHICAG;0U | 5.4 |
| 274794 | SE CHICAG;1U | 5.4 |
| 274795 | SE CHICAG;2U | 5.4 |
| 274859 | EASYR;U1 E | 13.43 |
| 274860 | EASYR;U2 E | 13.43 |
| 274888 | PILOT HIL;1E | 23.57 |
| 274890 | CAYUG;1U E | 20.22 |
| 274891 | CAYUG;2U E | 20.22 |
| 275149 | KEMPTON ;1E | 23.57 |
| 290021 | O50 E | 23.7 |
| 290051 | GSG-6; E | 12.77 |
| 290108 | LEEDK;1U E | 29.68 |
| 293061 | N-015 E | 19.41 |
| 293644 | O22 E1 | 12.53 |
| 293645 | O22 E2 | 24.32 |
| 294392 | P-010 E | 24.65 |
| 294763 | P-046 E | 11.45 |
| 295109 | WESTBROOK E | 6.84 |
| 295111 | SUBLETTE E | 3.17 |
| 296125 | R-030 C3 | 4.97 |
| 296128 | R-030 E3 | 19.89 |
| 296271 | R-030 C2 | 4.91 |
| 296272 | R-030 E2 | 19.65 |
| 296308 | R-030 C1 | 4.91 |
| 296309 | R-030 E1 | 19.65 |
| 910542 | X3-005 E | 0.89 |
| 914641 | Y2-103 | 54.9 |
| 915011 | Y3-013 1 | 4.58 |
| 915021 | Y3-013 2 | 4.58 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 915031 | Y3-013 3 | 4.58 |
| 916221 | Z1-073 E | 6.59 |
| 916502 | Z1-106 E1 | 1.54 |
| 916504 | Z1-106 E2 | 1.54 |
| 916512 | Z1-107 E | 3.16 |
| 916522 | Z1-108 E | 3.04 |
| 917502 | Z2-087 E | 25.7 |
| 918052 | AA1-018 E | 20.09 |
| 919581 | AA2-030 | 18.9 |
| 920272 | AA2-123 E | 2.98 |
| 924041 | AB2-047 C O1 | 4.74 |
| 924042 | AB2-047 E O1 | 31.72 |
| 924471 | AB2-096 | 51.72 |
| 925161 | AB2-173 | 3.83 |
| 925302 | AB2-191 E | 1.69 |
| 926311 | AC1-109 1 | 2.34 |
| 926321 | AC1-109 2 | 2.34 |
| 926331 | AC1-110 1 | 2.32 |
| 926341 | AC1-110 2 | 2.32 |
| 926351 | AC1-111 1 | 0.93 |
| 926361 | AC1-111 2 | 0.93 |
| 926371 | AC1-111 3 | 0.93 |
| 926381 | AC1-111 4 | 0.93 |
| 926391 | AC1-111 5 | 0.93 |
| 926401 | AC1-111 6 | 0.93 |
| 926431 | AC1-114 | 2.91 |
| 926821 | AC1-168 C O1 | 1.43 |
| 926822 | AC1-168 E O1 | 9.57 |
| 927091 | AC1-204 1 | 88.75 |
| 927101 | AC1-204 2 | 88.75 |
| 927451 | AC1-142A 1 | 5.11 |
| 927461 | AC1-142A 2 | 5.11 |
| 927511 | AC1-113 1 | 1.45 |
| 927521 | AC1-113 2 | 1.45 |
| 927531 | AC1-185 1 | 0.84 |
| 927541 | AC1-185 2 | 0.84 |
| 927551 | AC1-185 3 | 0.84 |
| 927561 | AC1-185 4 | 0.84 |
| 927571 | AC1-185 5 | 0.84 |
| 927581 | AC1-185 6 | 0.84 |
| 927591 | AC1-185 7 | 0.84 |
| 927601 | AC1-185 8 | 0.84 |
| 930481 | AB1-089 | 80.32 |
| 930501 | AB1-091 O1 | 93.8 |
| 930741 | AB1-122 1O1 | 89.17 |
| 930751 | AB1-122 2O1 | 90.13 |
| 932881 | AC2-115 1 | 2.91 |
| 932891 | AC2-115 2 | 2.91 |
| 932921 | AC2-116 | 1.02 |
| 932931 | AC2-117 | 6.51 |
| 933341 | AC2-147 C | 1.07 |
| 933342 | AC2-147 E | 1.74 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 933411 | AC2-154 C | 3.2 |
| 933412 | AC2-154 E | 5.22 |
| 933431 | AC2-156 C O1 | 1.17 |
| 933432 | AC2-156 E O1 | 1.91 |
| 933911 | AD1-013 C | 2.25 |
| 933912 | AD1-013 E | 3.59 |
| 933931 | AD1-016 C | 1.13 |
| 933932 | AD1-016 E | 1.85 |
| 934101 | AD1-039 1 | 8.74 |
| 934111 | AD1-039 2 | 8.83 |
| 934401 | AD1-064 C O1 | 3.91 |
| 934402 | AD1-064 E O1 | 18.33 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.67 |
| 934651 | AD1-096 C | 1.09 |
| 934652 | AD1-096 E | 1.78 |
| 934701 | AD1-098 C O1 | 8.41 |
| 934702 | AD1-098 E O1 | 6.14 |
| 934721 | AD1-100 C | 29.39 |
| 934722 | AD1-100 E | 137.14 |
| 934871 | AD1-116 C | 1.17 |
| 934872 | AD1-116 E | 1.91 |
| 934971 | AD1-129 C | 1.1 |
| 934972 | AD1-129 E | 0.74 |
| 935001 | AD1-133 C O1 | 27.36 |
| 935002 | AD1-133 E O1 | 18.24 |
| 936291 | AD2-038 C O1 | 2.88 |
| 936292 | AD2-038 E O1 | 19.25 |
| 936371 | AD2-047 C O1 | 2.86 |
| 936372 | AD2-047 E O1 | 30.81 |
| 936461 | AD2-060 | 3.37 |
| 936511 | AD2-066 C O1 | 10.34 |
| 936512 | AD2-066 E O1 | 6.89 |
| 936781 | AD2-101 C | 5.82 |
| 936782 | AD2-101 E | 27.26 |
| 936791 | AD2-102 C | 14.68 |
| 936792 | AD2-102 E | 14.11 |
| 937001 | AD2-134 C | 3.34 |
| 937002 | AD2-134 E | 13.79 |
| 937031 | AD2-137 C O1 | 7.17 |
| 937032 | AD2-137 E O1 | 33.55 |
| 937051 | AD2-140 C O1 | 7.53 |
| 937052 | AD2-140 E O1 | 35.24 |
| 937061 | AD2-141 C O1 | 7.48 |
| 937062 | AD2-141 E O1 | 35.28 |
| 937071 | AD2-142 C O1 | 15.05 |
| 937072 | AD2-142 E O1 | 70.47 |
| 937121 | AD2-148 C O1 | 4.5 |
| 937122 | AD2-148 E O1 | 21.09 |
| 937131 | AD2-149 C O1 | 4.5 |
| 937132 | AD2-149 E O1 | 21.09 |
| 937141 | AD2-150 C O1 | 4.5 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937142 | AD2-150 E O1 | 21.09 |
| 937181 | AD2-155 C O1 | 4.5 |
| 937182 | AD2-155 E O1 | 21.09 |
| 937311 | AD2-172 C | 3.01 |
| 937312 | AD2-172 E | 4.15 |
| 937321 | AD2-175 C | 20.99 |
| 937322 | AD2-175 E | 13.99 |
| 937331 | AD2-176 C O1 | 8.96 |
| 937332 | AD2-176 E O1 | 5.97 |
| 937401 | AD2-194 1 | 9.54 |
| 937411 | AD2-194 2 | 9.54 |
| 938012 | AE1-002 E O1 | 14.38 |
| 938511 | AE1-070 1 | 11.21 |
| 938521 | AE1-070 2 | 10.26 |
| 938851 | AE1-113 C O1 | 10.72 |
| 938852 | AE1-113 E O1 | 33.71 |
| 938861 | AE1-114 C O1 | 4.39 |
| 938862 | AE1-114 E O1 | 16.8 |
| 939051 | AE1-134 1 | 1.67 |
| 939061 | AE1-134 2 | 1.67 |
| 939321 | AE1-163 C O1 | 7.23 |
| 939322 | AE1-163 E O1 | 44.39 |
| 939351 | AE1-166 C O1 | 14.5 |
| 939352 | AE1-166 E O1 | 13.38 |
| 939401 | AE1-172 C O1 | 9.5 |
| 939402 | AE1-172 E O1 | 44.49 |
| 939691 | AE1-199 | 2.92 |
| 939701 | AE1-201 C | 2.45 |
| 939702 | AE1-201 E | 0.54 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.45 |
| 939742 | AE1-205 E O1 | 17.19 |
| 939861 | AE1-222 1 | 98.48 |
| 939871 | AE1-222 2 | 99.53 |
| 939921 | AE1-228 C O1 | 12.28 |
| 939922 | AE1-228 E O1 | 8.19 |
| 940101 | AE1-252 C O1 | 16.2 |
| 940102 | AE1-252 E O1 | 10.8 |
| 940501 | AE2-035 C | 3.01 |
| 940502 | AE2-035 E | 4.15 |
| 940621 | AE2-049 C O1 | 11.53 |
| 940622 | AE2-049 E O1 | 7.69 |
| 940631 | AE2-050 C O1 | 15.38 |
| 940632 | AE2-050 E O1 | 10.26 |
| 940752 | AE2-062 E | 0.16 |
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.85 |
| 940882 | AE2-077 E | 6.28 |
| 941131 | AE2-107 C | 8.93 |
| 941132 | AE2-107 E | 5.96 |
| 941551 | AE2-152 C | 18.59 |
| 941552 | AE2-152 E | 9.29 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 941561 | AE2-153 C O1 | 6.06 |
| 941562 | AE2-153 E O1 | 28.37 |
| 941731 | AE2-173 | 7.31 |
| 942111 | AE2-223 C | 2.88 |
| 942112 | AE2-223 E | 19.28 |
| 942421 | AE2-255 C O1 | 3.7 |
| 942422 | AE2-255 E O1 | 11.11 |
| 942651 | AE2-281 C | 1.03 |
| 942652 | AE2-281 E | 6.34 |
| 942881 | AE2-307 C | 28.2 |
| 942882 | AE2-307 E | 10.26 |
| 942911 | AE2-310 C | 11.2 |
| 942912 | AE2-310 E | 3.02 |
| 942991 | AE2-321 C O1 | 9.98 |
| 942992 | AE2-321 E O1 | 4.92 |
| 943121 | AE2-341 C | 15.61 |
| 943122 | AE2-341 E | 7.67 |
| BLUEG | BLUEG | 8.02 |
| CALDERWOOD | CALDERWOOD | 0.11 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.97 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.72 |
| CBM-W1 | CBM-W1 | 37.33 |
| CBM-W2 | CBM-W2 | 70.69 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.03 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.73 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.74 |
| MEC | MEC | 46.43 |
| O-066 | O-066 | 17.5 |
| RENSSELAER | RENSSELAER | 0.77 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.95 |
| WEC | WEC | 9.73 |
| Z1-043 | Z1-043 | 35.42 |

17.6 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 |
|---------|-----------|------------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985837 | 275233 | WILTON ;4M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.42 | 163.51 | DC | 15.22 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 15.09 |
| 274722 | S-055 E | 14.02 |
| 274772 | LINCOLN ;3U | 2.74 |
| 274773 | LINCOLN ;4U | 2.74 |
| 274774 | LINCOLN ;5U | 2.74 |
| 274775 | LINCOLN ;6U | 2.74 |
| 274776 | LINCOLN ;7U | 2.74 |
| 274777 | LINCOLN ;8U | 2.74 |
| 274788 | SE CHICAG;5U | 5.56 |
| 274789 | SE CHICAG;6U | 5.56 |
| 274790 | SE CHICAG;7U | 5.56 |
| 274791 | SE CHICAG;8U | 5.56 |
| 274792 | SE CHICAG;9U | 5.52 |
| 274793 | SE CHICAG;0U | 5.52 |
| 274794 | SE CHICAG;1U | 5.52 |
| 274795 | SE CHICAG;2U | 5.52 |
| 274859 | EASYSR;U1 E | 13.72 |
| 274860 | EASYSR;U2 E | 13.72 |
| 274888 | PILOT HIL;1E | 24.06 |
| 274890 | CAYUG;1U E | 20.62 |
| 274891 | CAYUG;2U E | 20.62 |
| 275149 | KEMPTON ;1E | 24.06 |
| 290021 | O50 E | 24.2 |
| 290051 | GSG-6; E | 13.05 |
| 290108 | LEEDK;1U E | 30.31 |
| 293061 | N-015 E | 19.81 |
| 293516 | O-009 E1 | 2.14 |
| 293517 | O-009 E2 | 1.09 |
| 293518 | O-009 E3 | 1.2 |
| 293644 | O22 E1 | 12.79 |
| 293645 | O22 E2 | 24.83 |
| 293715 | O-029 E | 12.21 |
| 293716 | O-029 E | 6.69 |
| 293717 | O-029 E | 6.15 |
| 294392 | P-010 E | 25.16 |
| 294763 | P-046 E | 11.69 |
| 295109 | WESTBROOK E | 6.98 |
| 295111 | SUBLETTE E | 3.24 |
| 296125 | R-030 C3 | 5.07 |
| 296128 | R-030 E3 | 20.29 |
| 296271 | R-030 C2 | 5.01 |
| 296272 | R-030 E2 | 20.05 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 296308 | R-030 C1 | 5.01 |
| 296309 | R-030 E1 | 20.05 |
| 910542 | X3-005 E | 0.91 |
| 914641 | Y2-103 | 56.07 |
| 915011 | Y3-013 1 | 4.67 |
| 915021 | Y3-013 2 | 4.67 |
| 915031 | Y3-013 3 | 4.67 |
| 916221 | Z1-073 E | 6.73 |
| 916502 | Z1-106 E1 | 1.58 |
| 916504 | Z1-106 E2 | 1.58 |
| 916512 | Z1-107 E | 3.23 |
| 916522 | Z1-108 E | 3.1 |
| 917502 | Z2-087 E | 26.22 |
| 918052 | AA1-018 E | 20.53 |
| 919221 | AA1-146 | 21.95 |
| 919581 | AA2-030 | 21.95 |
| 920272 | AA2-123 E | 3.05 |
| 924041 | AB2-047 C O1 | 4.84 |
| 924042 | AB2-047 E O1 | 32.36 |
| 924471 | AB2-096 | 52.83 |
| 925161 | AB2-173 | 3.91 |
| 925302 | AB2-191 E | 1.73 |
| 926311 | AC1-109 1 | 2.39 |
| 926321 | AC1-109 2 | 2.39 |
| 926331 | AC1-110 1 | 2.37 |
| 926341 | AC1-110 2 | 2.37 |
| 926351 | AC1-111 1 | 0.95 |
| 926361 | AC1-111 2 | 0.95 |
| 926371 | AC1-111 3 | 0.95 |
| 926381 | AC1-111 4 | 0.95 |
| 926391 | AC1-111 5 | 0.95 |
| 926401 | AC1-111 6 | 0.95 |
| 926431 | AC1-114 | 2.97 |
| 926821 | AC1-168 C O1 | 1.46 |
| 926822 | AC1-168 E O1 | 9.77 |
| 927091 | AC1-204 1 | 90.65 |
| 927101 | AC1-204 2 | 90.65 |
| 927451 | AC1-142A 1 | 5.22 |
| 927461 | AC1-142A 2 | 5.22 |
| 927511 | AC1-113 1 | 1.48 |
| 927521 | AC1-113 2 | 1.48 |
| 927531 | AC1-185 1 | 0.86 |
| 927541 | AC1-185 2 | 0.86 |
| 927551 | AC1-185 3 | 0.86 |
| 927561 | AC1-185 4 | 0.86 |
| 927571 | AC1-185 5 | 0.86 |
| 927581 | AC1-185 6 | 0.86 |
| 927591 | AC1-185 7 | 0.86 |
| 927601 | AC1-185 8 | 0.86 |
| 930481 | AB1-089 | 82.03 |
| 930501 | AB1-091 O1 | 95.74 |
| 930741 | AB1-122 1O1 | 91.06 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 930751 | AB1-122 2O1 | 92.05 |
| 932881 | AC2-115 1 | 2.97 |
| 932891 | AC2-115 2 | 2.97 |
| 932921 | AC2-116 | 1.04 |
| 932931 | AC2-117 | 6.65 |
| 933341 | AC2-147 C | 1.09 |
| 933342 | AC2-147 E | 1.78 |
| 933411 | AC2-154 C | 3.27 |
| 933412 | AC2-154 E | 5.33 |
| 933431 | AC2-156 C O1 | 1.19 |
| 933432 | AC2-156 E O1 | 1.95 |
| 933911 | AD1-013 C | 2.3 |
| 933912 | AD1-013 E | 3.67 |
| 933931 | AD1-016 C | 1.16 |
| 933932 | AD1-016 E | 1.89 |
| 934101 | AD1-039 1 | 8.92 |
| 934111 | AD1-039 2 | 9.02 |
| 934401 | AD1-064 C O1 | 4.0 |
| 934402 | AD1-064 E O1 | 18.72 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.69 |
| 934651 | AD1-096 C | 1.11 |
| 934652 | AD1-096 E | 1.81 |
| 934701 | AD1-098 C O1 | 8.59 |
| 934702 | AD1-098 E O1 | 6.27 |
| 934721 | AD1-100 C | 29.97 |
| 934722 | AD1-100 E | 139.86 |
| 934871 | AD1-116 C | 1.2 |
| 934872 | AD1-116 E | 1.95 |
| 934971 | AD1-129 C | 1.13 |
| 934972 | AD1-129 E | 0.75 |
| 935001 | AD1-133 C O1 | 27.93 |
| 935002 | AD1-133 E O1 | 18.62 |
| 936291 | AD2-038 C O1 | 2.94 |
| 936292 | AD2-038 E O1 | 19.66 |
| 936371 | AD2-047 C O1 | 2.92 |
| 936372 | AD2-047 E O1 | 31.45 |
| 936461 | AD2-060 | 3.44 |
| 936511 | AD2-066 C O1 | 10.56 |
| 936512 | AD2-066 E O1 | 7.04 |
| 936781 | AD2-101 C | 5.94 |
| 936782 | AD2-101 E | 27.82 |
| 936791 | AD2-102 C | 14.99 |
| 936792 | AD2-102 E | 14.41 |
| 937001 | AD2-134 C | 3.41 |
| 937002 | AD2-134 E | 14.09 |
| 937031 | AD2-137 C O1 | 7.3 |
| 937032 | AD2-137 E O1 | 34.17 |
| 937051 | AD2-140 C O1 | 7.67 |
| 937052 | AD2-140 E O1 | 35.89 |
| 937061 | AD2-141 C O1 | 7.62 |
| 937062 | AD2-141 E O1 | 35.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937071 | AD2-142 C O1 | 15.33 |
| 937072 | AD2-142 E O1 | 71.78 |
| 937121 | AD2-148 C O1 | 4.6 |
| 937122 | AD2-148 E O1 | 21.53 |
| 937131 | AD2-149 C O1 | 4.6 |
| 937132 | AD2-149 E O1 | 21.53 |
| 937141 | AD2-150 C O1 | 4.6 |
| 937142 | AD2-150 E O1 | 21.53 |
| 937181 | AD2-155 C O1 | 4.6 |
| 937182 | AD2-155 E O1 | 21.53 |
| 937311 | AD2-172 C | 3.07 |
| 937312 | AD2-172 E | 4.24 |
| 937321 | AD2-175 C | 21.42 |
| 937322 | AD2-175 E | 14.28 |
| 937331 | AD2-176 C O1 | 9.15 |
| 937332 | AD2-176 E O1 | 6.1 |
| 937401 | AD2-194 1 | 9.75 |
| 937411 | AD2-194 2 | 9.75 |
| 938012 | AE1-002 E O1 | 14.65 |
| 938511 | AE1-070 1 | 11.45 |
| 938521 | AE1-070 2 | 10.48 |
| 938851 | AE1-113 C O1 | 10.95 |
| 938852 | AE1-113 E O1 | 34.43 |
| 938861 | AE1-114 C O1 | 4.49 |
| 938862 | AE1-114 E O1 | 17.15 |
| 939051 | AE1-134 1 | 1.71 |
| 939061 | AE1-134 2 | 1.71 |
| 939321 | AE1-163 C O1 | 7.38 |
| 939322 | AE1-163 E O1 | 45.35 |
| 939351 | AE1-166 C O1 | 14.79 |
| 939352 | AE1-166 E O1 | 13.65 |
| 939401 | AE1-172 C O1 | 9.69 |
| 939402 | AE1-172 E O1 | 45.37 |
| 939691 | AE1-199 | 2.98 |
| 939701 | AE1-201 C | 2.5 |
| 939702 | AE1-201 E | 0.55 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.7 |
| 939742 | AE1-205 E O1 | 17.54 |
| 939861 | AE1-222 1 | 100.56 |
| 939871 | AE1-222 2 | 101.65 |
| 939921 | AE1-228 C O1 | 12.54 |
| 939922 | AE1-228 E O1 | 8.36 |
| 940101 | AE1-252 C O1 | 16.52 |
| 940102 | AE1-252 E O1 | 11.01 |
| 940501 | AE2-035 C | 3.07 |
| 940502 | AE2-035 E | 4.24 |
| 940621 | AE2-049 C O1 | 11.77 |
| 940622 | AE2-049 E O1 | 7.85 |
| 940631 | AE2-050 C O1 | 15.7 |
| 940632 | AE2-050 E O1 | 10.47 |
| 940752 | AE2-062 E | 0.16 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.93 |
| 940882 | AE2-077 E | 6.42 |
| 941131 | AE2-107 C | 9.12 |
| 941132 | AE2-107 E | 6.08 |
| 941551 | AE2-152 C | 18.96 |
| 941552 | AE2-152 E | 9.48 |
| 941561 | AE2-153 C O1 | 6.18 |
| 941562 | AE2-153 E O1 | 28.96 |
| 941731 | AE2-173 | 7.45 |
| 942111 | AE2-223 C | 2.94 |
| 942112 | AE2-223 E | 19.67 |
| 942421 | AE2-255 C O1 | 3.78 |
| 942422 | AE2-255 E O1 | 11.34 |
| 942651 | AE2-281 C | 1.05 |
| 942652 | AE2-281 E | 6.48 |
| 942881 | AE2-307 C | 28.78 |
| 942882 | AE2-307 E | 10.47 |
| 942911 | AE2-310 C | 11.43 |
| 942912 | AE2-310 E | 3.09 |
| 942991 | AE2-321 C O1 | 10.2 |
| 942992 | AE2-321 E O1 | 5.02 |
| 943121 | AE2-341 C | 15.94 |
| 943122 | AE2-341 E | 7.83 |
| BLUEG | BLUEG | 8.2 |
| CALDERWOOD | CALDERWOOD | 0.12 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.99 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.75 |
| CBM-W1 | CBM-W1 | 38.13 |
| CBM-W2 | CBM-W2 | 72.15 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.04 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.79 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.76 |
| MEC | MEC | 47.41 |
| O-066 | O-066 | 17.87 |
| RENSSELAER | RENSSELAER | 0.78 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.98 |
| WEC | WEC | 9.93 |
| Z1-043 | Z1-043 | 36.17 |

Affected Systems

18 Affected Systems

18.1 LG&E

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

18.2 MISO

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

18.3 TVA

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

18.4 Duke Energy Progress

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

18.5 NYISO

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

| Contingency Name | Contingency Definition |
|-----------------------------|---|
| AEP_P1-2_#695A | CONTINGENCY 'AEP_P1-2_#695A' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END |
| COMED_P4_023-65-BT4-5__ | CONTINGENCY 'COMED_P4_023-65-BT4-5__' TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765 TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345 TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33 TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 END |
| COMED_P4_112-65-BT2-3__ | CONTINGENCY 'COMED_P4_112-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END |
| COMED_P4_112-65-BT3-4__ | CONTINGENCY 'COMED_P4_112-65-BT3-4__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END |
| AEP_P4_#2978_05DUMONT 765_B | CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B' OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207 05GRNTWN 765 1 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END |
| COMED_P4_023-65-BT2-3__ | CONTINGENCY 'COMED_P4_023-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END |
| COMED_P4_112-65-BT5-6__ | CONTINGENCY 'COMED_P4_112-65-BT5-6__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END |
| COMED_P4_112-65-BT4-5__ | CONTINGENCY 'COMED_P4_112-65-BT4-5__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END |

| Contingency Name | Contingency Definition |
|-----------------------------|---|
| COMED_P1-2_345-L0626__B-R-A | CONTINGENCY 'COMED_P1-2_345-L0626__B-R-A' TRIP BRANCH FROM BUS 270678 TO BUS 930480 CKT 1 / BYRON ; B 345 AB1-089 TAP 345 END |

Short Circuit

19 Short Circuit

No issues identified.

20 Secondary Point of Interconnection General

20.1 Secondary Point of Interconnection

Queue Position AE2-321, a 100 MW solar generator facility, proposes to interconnect with the ComEd transmission system by tying to Belvidere-Marengo 138kV line 12204, approximately 11.2 miles from Belvidere TSS122.

20.2 Cost Summary

Will be supplied in Impact Study should the Interconnection Customer elect this option.

21 Network Impacts for Secondary Point of Interconnection

The Queue Project AE2-321 was evaluated as a 100.0 MW (Capacity 67.0 MW) injection tapping the Belvidere to Marengo red 138kV line in the ComEd area. Project AE2-321 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-321 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

22 Generation Deliverability

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

None

23 Multiple Facility Contingency

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

None

24 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 |
|---------|-----------|--------------|---------------|---------|------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985829 | 270926 | WILTON ; B | CE | 275232 | WILTON ;3M | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.52 | 163.6 | DC | 14.93 |
| 8985838 | 270927 | WILTON ; R | CE | 275233 | WILTON ;4M | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.32 | 163.4 | DC | 15.25 |
| 7432236 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0 | 139.23 | 139.33 | DC | 9.88 |
| 7432237 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_023-65-BT2-3__ | breaker | 971.0 | 138.14 | 138.25 | DC | 9.96 |
| 7432238 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_112-65-BT4-5__ | breaker | 971.0 | 138.13 | 138.23 | DC | 9.96 |
| 7432239 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_112-65-BT3-4__ | breaker | 971.0 | 138.13 | 138.23 | DC | 9.96 |
| 7432240 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | COMED_P4_023-65-BT4-5__ | breaker | 971.0 | 138.13 | 138.23 | DC | 9.95 |
| 8985831 | 275232 | WILTON ;3M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.52 | 163.6 | DC | 14.93 |
| 8985837 | 275233 | WILTON ;4M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.32 | 163.4 | DC | 15.25 |

25 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 |
|---------|-----------|--------------|---------------|---------|----------|-------------|--------|----------------|-----------|------------|-----------------------|------------------------|-------|-----------|
| 7432959 | 255113 | 17STILLWELL | NIPS | 243219 | 05DUMONT | AEP | 1 | AEP_P1-2_#695A | operation | 1409.0 | 170.81 | 170.9 | DC | 14.41 |
| 7433116 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P1-2_#695A | operation | 971.0 | 138.11 | 138.21 | DC | 9.95 |

26 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 gauge 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.

26.1 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 |
|---------|-----------|-----------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985829 | 270926 | WILTON ;B | CE | 275232 | WILTON ;3M | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.52 | 163.6 | DC | 14.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 14.78 |
| 274722 | S-055 E | 13.73 |
| 274772 | LINCOLN ;3U | 2.67 |
| 274773 | LINCOLN ;4U | 2.67 |
| 274774 | LINCOLN ;5U | 2.67 |
| 274775 | LINCOLN ;6U | 2.67 |
| 274776 | LINCOLN ;7U | 2.67 |
| 274777 | LINCOLN ;8U | 2.67 |
| 274788 | SE CHICAG;5U | 5.44 |
| 274789 | SE CHICAG;6U | 5.44 |
| 274790 | SE CHICAG;7U | 5.44 |
| 274791 | SE CHICAG;8U | 5.44 |
| 274792 | SE CHICAG;9U | 5.4 |
| 274793 | SE CHICAG;0U | 5.4 |
| 274794 | SE CHICAG;1U | 5.4 |
| 274795 | SE CHICAG;2U | 5.4 |
| 274859 | EASYR;U1 E | 13.43 |
| 274860 | EASYR;U2 E | 13.43 |
| 274888 | PILOT HIL;1E | 23.57 |
| 274890 | CAYUG;1U E | 20.22 |
| 274891 | CAYUG;2U E | 20.22 |
| 275149 | KEMPTON ;1E | 23.57 |
| 290021 | O50 E | 23.7 |
| 290051 | GSG-6; E | 12.77 |
| 290108 | LEEDK;1U E | 29.68 |
| 293061 | N-015 E | 19.41 |
| 293644 | O22 E1 | 12.53 |
| 293645 | O22 E2 | 24.32 |
| 294392 | P-010 E | 24.65 |
| 294763 | P-046 E | 11.45 |
| 295109 | WESTBROOK E | 6.84 |
| 295111 | SUBLETTE E | 3.17 |
| 296125 | R-030 C3 | 4.97 |
| 296128 | R-030 E3 | 19.89 |
| 296271 | R-030 C2 | 4.91 |
| 296272 | R-030 E2 | 19.65 |
| 296308 | R-030 C1 | 4.91 |
| 296309 | R-030 E1 | 19.65 |
| 910542 | X3-005 E | 0.89 |
| 914641 | Y2-103 | 54.9 |
| 915011 | Y3-013 1 | 4.58 |
| 915021 | Y3-013 2 | 4.58 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 915031 | Y3-013 3 | 4.58 |
| 916221 | Z1-073 E | 6.59 |
| 916502 | Z1-106 E1 | 1.54 |
| 916504 | Z1-106 E2 | 1.54 |
| 916512 | Z1-107 E | 3.16 |
| 916522 | Z1-108 E | 3.04 |
| 917502 | Z2-087 E | 25.71 |
| 918052 | AA1-018 E | 20.09 |
| 919581 | AA2-030 | 18.9 |
| 920272 | AA2-123 E | 2.99 |
| 924041 | AB2-047 C O1 | 4.74 |
| 924042 | AB2-047 E O1 | 31.72 |
| 924471 | AB2-096 | 51.73 |
| 925161 | AB2-173 | 3.83 |
| 925302 | AB2-191 E | 1.69 |
| 926311 | AC1-109 1 | 2.34 |
| 926321 | AC1-109 2 | 2.34 |
| 926331 | AC1-110 1 | 2.32 |
| 926341 | AC1-110 2 | 2.32 |
| 926351 | AC1-111 1 | 0.93 |
| 926361 | AC1-111 2 | 0.93 |
| 926371 | AC1-111 3 | 0.93 |
| 926381 | AC1-111 4 | 0.93 |
| 926391 | AC1-111 5 | 0.93 |
| 926401 | AC1-111 6 | 0.93 |
| 926431 | AC1-114 | 2.91 |
| 926821 | AC1-168 C O1 | 1.43 |
| 926822 | AC1-168 E O1 | 9.57 |
| 927091 | AC1-204 1 | 88.75 |
| 927101 | AC1-204 2 | 88.75 |
| 927451 | AC1-142A 1 | 5.11 |
| 927461 | AC1-142A 2 | 5.11 |
| 927511 | AC1-113 1 | 1.45 |
| 927521 | AC1-113 2 | 1.45 |
| 927531 | AC1-185 1 | 0.84 |
| 927541 | AC1-185 2 | 0.84 |
| 927551 | AC1-185 3 | 0.84 |
| 927561 | AC1-185 4 | 0.84 |
| 927571 | AC1-185 5 | 0.84 |
| 927581 | AC1-185 6 | 0.84 |
| 927591 | AC1-185 7 | 0.84 |
| 927601 | AC1-185 8 | 0.84 |
| 930481 | AB1-089 | 80.33 |
| 930501 | AB1-091 O1 | 93.8 |
| 930741 | AB1-122 1O1 | 89.17 |
| 930751 | AB1-122 2O1 | 90.13 |
| 932881 | AC2-115 1 | 2.91 |
| 932891 | AC2-115 2 | 2.91 |
| 932921 | AC2-116 | 1.02 |
| 932931 | AC2-117 | 6.51 |
| 933341 | AC2-147 C | 1.07 |
| 933342 | AC2-147 E | 1.74 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 933411 | AC2-154 C | 3.2 |
| 933412 | AC2-154 E | 5.22 |
| 933431 | AC2-156 C O1 | 1.17 |
| 933432 | AC2-156 E O1 | 1.91 |
| 933911 | AD1-013 C | 2.25 |
| 933912 | AD1-013 E | 3.59 |
| 933931 | AD1-016 C | 1.13 |
| 933932 | AD1-016 E | 1.85 |
| 934101 | AD1-039 1 | 8.74 |
| 934111 | AD1-039 2 | 8.83 |
| 934401 | AD1-064 C O1 | 3.91 |
| 934402 | AD1-064 E O1 | 18.33 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.67 |
| 934651 | AD1-096 C | 1.09 |
| 934652 | AD1-096 E | 1.78 |
| 934701 | AD1-098 C O1 | 8.41 |
| 934702 | AD1-098 E O1 | 6.14 |
| 934721 | AD1-100 C | 29.39 |
| 934722 | AD1-100 E | 137.14 |
| 934871 | AD1-116 C | 1.17 |
| 934872 | AD1-116 E | 1.91 |
| 934971 | AD1-129 C | 1.1 |
| 934972 | AD1-129 E | 0.74 |
| 935001 | AD1-133 C O1 | 27.36 |
| 935002 | AD1-133 E O1 | 18.24 |
| 936291 | AD2-038 C O1 | 2.88 |
| 936292 | AD2-038 E O1 | 19.25 |
| 936371 | AD2-047 C O1 | 2.86 |
| 936372 | AD2-047 E O1 | 30.81 |
| 936461 | AD2-060 | 3.37 |
| 936511 | AD2-066 C O1 | 10.34 |
| 936512 | AD2-066 E O1 | 6.89 |
| 936781 | AD2-101 C | 5.82 |
| 936782 | AD2-101 E | 27.26 |
| 936791 | AD2-102 C | 14.68 |
| 936792 | AD2-102 E | 14.11 |
| 937001 | AD2-134 C | 3.34 |
| 937002 | AD2-134 E | 13.8 |
| 937031 | AD2-137 C O1 | 7.17 |
| 937032 | AD2-137 E O1 | 33.55 |
| 937051 | AD2-140 C O1 | 7.53 |
| 937052 | AD2-140 E O1 | 35.24 |
| 937061 | AD2-141 C O1 | 7.48 |
| 937062 | AD2-141 E O1 | 35.28 |
| 937071 | AD2-142 C O1 | 15.05 |
| 937072 | AD2-142 E O1 | 70.48 |
| 937121 | AD2-148 C O1 | 4.51 |
| 937122 | AD2-148 E O1 | 21.09 |
| 937131 | AD2-149 C O1 | 4.51 |
| 937132 | AD2-149 E O1 | 21.09 |
| 937141 | AD2-150 C O1 | 4.51 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937142 | AD2-150 E O1 | 21.09 |
| 937181 | AD2-155 C O1 | 4.51 |
| 937182 | AD2-155 E O1 | 21.09 |
| 937311 | AD2-172 C | 3.01 |
| 937312 | AD2-172 E | 4.15 |
| 937321 | AD2-175 C | 20.99 |
| 937322 | AD2-175 E | 13.99 |
| 937331 | AD2-176 C O1 | 8.96 |
| 937332 | AD2-176 E O1 | 5.97 |
| 937401 | AD2-194 1 | 9.54 |
| 937411 | AD2-194 2 | 9.54 |
| 938012 | AE1-002 E O1 | 14.38 |
| 938511 | AE1-070 1 | 11.21 |
| 938521 | AE1-070 2 | 10.26 |
| 938851 | AE1-113 C O1 | 10.72 |
| 938852 | AE1-113 E O1 | 33.71 |
| 938861 | AE1-114 C O1 | 4.39 |
| 938862 | AE1-114 E O1 | 16.8 |
| 939051 | AE1-134 1 | 1.67 |
| 939061 | AE1-134 2 | 1.67 |
| 939321 | AE1-163 C O1 | 7.23 |
| 939322 | AE1-163 E O1 | 44.39 |
| 939351 | AE1-166 C O1 | 14.5 |
| 939352 | AE1-166 E O1 | 13.38 |
| 939401 | AE1-172 C O1 | 9.5 |
| 939402 | AE1-172 E O1 | 44.49 |
| 939691 | AE1-199 | 2.92 |
| 939701 | AE1-201 C | 2.45 |
| 939702 | AE1-201 E | 0.54 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.45 |
| 939742 | AE1-205 E O1 | 17.19 |
| 939861 | AE1-222 1 | 98.48 |
| 939871 | AE1-222 2 | 99.54 |
| 939921 | AE1-228 C O1 | 12.28 |
| 939922 | AE1-228 E O1 | 8.19 |
| 940101 | AE1-252 C O1 | 16.2 |
| 940102 | AE1-252 E O1 | 10.8 |
| 940501 | AE2-035 C | 3.01 |
| 940502 | AE2-035 E | 4.15 |
| 940621 | AE2-049 C O2 | 11.62 |
| 940622 | AE2-049 E O2 | 7.75 |
| 940631 | AE2-050 C O2 | 15.56 |
| 940632 | AE2-050 E O2 | 10.38 |
| 940752 | AE2-062 E | 0.16 |
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.85 |
| 940882 | AE2-077 E | 6.28 |
| 941131 | AE2-107 C | 8.92 |
| 941132 | AE2-107 E | 5.95 |
| 941551 | AE2-152 C O2 | 14.72 |
| 941552 | AE2-152 E O2 | 9.81 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 941561 | AE2-153 C O2 | 5.83 |
| 941562 | AE2-153 E O2 | 27.3 |
| 941731 | AE2-173 | 7.43 |
| 942111 | AE2-223 C | 2.88 |
| 942112 | AE2-223 E | 19.28 |
| 942421 | AE2-255 C O2 | 3.67 |
| 942422 | AE2-255 E O2 | 11.02 |
| 942651 | AE2-281 C | 1.03 |
| 942652 | AE2-281 E | 6.34 |
| 942881 | AE2-307 C | 28.54 |
| 942882 | AE2-307 E | 10.38 |
| 942911 | AE2-310 C | 11.28 |
| 942912 | AE2-310 E | 3.05 |
| 942991 | AE2-321 C O2 | 10.0 |
| 942992 | AE2-321 E O2 | 4.93 |
| 943121 | AE2-341 C | 15.61 |
| 943122 | AE2-341 E | 7.67 |
| BLUEG | BLUEG | 8.01 |
| CALDERWOOD | CALDERWOOD | 0.11 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.97 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.72 |
| CBM-W1 | CBM-W1 | 37.34 |
| CBM-W2 | CBM-W2 | 70.72 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.03 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.73 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.74 |
| MEC | MEC | 46.44 |
| O-066 | O-066 | 17.5 |
| RENSSELAER | RENSSELAER | 0.77 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.95 |
| WEC | WEC | 9.73 |
| Z1-043 | Z1-043 | 35.42 |

26.2 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 |
|---------|-----------|-----------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985838 | 270927 | WILTON ;R | CE | 275233 | WILTON ;4M | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.32 | 163.4 | DC | 15.25 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 15.09 |
| 274722 | S-055 E | 14.02 |
| 274772 | LINCOLN ;3U | 2.74 |
| 274773 | LINCOLN ;4U | 2.74 |
| 274774 | LINCOLN ;5U | 2.74 |
| 274775 | LINCOLN ;6U | 2.74 |
| 274776 | LINCOLN ;7U | 2.74 |
| 274777 | LINCOLN ;8U | 2.74 |
| 274788 | SE CHICAG;5U | 5.56 |
| 274789 | SE CHICAG;6U | 5.56 |
| 274790 | SE CHICAG;7U | 5.56 |
| 274791 | SE CHICAG;8U | 5.56 |
| 274792 | SE CHICAG;9U | 5.52 |
| 274793 | SE CHICAG;0U | 5.52 |
| 274794 | SE CHICAG;1U | 5.52 |
| 274795 | SE CHICAG;2U | 5.52 |
| 274859 | EASYR;U1 E | 13.72 |
| 274860 | EASYR;U2 E | 13.72 |
| 274888 | PILOT HIL;1E | 24.06 |
| 274890 | CAYUG;1U E | 20.62 |
| 274891 | CAYUG;2U E | 20.62 |
| 275149 | KEMPTON ;1E | 24.06 |
| 290021 | O50 E | 24.2 |
| 290051 | GSG-6; E | 13.05 |
| 290108 | LEEDK;1U E | 30.31 |
| 293061 | N-015 E | 19.81 |
| 293516 | O-009 E1 | 2.14 |
| 293517 | O-009 E2 | 1.09 |
| 293518 | O-009 E3 | 1.2 |
| 293644 | O22 E1 | 12.79 |
| 293645 | O22 E2 | 24.84 |
| 293715 | O-029 E | 12.21 |
| 293716 | O-029 E | 6.69 |
| 293717 | O-029 E | 6.15 |
| 294392 | P-010 E | 25.16 |
| 294763 | P-046 E | 11.7 |
| 295109 | WESTBROOK E | 6.98 |
| 295111 | SUBLETTE E | 3.24 |
| 296125 | R-030 C3 | 5.07 |
| 296128 | R-030 E3 | 20.29 |
| 296271 | R-030 C2 | 5.01 |
| 296272 | R-030 E2 | 20.05 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 296308 | R-030 C1 | 5.01 |
| 296309 | R-030 E1 | 20.05 |
| 910542 | X3-005 E | 0.91 |
| 914641 | Y2-103 | 56.07 |
| 915011 | Y3-013 1 | 4.67 |
| 915021 | Y3-013 2 | 4.67 |
| 915031 | Y3-013 3 | 4.67 |
| 916221 | Z1-073 E | 6.73 |
| 916502 | Z1-106 E1 | 1.58 |
| 916504 | Z1-106 E2 | 1.58 |
| 916512 | Z1-107 E | 3.23 |
| 916522 | Z1-108 E | 3.1 |
| 917502 | Z2-087 E | 26.23 |
| 918052 | AA1-018 E | 20.53 |
| 919221 | AA1-146 | 21.95 |
| 919581 | AA2-030 | 21.95 |
| 920272 | AA2-123 E | 3.05 |
| 924041 | AB2-047 C O1 | 4.84 |
| 924042 | AB2-047 E O1 | 32.36 |
| 924471 | AB2-096 | 52.83 |
| 925161 | AB2-173 | 3.91 |
| 925302 | AB2-191 E | 1.73 |
| 926311 | AC1-109 1 | 2.39 |
| 926321 | AC1-109 2 | 2.39 |
| 926331 | AC1-110 1 | 2.37 |
| 926341 | AC1-110 2 | 2.37 |
| 926351 | AC1-111 1 | 0.95 |
| 926361 | AC1-111 2 | 0.95 |
| 926371 | AC1-111 3 | 0.95 |
| 926381 | AC1-111 4 | 0.95 |
| 926391 | AC1-111 5 | 0.95 |
| 926401 | AC1-111 6 | 0.95 |
| 926431 | AC1-114 | 2.97 |
| 926821 | AC1-168 C O1 | 1.46 |
| 926822 | AC1-168 E O1 | 9.77 |
| 927091 | AC1-204 1 | 90.65 |
| 927101 | AC1-204 2 | 90.65 |
| 927451 | AC1-142A 1 | 5.22 |
| 927461 | AC1-142A 2 | 5.22 |
| 927511 | AC1-113 1 | 1.48 |
| 927521 | AC1-113 2 | 1.48 |
| 927531 | AC1-185 1 | 0.86 |
| 927541 | AC1-185 2 | 0.86 |
| 927551 | AC1-185 3 | 0.86 |
| 927561 | AC1-185 4 | 0.86 |
| 927571 | AC1-185 5 | 0.86 |
| 927581 | AC1-185 6 | 0.86 |
| 927591 | AC1-185 7 | 0.86 |
| 927601 | AC1-185 8 | 0.86 |
| 930481 | AB1-089 | 82.03 |
| 930501 | AB1-091 O1 | 95.74 |
| 930741 | AB1-122 1O1 | 91.06 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 930751 | AB1-122 2O1 | 92.05 |
| 932881 | AC2-115 1 | 2.97 |
| 932891 | AC2-115 2 | 2.97 |
| 932921 | AC2-116 | 1.04 |
| 932931 | AC2-117 | 6.65 |
| 933341 | AC2-147 C | 1.09 |
| 933342 | AC2-147 E | 1.78 |
| 933411 | AC2-154 C | 3.27 |
| 933412 | AC2-154 E | 5.33 |
| 933431 | AC2-156 C O1 | 1.19 |
| 933432 | AC2-156 E O1 | 1.95 |
| 933911 | AD1-013 C | 2.3 |
| 933912 | AD1-013 E | 3.67 |
| 933931 | AD1-016 C | 1.16 |
| 933932 | AD1-016 E | 1.89 |
| 934101 | AD1-039 1 | 8.92 |
| 934111 | AD1-039 2 | 9.02 |
| 934401 | AD1-064 C O1 | 4.0 |
| 934402 | AD1-064 E O1 | 18.72 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.69 |
| 934651 | AD1-096 C | 1.11 |
| 934652 | AD1-096 E | 1.81 |
| 934701 | AD1-098 C O1 | 8.59 |
| 934702 | AD1-098 E O1 | 6.27 |
| 934721 | AD1-100 C | 29.97 |
| 934722 | AD1-100 E | 139.86 |
| 934871 | AD1-116 C | 1.2 |
| 934872 | AD1-116 E | 1.95 |
| 934971 | AD1-129 C | 1.13 |
| 934972 | AD1-129 E | 0.75 |
| 935001 | AD1-133 C O1 | 27.93 |
| 935002 | AD1-133 E O1 | 18.62 |
| 936291 | AD2-038 C O1 | 2.94 |
| 936292 | AD2-038 E O1 | 19.66 |
| 936371 | AD2-047 C O1 | 2.92 |
| 936372 | AD2-047 E O1 | 31.46 |
| 936461 | AD2-060 | 3.44 |
| 936511 | AD2-066 C O1 | 10.56 |
| 936512 | AD2-066 E O1 | 7.04 |
| 936781 | AD2-101 C | 5.94 |
| 936782 | AD2-101 E | 27.83 |
| 936791 | AD2-102 C | 14.99 |
| 936792 | AD2-102 E | 14.41 |
| 937001 | AD2-134 C | 3.41 |
| 937002 | AD2-134 E | 14.09 |
| 937031 | AD2-137 C O1 | 7.3 |
| 937032 | AD2-137 E O1 | 34.17 |
| 937051 | AD2-140 C O1 | 7.67 |
| 937052 | AD2-140 E O1 | 35.89 |
| 937061 | AD2-141 C O1 | 7.62 |
| 937062 | AD2-141 E O1 | 35.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937071 | AD2-142 C O1 | 15.33 |
| 937072 | AD2-142 E O1 | 71.78 |
| 937121 | AD2-148 C O1 | 4.6 |
| 937122 | AD2-148 E O1 | 21.53 |
| 937131 | AD2-149 C O1 | 4.6 |
| 937132 | AD2-149 E O1 | 21.53 |
| 937141 | AD2-150 C O1 | 4.6 |
| 937142 | AD2-150 E O1 | 21.53 |
| 937181 | AD2-155 C O1 | 4.6 |
| 937182 | AD2-155 E O1 | 21.53 |
| 937311 | AD2-172 C | 3.07 |
| 937312 | AD2-172 E | 4.24 |
| 937321 | AD2-175 C | 21.43 |
| 937322 | AD2-175 E | 14.28 |
| 937331 | AD2-176 C O1 | 9.15 |
| 937332 | AD2-176 E O1 | 6.1 |
| 937401 | AD2-194 1 | 9.75 |
| 937411 | AD2-194 2 | 9.75 |
| 938012 | AE1-002 E O1 | 14.65 |
| 938511 | AE1-070 1 | 11.45 |
| 938521 | AE1-070 2 | 10.48 |
| 938851 | AE1-113 C O1 | 10.95 |
| 938852 | AE1-113 E O1 | 34.43 |
| 938861 | AE1-114 C O1 | 4.49 |
| 938862 | AE1-114 E O1 | 17.15 |
| 939051 | AE1-134 1 | 1.71 |
| 939061 | AE1-134 2 | 1.71 |
| 939321 | AE1-163 C O1 | 7.38 |
| 939322 | AE1-163 E O1 | 45.35 |
| 939351 | AE1-166 C O1 | 14.79 |
| 939352 | AE1-166 E O1 | 13.65 |
| 939401 | AE1-172 C O1 | 9.69 |
| 939402 | AE1-172 E O1 | 45.37 |
| 939691 | AE1-199 | 2.98 |
| 939701 | AE1-201 C | 2.5 |
| 939702 | AE1-201 E | 0.55 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.7 |
| 939742 | AE1-205 E O1 | 17.54 |
| 939861 | AE1-222 1 | 100.56 |
| 939871 | AE1-222 2 | 101.66 |
| 939921 | AE1-228 C O1 | 12.54 |
| 939922 | AE1-228 E O1 | 8.36 |
| 940101 | AE1-252 C O1 | 16.52 |
| 940102 | AE1-252 E O1 | 11.01 |
| 940501 | AE2-035 C | 3.07 |
| 940502 | AE2-035 E | 4.24 |
| 940621 | AE2-049 C O2 | 11.86 |
| 940622 | AE2-049 E O2 | 7.91 |
| 940631 | AE2-050 C O2 | 15.89 |
| 940632 | AE2-050 E O2 | 10.59 |
| 940752 | AE2-062 E | 0.16 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.93 |
| 940882 | AE2-077 E | 6.42 |
| 941131 | AE2-107 C | 9.11 |
| 941132 | AE2-107 E | 6.07 |
| 941551 | AE2-152 C O2 | 15.03 |
| 941552 | AE2-152 E O2 | 10.02 |
| 941561 | AE2-153 C O2 | 5.95 |
| 941562 | AE2-153 E O2 | 27.87 |
| 941731 | AE2-173 | 7.58 |
| 942111 | AE2-223 C | 2.94 |
| 942112 | AE2-223 E | 19.67 |
| 942421 | AE2-255 C O2 | 3.75 |
| 942422 | AE2-255 E O2 | 11.25 |
| 942651 | AE2-281 C | 1.05 |
| 942652 | AE2-281 E | 6.48 |
| 942881 | AE2-307 C | 29.12 |
| 942882 | AE2-307 E | 10.59 |
| 942911 | AE2-310 C | 11.52 |
| 942912 | AE2-310 E | 3.11 |
| 942991 | AE2-321 C O2 | 10.21 |
| 942992 | AE2-321 E O2 | 5.03 |
| 943121 | AE2-341 C | 15.94 |
| 943122 | AE2-341 E | 7.83 |
| BLUEG | BLUEG | 8.19 |
| CALDERWOOD | CALDERWOOD | 0.12 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.99 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.75 |
| CBM-W1 | CBM-W1 | 38.13 |
| CBM-W2 | CBM-W2 | 72.18 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.04 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.79 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.76 |
| MEC | MEC | 47.42 |
| O-066 | O-066 | 17.87 |
| RENSSELAER | RENSSELAER | 0.78 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.97 |
| WEC | WEC | 9.94 |
| Z1-043 | Z1-043 | 36.17 |

26.3 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 |
|---------|-----------|--------------|---------------|---------|---------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 7432236 | 274804 | UNIV PK N;RP | CE | 243229 | 05OLIVE | AEP | 1 | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0 | 139.23 | 139.33 | DC | 9.88 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 9.77 |
| 274722 | S-055 E | 9.13 |
| 274808 | UNIV PK N;4U | 1.28 |
| 274809 | UNIV PK N;5U | 1.28 |
| 274811 | UNIV PK N;7U | 1.28 |
| 274812 | UNIV PK N;8U | 1.28 |
| 274814 | UNIV PK N;0U | 1.28 |
| 274815 | UNIV PK N;XU | 1.28 |
| 274832 | U4-027 | 8.59 |
| 274859 | EASYR;U1 E | 8.82 |
| 274860 | EASYR;U2 E | 8.82 |
| 274888 | PILOT HIL;1E | 14.83 |
| 274890 | CAYUG;1U E | 10.67 |
| 274891 | CAYUG;2U E | 10.67 |
| 275149 | KEMPTON ;1E | 14.83 |
| 290021 | O50 E | 15.58 |
| 290051 | GSG-6; E | 8.41 |
| 290108 | LEEDK;1U E | 19.56 |
| 293061 | N-015 E | 12.57 |
| 293516 | O-009 E1 | 7.24 |
| 293517 | O-009 E2 | 3.68 |
| 293518 | O-009 E3 | 4.05 |
| 293644 | O22 E1 | 7.86 |
| 293645 | O22 E2 | 15.26 |
| 293715 | O-029 E | 7.82 |
| 293716 | O-029 E | 4.29 |
| 293717 | O-029 E | 3.94 |
| 293771 | O-035 E | 5.08 |
| 294392 | P-010 E | 15.97 |
| 294401 | BSHIL;1U E | 6.79 |
| 294410 | BSHIL;2U E | 6.79 |
| 294763 | P-046 E | 7.54 |
| 295109 | WESTBROOK E | 4.5 |
| 295111 | SUBLETTE E | 2.08 |
| 910542 | X3-005 E | 0.51 |
| 914641 | Y2-103 | 36.51 |
| 915011 | Y3-013 1 | 3.04 |
| 915021 | Y3-013 2 | 3.04 |
| 915031 | Y3-013 3 | 3.04 |
| 916211 | Z1-072 E | 3.84 |
| 916221 | Z1-073 E | 4.34 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 916502 | Z1-106 E1 | 1.02 |
| 916504 | Z1-106 E2 | 1.02 |
| 916512 | Z1-107 E | 2.17 |
| 916522 | Z1-108 E | 2.01 |
| 918052 | AA1-018 E | 14.26 |
| 919221 | AA1-146 | 14.08 |
| 919581 | AA2-030 | 14.08 |
| 919621 | AA2-039 C | 1.65 |
| 919622 | AA2-039 E | 11.07 |
| 920272 | AA2-123 E | 1.98 |
| 924471 | AB2-096 | 34.19 |
| 925161 | AB2-173 | 2.51 |
| 925302 | AB2-191 E | 1.11 |
| 925581 | AC1-033 C | 1.11 |
| 925582 | AC1-033 E | 7.44 |
| 926311 | AC1-109 1 | 1.55 |
| 926321 | AC1-109 2 | 1.55 |
| 926331 | AC1-110 1 | 1.53 |
| 926341 | AC1-110 2 | 1.53 |
| 926351 | AC1-111 1 | 0.62 |
| 926361 | AC1-111 2 | 0.62 |
| 926371 | AC1-111 3 | 0.62 |
| 926381 | AC1-111 4 | 0.62 |
| 926391 | AC1-111 5 | 0.62 |
| 926401 | AC1-111 6 | 0.62 |
| 926431 | AC1-114 | 1.92 |
| 926821 | AC1-168 C O1 | 0.92 |
| 926822 | AC1-168 E O1 | 6.16 |
| 927091 | AC1-204 1 | 59.05 |
| 927101 | AC1-204 2 | 59.09 |
| 927201 | AC1-214 C O1 | 1.63 |
| 927202 | AC1-214 E O1 | 5.18 |
| 927451 | AC1-142A 1 | 3.45 |
| 927461 | AC1-142A 2 | 3.44 |
| 927511 | AC1-113 1 | 0.96 |
| 927521 | AC1-113 2 | 0.96 |
| 927531 | AC1-185 1 | 0.55 |
| 927541 | AC1-185 2 | 0.55 |
| 927551 | AC1-185 3 | 0.55 |
| 927561 | AC1-185 4 | 0.55 |
| 927571 | AC1-185 5 | 0.55 |
| 927581 | AC1-185 6 | 0.55 |
| 927591 | AC1-185 7 | 0.55 |
| 927601 | AC1-185 8 | 0.55 |
| 930481 | AB1-089 | 52.99 |
| 930501 | AB1-091 O1 | 57.0 |
| 930741 | AB1-122 1O1 | 58.08 |
| 930751 | AB1-122 2O1 | 59.56 |
| 932881 | AC2-115 1 | 1.92 |
| 932891 | AC2-115 2 | 1.92 |
| 932921 | AC2-116 | 0.67 |
| 932931 | AC2-117 | 10.38 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 933341 | AC2-147 C | 0.7 |
| 933342 | AC2-147 E | 1.14 |
| 933411 | AC2-154 C | 2.01 |
| 933412 | AC2-154 E | 3.28 |
| 933431 | AC2-156 C O1 | 0.77 |
| 933432 | AC2-156 E O1 | 1.26 |
| 933911 | AD1-013 C | 1.48 |
| 933912 | AD1-013 E | 2.37 |
| 933931 | AD1-016 C | 0.75 |
| 933932 | AD1-016 E | 1.22 |
| 934051 | AD1-031 C O1 | 2.26 |
| 934052 | AD1-031 E O1 | 3.68 |
| 934101 | AD1-039 1 | 5.69 |
| 934111 | AD1-039 2 | 5.84 |
| 934401 | AD1-064 C O1 | 2.59 |
| 934402 | AD1-064 E O1 | 12.1 |
| 934431 | AD1-067 C | 0.11 |
| 934432 | AD1-067 E | 0.44 |
| 934651 | AD1-096 C | 0.72 |
| 934652 | AD1-096 E | 1.17 |
| 934701 | AD1-098 C O1 | 5.53 |
| 934702 | AD1-098 E O1 | 4.04 |
| 934721 | AD1-100 C | 15.54 |
| 934722 | AD1-100 E | 72.54 |
| 934871 | AD1-116 C | 0.83 |
| 934872 | AD1-116 E | 1.36 |
| 934971 | AD1-129 C | 0.73 |
| 934972 | AD1-129 E | 0.49 |
| 935001 | AD1-133 C O1 | 16.63 |
| 935002 | AD1-133 E O1 | 11.09 |
| 936291 | AD2-038 C O1 | 1.97 |
| 936292 | AD2-038 E O1 | 13.16 |
| 936371 | AD2-047 C O1 | 1.8 |
| 936372 | AD2-047 E O1 | 19.38 |
| 936461 | AD2-060 | 2.12 |
| 936511 | AD2-066 C O1 | 6.81 |
| 936512 | AD2-066 E O1 | 4.54 |
| 936781 | AD2-101 C | 3.5 |
| 936782 | AD2-101 E | 16.38 |
| 936791 | AD2-102 C | 9.68 |
| 936792 | AD2-102 E | 9.3 |
| 937001 | AD2-134 C | 2.2 |
| 937002 | AD2-134 E | 9.08 |
| 937031 | AD2-137 C O1 | 2.69 |
| 937032 | AD2-137 E O1 | 12.58 |
| 937051 | AD2-140 C O1 | 2.69 |
| 937052 | AD2-140 E O1 | 12.58 |
| 937061 | AD2-141 C O1 | 2.67 |
| 937062 | AD2-141 E O1 | 12.6 |
| 937071 | AD2-142 C O1 | 5.38 |
| 937072 | AD2-142 E O1 | 25.17 |
| 937121 | AD2-148 C O1 | 2.74 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937122 | AD2-148 E O1 | 12.81 |
| 937131 | AD2-149 C O1 | 2.74 |
| 937132 | AD2-149 E O1 | 12.81 |
| 937141 | AD2-150 C O1 | 2.74 |
| 937142 | AD2-150 E O1 | 12.81 |
| 937181 | AD2-155 C O1 | 2.74 |
| 937182 | AD2-155 E O1 | 12.81 |
| 937311 | AD2-172 C | 1.98 |
| 937312 | AD2-172 E | 2.73 |
| 937321 | AD2-175 C | 12.74 |
| 937322 | AD2-175 E | 8.5 |
| 937331 | AD2-176 C O1 | 5.92 |
| 937332 | AD2-176 E O1 | 3.95 |
| 937401 | AD2-194 1 | 6.35 |
| 937411 | AD2-194 2 | 6.35 |
| 937531 | AD2-214 C | 3.52 |
| 937532 | AD2-214 E | 1.66 |
| 938012 | AE1-002 E O1 | 5.39 |
| 938511 | AE1-070 1 | 7.46 |
| 938521 | AE1-070 2 | 6.83 |
| 938851 | AE1-113 C O1 | 7.05 |
| 938852 | AE1-113 E O1 | 22.17 |
| 938861 | AE1-114 C O1 | 2.89 |
| 938862 | AE1-114 E O1 | 11.04 |
| 939051 | AE1-134 1 | 1.09 |
| 939061 | AE1-134 2 | 1.09 |
| 939321 | AE1-163 C O1 | 4.94 |
| 939322 | AE1-163 E O1 | 30.35 |
| 939351 | AE1-166 C O1 | 8.26 |
| 939352 | AE1-166 E O1 | 7.63 |
| 939401 | AE1-172 C O1 | 4.9 |
| 939402 | AE1-172 E O1 | 22.92 |
| 939631 | AE1-193 C O1 | 5.51 |
| 939632 | AE1-193 E O1 | 36.9 |
| 939681 | AE1-198 C O1 | 16.37 |
| 939682 | AE1-198 E O1 | 13.91 |
| 939691 | AE1-199 | 1.92 |
| 939701 | AE1-201 C | 1.62 |
| 939702 | AE1-201 E | 0.36 |
| 939732 | AE1-204 E | 0.24 |
| 939861 | AE1-222 1 | 64.14 |
| 939871 | AE1-222 2 | 65.77 |
| 939921 | AE1-228 C O1 | 8.09 |
| 939922 | AE1-228 E O1 | 5.39 |
| 940101 | AE1-252 C O1 | 8.34 |
| 940102 | AE1-252 E O1 | 5.56 |
| 940501 | AE2-035 C | 1.98 |
| 940502 | AE2-035 E | 2.73 |
| 940621 | AE2-049 C O2 | 7.31 |
| 940622 | AE2-049 E O2 | 4.87 |
| 940631 | AE2-050 C O2 | 9.99 |
| 940632 | AE2-050 E O2 | 6.66 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940752 | AE2-062 E | 0.1 |
| 940762 | AE2-063 E | 0.1 |
| 940881 | AE2-077 C | 2.54 |
| 940882 | AE2-077 E | 4.14 |
| 941131 | AE2-107 C | 5.88 |
| 941132 | AE2-107 E | 3.92 |
| 941551 | AE2-152 C O2 | 9.51 |
| 941552 | AE2-152 E O2 | 6.34 |
| 941561 | AE2-153 C O2 | 3.72 |
| 941562 | AE2-153 E O2 | 17.43 |
| 942421 | AE2-255 C O2 | 2.5 |
| 942422 | AE2-255 E O2 | 7.5 |
| 942651 | AE2-281 C | 0.71 |
| 942652 | AE2-281 E | 4.34 |
| 942881 | AE2-307 C | 18.31 |
| 942882 | AE2-307 E | 6.66 |
| 942911 | AE2-310 C | 7.09 |
| 942912 | AE2-310 E | 1.92 |
| 942991 | AE2-321 C O2 | 6.62 |
| 942992 | AE2-321 E O2 | 3.26 |
| 943121 | AE2-341 C | 10.31 |
| 943122 | AE2-341 E | 5.06 |
| 990901 | L-005 E | 8.02 |
| BLUEG | BLUEG | 4.51 |
| CALDERWOOD | CALDERWOOD | 0.06 |
| CANNELTON | CANNELTON | 0.07 |
| CARR | CARR | 0.62 |
| CATAWBA | CATAWBA | 0.24 |
| CBM-S1 | CBM-S1 | 1.13 |
| CBM-W1 | CBM-W1 | 21.91 |
| CBM-W2 | CBM-W2 | 42.89 |
| CHEOAH | CHEOAH | 0.06 |
| CHILHOWEE | CHILHOWEE | 0.02 |
| ELMERSMITH | ELMERSMITH | 0.07 |
| G-007 | G-007 | 1.74 |
| GIBSON | GIBSON | 0.03 |
| HAMLET | HAMLET | 0.45 |
| MEC | MEC | 29.98 |
| O-066 | O-066 | 11.15 |
| RENSSELAER | RENSSELAER | 0.49 |
| SANTEETLA | SANTEETLA | 0.02 |
| TRIMBLE | TRIMBLE | 0.53 |
| WEC | WEC | 6.45 |
| Z1-043 | Z1-043 | 22.8 |

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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 |
|---------|-----------|------------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985831 | 275232 | WILTON ;3M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT5-6__ | breaker | 1379.0 | 163.52 | 163.6 | DC | 14.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 14.78 |
| 274722 | S-055 E | 13.73 |
| 274772 | LINCOLN ;3U | 2.67 |
| 274773 | LINCOLN ;4U | 2.67 |
| 274774 | LINCOLN ;5U | 2.67 |
| 274775 | LINCOLN ;6U | 2.67 |
| 274776 | LINCOLN ;7U | 2.67 |
| 274777 | LINCOLN ;8U | 2.67 |
| 274788 | SE CHICAG;5U | 5.44 |
| 274789 | SE CHICAG;6U | 5.44 |
| 274790 | SE CHICAG;7U | 5.44 |
| 274791 | SE CHICAG;8U | 5.44 |
| 274792 | SE CHICAG;9U | 5.4 |
| 274793 | SE CHICAG;0U | 5.4 |
| 274794 | SE CHICAG;1U | 5.4 |
| 274795 | SE CHICAG;2U | 5.4 |
| 274859 | EASYR;U1 E | 13.43 |
| 274860 | EASYR;U2 E | 13.43 |
| 274888 | PILOT HIL;1E | 23.57 |
| 274890 | CAYUG;1U E | 20.22 |
| 274891 | CAYUG;2U E | 20.22 |
| 275149 | KEMPTON ;1E | 23.57 |
| 290021 | O50 E | 23.7 |
| 290051 | GSG-6; E | 12.77 |
| 290108 | LEEDK;1U E | 29.68 |
| 293061 | N-015 E | 19.41 |
| 293644 | O22 E1 | 12.53 |
| 293645 | O22 E2 | 24.32 |
| 294392 | P-010 E | 24.65 |
| 294763 | P-046 E | 11.45 |
| 295109 | WESTBROOK E | 6.84 |
| 295111 | SUBLETTE E | 3.17 |
| 296125 | R-030 C3 | 4.97 |
| 296128 | R-030 E3 | 19.89 |
| 296271 | R-030 C2 | 4.91 |
| 296272 | R-030 E2 | 19.65 |
| 296308 | R-030 C1 | 4.91 |
| 296309 | R-030 E1 | 19.65 |
| 910542 | X3-005 E | 0.89 |
| 914641 | Y2-103 | 54.9 |
| 915011 | Y3-013 1 | 4.58 |
| 915021 | Y3-013 2 | 4.58 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 915031 | Y3-013 3 | 4.58 |
| 916221 | Z1-073 E | 6.59 |
| 916502 | Z1-106 E1 | 1.54 |
| 916504 | Z1-106 E2 | 1.54 |
| 916512 | Z1-107 E | 3.16 |
| 916522 | Z1-108 E | 3.04 |
| 917502 | Z2-087 E | 25.71 |
| 918052 | AA1-018 E | 20.09 |
| 919581 | AA2-030 | 18.9 |
| 920272 | AA2-123 E | 2.99 |
| 924041 | AB2-047 C O1 | 4.74 |
| 924042 | AB2-047 E O1 | 31.72 |
| 924471 | AB2-096 | 51.73 |
| 925161 | AB2-173 | 3.83 |
| 925302 | AB2-191 E | 1.69 |
| 926311 | AC1-109 1 | 2.34 |
| 926321 | AC1-109 2 | 2.34 |
| 926331 | AC1-110 1 | 2.32 |
| 926341 | AC1-110 2 | 2.32 |
| 926351 | AC1-111 1 | 0.93 |
| 926361 | AC1-111 2 | 0.93 |
| 926371 | AC1-111 3 | 0.93 |
| 926381 | AC1-111 4 | 0.93 |
| 926391 | AC1-111 5 | 0.93 |
| 926401 | AC1-111 6 | 0.93 |
| 926431 | AC1-114 | 2.91 |
| 926821 | AC1-168 C O1 | 1.43 |
| 926822 | AC1-168 E O1 | 9.57 |
| 927091 | AC1-204 1 | 88.75 |
| 927101 | AC1-204 2 | 88.75 |
| 927451 | AC1-142A 1 | 5.11 |
| 927461 | AC1-142A 2 | 5.11 |
| 927511 | AC1-113 1 | 1.45 |
| 927521 | AC1-113 2 | 1.45 |
| 927531 | AC1-185 1 | 0.84 |
| 927541 | AC1-185 2 | 0.84 |
| 927551 | AC1-185 3 | 0.84 |
| 927561 | AC1-185 4 | 0.84 |
| 927571 | AC1-185 5 | 0.84 |
| 927581 | AC1-185 6 | 0.84 |
| 927591 | AC1-185 7 | 0.84 |
| 927601 | AC1-185 8 | 0.84 |
| 930481 | AB1-089 | 80.33 |
| 930501 | AB1-091 O1 | 93.8 |
| 930741 | AB1-122 1O1 | 89.17 |
| 930751 | AB1-122 2O1 | 90.13 |
| 932881 | AC2-115 1 | 2.91 |
| 932891 | AC2-115 2 | 2.91 |
| 932921 | AC2-116 | 1.02 |
| 932931 | AC2-117 | 6.51 |
| 933341 | AC2-147 C | 1.07 |
| 933342 | AC2-147 E | 1.74 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 933411 | AC2-154 C | 3.2 |
| 933412 | AC2-154 E | 5.22 |
| 933431 | AC2-156 C O1 | 1.17 |
| 933432 | AC2-156 E O1 | 1.91 |
| 933911 | AD1-013 C | 2.25 |
| 933912 | AD1-013 E | 3.59 |
| 933931 | AD1-016 C | 1.13 |
| 933932 | AD1-016 E | 1.85 |
| 934101 | AD1-039 1 | 8.74 |
| 934111 | AD1-039 2 | 8.83 |
| 934401 | AD1-064 C O1 | 3.91 |
| 934402 | AD1-064 E O1 | 18.33 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.67 |
| 934651 | AD1-096 C | 1.09 |
| 934652 | AD1-096 E | 1.78 |
| 934701 | AD1-098 C O1 | 8.41 |
| 934702 | AD1-098 E O1 | 6.14 |
| 934721 | AD1-100 C | 29.39 |
| 934722 | AD1-100 E | 137.14 |
| 934871 | AD1-116 C | 1.17 |
| 934872 | AD1-116 E | 1.91 |
| 934971 | AD1-129 C | 1.1 |
| 934972 | AD1-129 E | 0.74 |
| 935001 | AD1-133 C O1 | 27.36 |
| 935002 | AD1-133 E O1 | 18.24 |
| 936291 | AD2-038 C O1 | 2.88 |
| 936292 | AD2-038 E O1 | 19.25 |
| 936371 | AD2-047 C O1 | 2.86 |
| 936372 | AD2-047 E O1 | 30.81 |
| 936461 | AD2-060 | 3.37 |
| 936511 | AD2-066 C O1 | 10.34 |
| 936512 | AD2-066 E O1 | 6.89 |
| 936781 | AD2-101 C | 5.82 |
| 936782 | AD2-101 E | 27.26 |
| 936791 | AD2-102 C | 14.68 |
| 936792 | AD2-102 E | 14.11 |
| 937001 | AD2-134 C | 3.34 |
| 937002 | AD2-134 E | 13.8 |
| 937031 | AD2-137 C O1 | 7.17 |
| 937032 | AD2-137 E O1 | 33.55 |
| 937051 | AD2-140 C O1 | 7.53 |
| 937052 | AD2-140 E O1 | 35.24 |
| 937061 | AD2-141 C O1 | 7.48 |
| 937062 | AD2-141 E O1 | 35.28 |
| 937071 | AD2-142 C O1 | 15.05 |
| 937072 | AD2-142 E O1 | 70.48 |
| 937121 | AD2-148 C O1 | 4.51 |
| 937122 | AD2-148 E O1 | 21.09 |
| 937131 | AD2-149 C O1 | 4.51 |
| 937132 | AD2-149 E O1 | 21.09 |
| 937141 | AD2-150 C O1 | 4.51 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937142 | AD2-150 E O1 | 21.09 |
| 937181 | AD2-155 C O1 | 4.51 |
| 937182 | AD2-155 E O1 | 21.09 |
| 937311 | AD2-172 C | 3.01 |
| 937312 | AD2-172 E | 4.15 |
| 937321 | AD2-175 C | 20.99 |
| 937322 | AD2-175 E | 13.99 |
| 937331 | AD2-176 C O1 | 8.96 |
| 937332 | AD2-176 E O1 | 5.97 |
| 937401 | AD2-194 1 | 9.54 |
| 937411 | AD2-194 2 | 9.54 |
| 938012 | AE1-002 E O1 | 14.38 |
| 938511 | AE1-070 1 | 11.21 |
| 938521 | AE1-070 2 | 10.26 |
| 938851 | AE1-113 C O1 | 10.72 |
| 938852 | AE1-113 E O1 | 33.71 |
| 938861 | AE1-114 C O1 | 4.39 |
| 938862 | AE1-114 E O1 | 16.8 |
| 939051 | AE1-134 1 | 1.67 |
| 939061 | AE1-134 2 | 1.67 |
| 939321 | AE1-163 C O1 | 7.23 |
| 939322 | AE1-163 E O1 | 44.39 |
| 939351 | AE1-166 C O1 | 14.5 |
| 939352 | AE1-166 E O1 | 13.38 |
| 939401 | AE1-172 C O1 | 9.5 |
| 939402 | AE1-172 E O1 | 44.49 |
| 939691 | AE1-199 | 2.92 |
| 939701 | AE1-201 C | 2.45 |
| 939702 | AE1-201 E | 0.54 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.45 |
| 939742 | AE1-205 E O1 | 17.19 |
| 939861 | AE1-222 1 | 98.48 |
| 939871 | AE1-222 2 | 99.54 |
| 939921 | AE1-228 C O1 | 12.28 |
| 939922 | AE1-228 E O1 | 8.19 |
| 940101 | AE1-252 C O1 | 16.2 |
| 940102 | AE1-252 E O1 | 10.8 |
| 940501 | AE2-035 C | 3.01 |
| 940502 | AE2-035 E | 4.15 |
| 940621 | AE2-049 C O2 | 11.62 |
| 940622 | AE2-049 E O2 | 7.75 |
| 940631 | AE2-050 C O2 | 15.56 |
| 940632 | AE2-050 E O2 | 10.38 |
| 940752 | AE2-062 E | 0.16 |
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.85 |
| 940882 | AE2-077 E | 6.28 |
| 941131 | AE2-107 C | 8.92 |
| 941132 | AE2-107 E | 5.95 |
| 941551 | AE2-152 C O2 | 14.72 |
| 941552 | AE2-152 E O2 | 9.81 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 941561 | AE2-153 C O2 | 5.83 |
| 941562 | AE2-153 E O2 | 27.3 |
| 941731 | AE2-173 | 7.43 |
| 942111 | AE2-223 C | 2.88 |
| 942112 | AE2-223 E | 19.28 |
| 942421 | AE2-255 C O2 | 3.67 |
| 942422 | AE2-255 E O2 | 11.02 |
| 942651 | AE2-281 C | 1.03 |
| 942652 | AE2-281 E | 6.34 |
| 942881 | AE2-307 C | 28.54 |
| 942882 | AE2-307 E | 10.38 |
| 942911 | AE2-310 C | 11.28 |
| 942912 | AE2-310 E | 3.05 |
| 942991 | AE2-321 C O2 | 10.0 |
| 942992 | AE2-321 E O2 | 4.93 |
| 943121 | AE2-341 C | 15.61 |
| 943122 | AE2-341 E | 7.67 |
| BLUEG | BLUEG | 8.01 |
| CALDERWOOD | CALDERWOOD | 0.11 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.97 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.72 |
| CBM-W1 | CBM-W1 | 37.34 |
| CBM-W2 | CBM-W2 | 70.72 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.03 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.73 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.74 |
| MEC | MEC | 46.44 |
| O-066 | O-066 | 17.5 |
| RENSSELAER | RENSSELAER | 0.77 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.95 |
| WEC | WEC | 9.73 |
| Z1-043 | Z1-043 | 35.42 |

26.5 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 |
|---------|-----------|------------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 8985837 | 275233 | WILTON ;4M | CE | 270644 | WILTON ; | CE | 1 | COMED_P4_112-65-BT2-3__ | breaker | 1379.0 | 163.32 | 163.4 | DC | 15.25 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 15.09 |
| 274722 | S-055 E | 14.02 |
| 274772 | LINCOLN ;3U | 2.74 |
| 274773 | LINCOLN ;4U | 2.74 |
| 274774 | LINCOLN ;5U | 2.74 |
| 274775 | LINCOLN ;6U | 2.74 |
| 274776 | LINCOLN ;7U | 2.74 |
| 274777 | LINCOLN ;8U | 2.74 |
| 274788 | SE CHICAG;5U | 5.56 |
| 274789 | SE CHICAG;6U | 5.56 |
| 274790 | SE CHICAG;7U | 5.56 |
| 274791 | SE CHICAG;8U | 5.56 |
| 274792 | SE CHICAG;9U | 5.52 |
| 274793 | SE CHICAG;0U | 5.52 |
| 274794 | SE CHICAG;1U | 5.52 |
| 274795 | SE CHICAG;2U | 5.52 |
| 274859 | EASYR;U1 E | 13.72 |
| 274860 | EASYR;U2 E | 13.72 |
| 274888 | PILOT HIL;1E | 24.06 |
| 274890 | CAYUG;1U E | 20.62 |
| 274891 | CAYUG;2U E | 20.62 |
| 275149 | KEMPTON ;1E | 24.06 |
| 290021 | O50 E | 24.2 |
| 290051 | GSG-6; E | 13.05 |
| 290108 | LEEDK;1U E | 30.31 |
| 293061 | N-015 E | 19.81 |
| 293516 | O-009 E1 | 2.14 |
| 293517 | O-009 E2 | 1.09 |
| 293518 | O-009 E3 | 1.2 |
| 293644 | O22 E1 | 12.79 |
| 293645 | O22 E2 | 24.84 |
| 293715 | O-029 E | 12.21 |
| 293716 | O-029 E | 6.69 |
| 293717 | O-029 E | 6.15 |
| 294392 | P-010 E | 25.16 |
| 294763 | P-046 E | 11.7 |
| 295109 | WESTBROOK E | 6.98 |
| 295111 | SUBLETTE E | 3.24 |
| 296125 | R-030 C3 | 5.07 |
| 296128 | R-030 E3 | 20.29 |
| 296271 | R-030 C2 | 5.01 |
| 296272 | R-030 E2 | 20.05 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 296308 | R-030 C1 | 5.01 |
| 296309 | R-030 E1 | 20.05 |
| 910542 | X3-005 E | 0.91 |
| 914641 | Y2-103 | 56.07 |
| 915011 | Y3-013 1 | 4.67 |
| 915021 | Y3-013 2 | 4.67 |
| 915031 | Y3-013 3 | 4.67 |
| 916221 | Z1-073 E | 6.73 |
| 916502 | Z1-106 E1 | 1.58 |
| 916504 | Z1-106 E2 | 1.58 |
| 916512 | Z1-107 E | 3.23 |
| 916522 | Z1-108 E | 3.1 |
| 917502 | Z2-087 E | 26.23 |
| 918052 | AA1-018 E | 20.53 |
| 919221 | AA1-146 | 21.95 |
| 919581 | AA2-030 | 21.95 |
| 920272 | AA2-123 E | 3.05 |
| 924041 | AB2-047 C O1 | 4.84 |
| 924042 | AB2-047 E O1 | 32.36 |
| 924471 | AB2-096 | 52.83 |
| 925161 | AB2-173 | 3.91 |
| 925302 | AB2-191 E | 1.73 |
| 926311 | AC1-109 1 | 2.39 |
| 926321 | AC1-109 2 | 2.39 |
| 926331 | AC1-110 1 | 2.37 |
| 926341 | AC1-110 2 | 2.37 |
| 926351 | AC1-111 1 | 0.95 |
| 926361 | AC1-111 2 | 0.95 |
| 926371 | AC1-111 3 | 0.95 |
| 926381 | AC1-111 4 | 0.95 |
| 926391 | AC1-111 5 | 0.95 |
| 926401 | AC1-111 6 | 0.95 |
| 926431 | AC1-114 | 2.97 |
| 926821 | AC1-168 C O1 | 1.46 |
| 926822 | AC1-168 E O1 | 9.77 |
| 927091 | AC1-204 1 | 90.65 |
| 927101 | AC1-204 2 | 90.65 |
| 927451 | AC1-142A 1 | 5.22 |
| 927461 | AC1-142A 2 | 5.22 |
| 927511 | AC1-113 1 | 1.48 |
| 927521 | AC1-113 2 | 1.48 |
| 927531 | AC1-185 1 | 0.86 |
| 927541 | AC1-185 2 | 0.86 |
| 927551 | AC1-185 3 | 0.86 |
| 927561 | AC1-185 4 | 0.86 |
| 927571 | AC1-185 5 | 0.86 |
| 927581 | AC1-185 6 | 0.86 |
| 927591 | AC1-185 7 | 0.86 |
| 927601 | AC1-185 8 | 0.86 |
| 930481 | AB1-089 | 82.03 |
| 930501 | AB1-091 O1 | 95.74 |
| 930741 | AB1-122 1O1 | 91.06 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 930751 | AB1-122 2O1 | 92.05 |
| 932881 | AC2-115 1 | 2.97 |
| 932891 | AC2-115 2 | 2.97 |
| 932921 | AC2-116 | 1.04 |
| 932931 | AC2-117 | 6.65 |
| 933341 | AC2-147 C | 1.09 |
| 933342 | AC2-147 E | 1.78 |
| 933411 | AC2-154 C | 3.27 |
| 933412 | AC2-154 E | 5.33 |
| 933431 | AC2-156 C O1 | 1.19 |
| 933432 | AC2-156 E O1 | 1.95 |
| 933911 | AD1-013 C | 2.3 |
| 933912 | AD1-013 E | 3.67 |
| 933931 | AD1-016 C | 1.16 |
| 933932 | AD1-016 E | 1.89 |
| 934101 | AD1-039 1 | 8.92 |
| 934111 | AD1-039 2 | 9.02 |
| 934401 | AD1-064 C O1 | 4.0 |
| 934402 | AD1-064 E O1 | 18.72 |
| 934431 | AD1-067 C | 0.16 |
| 934432 | AD1-067 E | 0.69 |
| 934651 | AD1-096 C | 1.11 |
| 934652 | AD1-096 E | 1.81 |
| 934701 | AD1-098 C O1 | 8.59 |
| 934702 | AD1-098 E O1 | 6.27 |
| 934721 | AD1-100 C | 29.97 |
| 934722 | AD1-100 E | 139.86 |
| 934871 | AD1-116 C | 1.2 |
| 934872 | AD1-116 E | 1.95 |
| 934971 | AD1-129 C | 1.13 |
| 934972 | AD1-129 E | 0.75 |
| 935001 | AD1-133 C O1 | 27.93 |
| 935002 | AD1-133 E O1 | 18.62 |
| 936291 | AD2-038 C O1 | 2.94 |
| 936292 | AD2-038 E O1 | 19.66 |
| 936371 | AD2-047 C O1 | 2.92 |
| 936372 | AD2-047 E O1 | 31.46 |
| 936461 | AD2-060 | 3.44 |
| 936511 | AD2-066 C O1 | 10.56 |
| 936512 | AD2-066 E O1 | 7.04 |
| 936781 | AD2-101 C | 5.94 |
| 936782 | AD2-101 E | 27.83 |
| 936791 | AD2-102 C | 14.99 |
| 936792 | AD2-102 E | 14.41 |
| 937001 | AD2-134 C | 3.41 |
| 937002 | AD2-134 E | 14.09 |
| 937031 | AD2-137 C O1 | 7.3 |
| 937032 | AD2-137 E O1 | 34.17 |
| 937051 | AD2-140 C O1 | 7.67 |
| 937052 | AD2-140 E O1 | 35.89 |
| 937061 | AD2-141 C O1 | 7.62 |
| 937062 | AD2-141 E O1 | 35.93 |

| Bus # | Bus | MW Impact |
|--------|--------------|-----------|
| 937071 | AD2-142 C O1 | 15.33 |
| 937072 | AD2-142 E O1 | 71.78 |
| 937121 | AD2-148 C O1 | 4.6 |
| 937122 | AD2-148 E O1 | 21.53 |
| 937131 | AD2-149 C O1 | 4.6 |
| 937132 | AD2-149 E O1 | 21.53 |
| 937141 | AD2-150 C O1 | 4.6 |
| 937142 | AD2-150 E O1 | 21.53 |
| 937181 | AD2-155 C O1 | 4.6 |
| 937182 | AD2-155 E O1 | 21.53 |
| 937311 | AD2-172 C | 3.07 |
| 937312 | AD2-172 E | 4.24 |
| 937321 | AD2-175 C | 21.43 |
| 937322 | AD2-175 E | 14.28 |
| 937331 | AD2-176 C O1 | 9.15 |
| 937332 | AD2-176 E O1 | 6.1 |
| 937401 | AD2-194 1 | 9.75 |
| 937411 | AD2-194 2 | 9.75 |
| 938012 | AE1-002 E O1 | 14.65 |
| 938511 | AE1-070 1 | 11.45 |
| 938521 | AE1-070 2 | 10.48 |
| 938851 | AE1-113 C O1 | 10.95 |
| 938852 | AE1-113 E O1 | 34.43 |
| 938861 | AE1-114 C O1 | 4.49 |
| 938862 | AE1-114 E O1 | 17.15 |
| 939051 | AE1-134 1 | 1.71 |
| 939061 | AE1-134 2 | 1.71 |
| 939321 | AE1-163 C O1 | 7.38 |
| 939322 | AE1-163 E O1 | 45.35 |
| 939351 | AE1-166 C O1 | 14.79 |
| 939352 | AE1-166 E O1 | 13.65 |
| 939401 | AE1-172 C O1 | 9.69 |
| 939402 | AE1-172 E O1 | 45.37 |
| 939691 | AE1-199 | 2.98 |
| 939701 | AE1-201 C | 2.5 |
| 939702 | AE1-201 E | 0.55 |
| 939732 | AE1-204 E | 0.36 |
| 939741 | AE1-205 C O1 | 12.7 |
| 939742 | AE1-205 E O1 | 17.54 |
| 939861 | AE1-222 1 | 100.56 |
| 939871 | AE1-222 2 | 101.66 |
| 939921 | AE1-228 C O1 | 12.54 |
| 939922 | AE1-228 E O1 | 8.36 |
| 940101 | AE1-252 C O1 | 16.52 |
| 940102 | AE1-252 E O1 | 11.01 |
| 940501 | AE2-035 C | 3.07 |
| 940502 | AE2-035 E | 4.24 |
| 940621 | AE2-049 C O2 | 11.86 |
| 940622 | AE2-049 E O2 | 7.91 |
| 940631 | AE2-050 C O2 | 15.89 |
| 940632 | AE2-050 E O2 | 10.59 |
| 940752 | AE2-062 E | 0.16 |

| Bus # | Bus | MW Impact |
|--------------|--------------|------------------|
| 940762 | AE2-063 E | 0.16 |
| 940881 | AE2-077 C | 3.93 |
| 940882 | AE2-077 E | 6.42 |
| 941131 | AE2-107 C | 9.11 |
| 941132 | AE2-107 E | 6.07 |
| 941551 | AE2-152 C O2 | 15.03 |
| 941552 | AE2-152 E O2 | 10.02 |
| 941561 | AE2-153 C O2 | 5.95 |
| 941562 | AE2-153 E O2 | 27.87 |
| 941731 | AE2-173 | 7.58 |
| 942111 | AE2-223 C | 2.94 |
| 942112 | AE2-223 E | 19.67 |
| 942421 | AE2-255 C O2 | 3.75 |
| 942422 | AE2-255 E O2 | 11.25 |
| 942651 | AE2-281 C | 1.05 |
| 942652 | AE2-281 E | 6.48 |
| 942881 | AE2-307 C | 29.12 |
| 942882 | AE2-307 E | 10.59 |
| 942911 | AE2-310 C | 11.52 |
| 942912 | AE2-310 E | 3.11 |
| 942991 | AE2-321 C O2 | 10.21 |
| 942992 | AE2-321 E O2 | 5.03 |
| 943121 | AE2-341 C | 15.94 |
| 943122 | AE2-341 E | 7.83 |
| BLUEG | BLUEG | 8.19 |
| CALDERWOOD | CALDERWOOD | 0.12 |
| CANNELTON | CANNELTON | 0.1 |
| CARR | CARR | 0.99 |
| CATAWBA | CATAWBA | 0.4 |
| CBM-S1 | CBM-S1 | 1.75 |
| CBM-W1 | CBM-W1 | 38.13 |
| CBM-W2 | CBM-W2 | 72.18 |
| CHEOAH | CHEOAH | 0.12 |
| CHILHOWEE | CHILHOWEE | 0.04 |
| ELMERSMITH | ELMERSMITH | 0.09 |
| G-007 | G-007 | 2.79 |
| GIBSON | GIBSON | 0.01 |
| HAMLET | HAMLET | 0.76 |
| MEC | MEC | 47.42 |
| O-066 | O-066 | 17.87 |
| RENSSELAER | RENSSELAER | 0.78 |
| SANTEETLA | SANTEETLA | 0.04 |
| TRIMBLE | TRIMBLE | 0.97 |
| WEC | WEC | 9.94 |
| Z1-043 | Z1-043 | 36.17 |

| Contingency Name | Contingency Definition |
|-----------------------------|---|
| AEP_P1-2_#695A | CONTINGENCY 'AEP_P1-2_#695A' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END |
| COMED_P4_112-65-BT2-3__ | CONTINGENCY 'COMED_P4_112-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END |
| COMED_P4_112-65-BT3-4__ | CONTINGENCY 'COMED_P4_112-65-BT3-4__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END |
| AEP_P4_#2978_05DUMONT 765_B | CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B' OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207 05GRNTWN 765 1 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END |
| COMED_P4_023-65-BT2-3__ | CONTINGENCY 'COMED_P4_023-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END |
| COMED_P4_112-65-BT5-6__ | CONTINGENCY 'COMED_P4_112-65-BT5-6__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END |
| COMED_P4_112-65-BT4-5__ | CONTINGENCY 'COMED_P4_112-65-BT4-5__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END |
| COMED_P4_023-65-BT4-5__ | CONTINGENCY 'COMED_P4_023-65-BT4-5__' TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765 TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345 TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33 TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 END |

Short Circuit

27 Short Circuit

No issues identified