



**Generation Interconnection  
Feasibility Study Report  
for  
Queue Project AE1-198  
KEWANEE  
193 MW Capacity / 357 MW Energy**

June, 2019

## Preface

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

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

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

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

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

The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

The conduct of light load analysis as well as Affected Systems as required under the PJM planning process is not performed during the Generation Interconnection Feasibility Study phase of the PJM study process. Additional reinforcement requirements for this Interconnection Request may be defined during the conduct of the System Impact Study.

## 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 357 MW with 193 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 9/01/2021. This study does not imply a TO commitment to this in-service date.

|                            |                |
|----------------------------|----------------|
| <b>Queue Number</b>        | <b>AE1-198</b> |
| <b>Project Name</b>        | KEWANEE        |
| <b>State</b>               | None           |
| <b>County</b>              | McHenry        |
| <b>Transmission Owner</b>  | ComEd          |
| <b>MFO</b>                 | 357            |
| <b>MWE</b>                 | 357            |
| <b>MWC</b>                 | 193            |
| <b>Fuel</b>                | Solar; Storage |
| <b>Basecase Study Year</b> | 2022           |

## Primary Point of Interconnection

Queue Position AE1-198, a 357 MW solar farm facility, proposes to interconnect with the ComEd transmission system at 138kV bus at Kewanee TSS 74. The existing Kewanee substation cannot be expanded to interconnect AE1-198 due to physical limitations. A new 138kV substation Kentville Road TSS 962 is proposed to be built adjacent to the Kewanee substation to interconnect a prior queue position AD1-031. It is proposed to interconnect AE1-198 to TSS 962 Kentville Road.

## Cost Summary

The AE1-198 project will be responsible for the following costs:

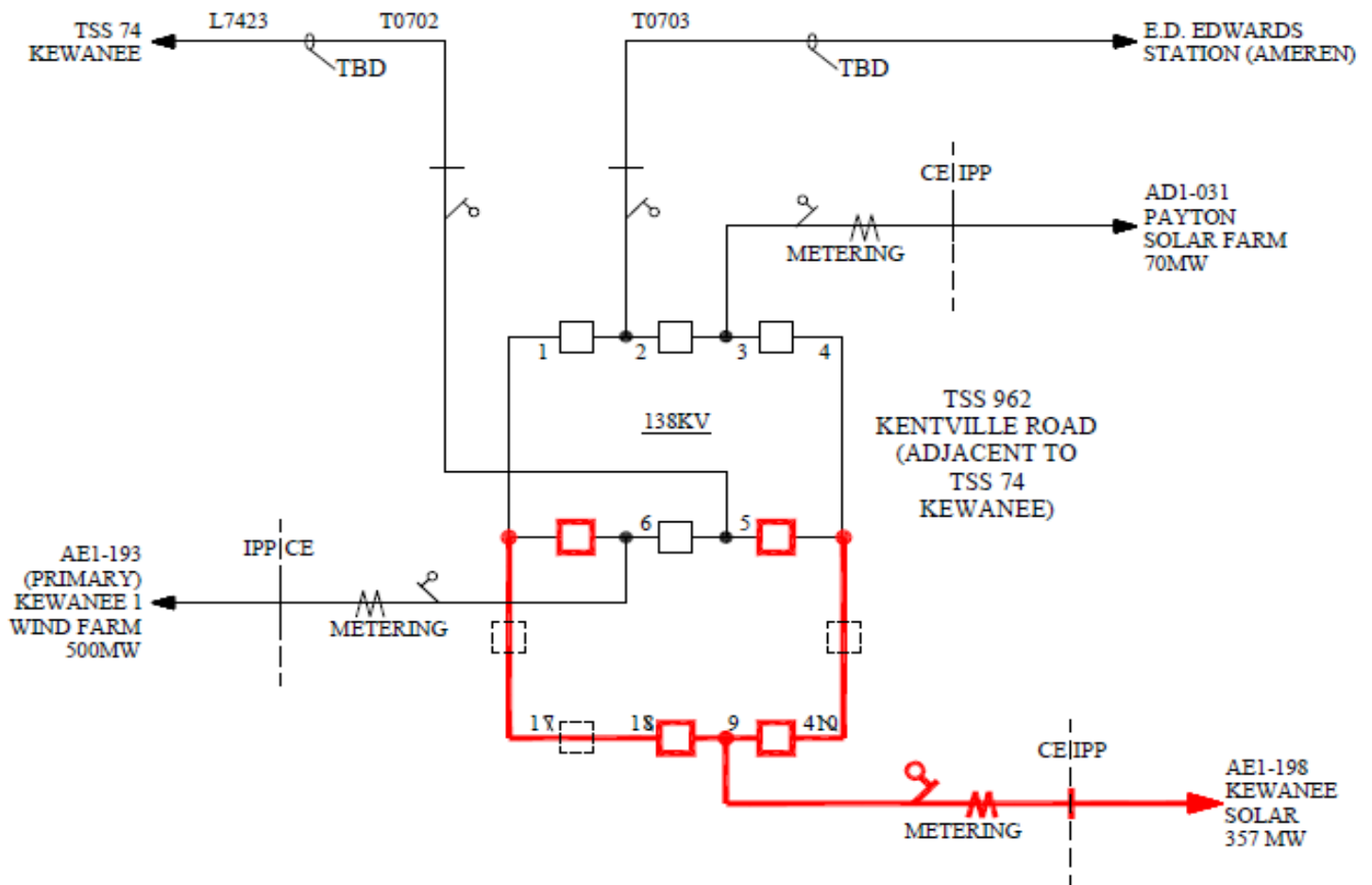
| Description                            | Total Cost   |
|----------------------------------------|--------------|
| Attachment Facilities                  | \$ 1,000,000 |
| Direct Connection Network Upgrade      | \$ 0         |
| Non Direct Connection Network Upgrades | \$10,000,000 |
| Total Costs                            | \$11,000,000 |

In addition, the AE1-198 project may be responsible for a contribution to the following costs (see later sections of this report.

| Description     | Total Cost    |
|-----------------|---------------|
| System Upgrades | \$545,427,560 |

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

AE1-198  
PRIMARY POI



## Interconnected Transmission Owner Scope of Work

### Attachment Facilities

The AE1-198 generator lead will interconnect to 138kV bus at TSS 962 Kentville Road (see details in Direct Connection section below). The required Attachment Facilities are one 138kV line MODs, one dead-end structure and one revenue-metering as shown in the one-line diagram.

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

### Direct Connection Cost Estimate

None

### Non-Direct Connection Cost Estimate

Prior to AE1-198 queue position, a new 138kV Interconnection Substation, Kentville Road TSS 962, would be built, adjacent to TSS 74 Kewanee, under earlier queue position AD1-031 by looping in the 'Kewanee - Edwards' 138kV line 7423.

In order to accommodate interconnection of AE1-198, Kentville Road TSS 962 would need to be expanded to create a bus position.

The scope of work includes installation of four 138kV circuit breaker to create a line position to interconnect AE1-198 generator lead, as shown in the one-line diagram. It should be noted that if the AD1-031 project drops out, then scope of AE1-198 would change.

The preliminary cost estimate for Direct Connection Network Upgrade is given in the following tables.

| Scope of Work                                                                           | Cost Estimate |
|-----------------------------------------------------------------------------------------|---------------|
| Installation of four 138kV circuit breaker at TSS 962 Kentville Road as described above | \$10,000,000  |
| Total Cost Estimate (see notes below on cost estimate)                                  | \$10,000,000  |

The Interconnection Customer ("IC") is responsible for constructing all the facilities on the Interconnection Customer side of the Point of Interconnection (POI).

## Schedule

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

## 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. Per the PJM Tariff, Interconnection Customer will be responsible for paying all actual costs of ComEd's work.
- 4) The Interconnection Customer is responsible for all engineering, procurement, testing and construction of all equipment on the Interconnection Customer's side of the Point of Interconnection (POI).

## Interconnection Customer Requirements

Exelon Utilities Transmission Bus Configuration Design Philosophy, ComEd Interconnection Guidelines, and Exelon Utilities Transmission Facility Interconnection Requirements shall apply. They are available on the PJM website. To the extent that these Applicable Technical Requirements and Standards conflict with the terms and conditions of the Tariff, the Tariff shall control.

## 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.

## Network Impacts

The Queue Project AE1-198 was evaluated as a 357 MW (Capacity 193 MW) injection at the Kewanee 138 kV substation in the ComEd area. Project AE1-198 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-198 was studied with a commercial probability of 53%. Potential network impacts were as follows:

## Summer Peak Load Flow

### 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 |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|---------------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 219141 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1      | COMED_P1-2_345-L11613AB-S | single | 1802.0     | 91.08                 | 91.53                  | DC    | 18.09     |
| 218745 | 930740    | AB1-122 TAP  | CE            | 270717  | DRESDEN ; R  | CE          | 1      | COMED_P1-2_345-L19601_B-S | single | 1195.0     | 95.34                 | 96.41                  | DC    | 12.81     |
| 218770 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1      | Base Case                 | single | 173.0      | 94.65                 | 102.7                  | DC    | 13.92     |

## Multiple Facility Contingency

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

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                        | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|--------------------------------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218469 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT    | AEP         | 1      | AEP_P4_#8805_05OLIVE 345_D                       | breaker | 4105.0     | 97.87                 | 98.1                   | DC    | 91.23     |
| 829053 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT    | AEP         | 1      | AEP_P4_#8805_05OLIVE 345_D                       | breaker | 4105.0     | 97.87                 | 98.1                   | DC    | 91.23     |
| 218462 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P4_012-38-L1206_                           | breaker | 192.0      | 97.14                 | 103.48                 | DC    | 27.02     |
| 219617 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L1206_R-S+_345-L2311_R-S            | tower   | 192.0      | 97.17                 | 103.52                 | DC    | 27.05     |
| 219618 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L0903_R-S+_138-L1206_R-S-A          | tower   | 192.0      | 97.08                 | 103.42                 | DC    | 27.02     |
| 217952 | 271835    | KEWANEE ;23  | CE            | 271839  | KEWANEE ;22 | CE          | 1      | COMED_P4_133-38-BT1-2_                           | breaker | 498.0      | 138.12                | 201.28                 | DC    | 314.54    |
| 219335 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS3   | AMIL        | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R          | tower   | 189.0      | 136.38                | 166.03                 | DC    | 56.03     |
| 219336 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS3   | AMIL        | 1      | COMED_P7_138-L7411_R-R+_138-L7408_R-R_U4-027-FSA | tower   | 189.0      | 130.58                | 160.23                 | DC    | 56.03     |

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                                        | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|---------------|---------|--------------|-------------|---------|--------------------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 219337 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS3    | AMIL        | 1       | COMED_P7_138-L7411_R-R+_138-L7408_R-R            | tower   | 189.0      | 130.58                 | 160.23                  | DC     | 56.03      |
| 218111 | 271838    | KEWANEE ;13  | CE            | 271837  | KEWANEE ;12  | CE          | 1       | COMED_P4_133-38-BT1-2__                          | breaker | 498.0      | 121.95                 | 151.33                  | DC     | 146.29     |
| 219355 | 271838    | KEWANEE ;13  | CE            | 348923  | 4KEWANEE N   | AMIL        | Z1      | COMED_P7_138-L6101__S+_138-L7713_R-S-B           | tower   | 449.0      | 134.53                 | 162.57                  | DC     | 125.87     |
| 219356 | 271838    | KEWANEE ;13  | CE            | 348923  | 4KEWANEE N   | AMIL        | Z1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R          | tower   | 449.0      | 128.4                  | 159.09                  | DC     | 137.82     |
| 217753 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R   | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                  | bus     | 336.0      | 88.28                  | 122.57                  | DC     | 115.21     |
| 217754 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R   | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                     | bus     | 336.0      | 88.28                  | 122.57                  | DC     | 115.21     |
| 217963 | 271839    | KEWANEE ;22  | CE            | 271845  | KEWANEE ;21  | CE          | 1       | COMED_P4_133-38-BT1-2__                          | breaker | 498.0      | 143.6                  | 195.26                  | DC     | 257.25     |
| 218318 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R   | CE          | 1       | COMED_P4_074-38-L7413__                          | breaker | 336.0      | 88.28                  | 122.57                  | DC     | 115.21     |
| 219493 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B | CE          | 1       | COMED_P7_138-L93008_R-R+_138-L18706_R-R          | tower   | 498.0      | 109.81                 | 118.6                   | DC     | 43.76      |
| 219534 | 271908    | LASCO STA; B | CE            | 270802  | LASCO STA; B | CE          | 1       | COMED_P7_138-L1205__B-S+_138-L1206__R-S-A        | tower   | 498.0      | 106.28                 | 113.61                  | DC     | 36.51      |
| 218457 | 272095    | NELSON ; R   | CE            | 275203  | NELSON ;2M   | CE          | 1       | COMED_P4_155-38-L15518__                         | breaker | 520.0      | 88.15                  | 100.91                  | DC     | 66.35      |
| 217535 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                     | bus     | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 217536 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                  | bus     | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 217947 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P4_074-38-L7413__                          | breaker | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 219398 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P7_138-L7411_R-R+_138-L7408_R-R_U4-027-FSA | tower   | 230.0      | 121.44                 | 137.04                  | DC     | 35.88      |
| 219399 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P7_138-L7411_R-R+_138-L7408_R-R            | tower   | 230.0      | 121.44                 | 137.04                  | DC     | 35.88      |
| 217728 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P2-2_074_KE-138__1_FSA                     | bus     | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 217729 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                  | bus     | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 218279 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P4_074-38-L7413__                          | breaker | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 219605 | 272367    | ROCK FALL; R | CE            | 272366  | ROCK FALL; B | CE          | 1       | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A        | tower   | 230.0      | 98.07                  | 104.91                  | DC     | 34.87      |
| 217575 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                     | bus     | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 217576 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                  | bus     | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 218012 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P4_074-38-L7413__                          | breaker | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 218459 | 275203    | NELSON ;2M   | CE            | 270828  | NELSON ; B   | CE          | 1       | COMED_P4_155-38-L15518__                         | breaker | 520.0      | 88.15                  | 100.91                  | DC     | 66.35      |
| 218341 | 293710    | O29          | CE            | 272366  | ROCK FALL; B | CE          | 1       | COMED_P4_155-38-L15508__                         | breaker | 498.0      | 107.7                  | 120.1                   | DC     | 61.74      |
| 219548 | 918050    | AA1-018 TAP  | CE            | 270769  | GOODINGS ;2R | CE          | 1       | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A        | tower   | 1494.0     | 94.52                  | 95.14                   | DC     | 20.47      |
| 218411 | 926820    | AC1-168 TAP  | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P4_012-38-L1206__                          | breaker | 192.0      | 107.89                 | 114.23                  | DC     | 27.02      |
| 219523 | 926820    | AC1-168 TAP  | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P7_138-L1206__R-S+_345-L2311__R-S          | tower   | 192.0      | 107.87                 | 114.22                  | DC     | 27.05      |

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CK T ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|-------------|---------------|---------|-------------|-------------|---------|-------------------------------------------|-------|------------|------------------------|-------------------------|--------|------------|
| 219524 | 926820    | AC1-168 TAP | CE            | 272521  | STREATOR ;  | CE          | 1       | COMED_P7_138-L0903__R-S+_138-L1206__R-S-A | tower | 192.0      | 107.83                 | 114.17                  | DC     | 27.02      |
| 219604 | 936290    | AD2-038 TAP | CE            | 918050  | AA1-018 TAP | CE          | 1       | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A | tower | 1494.0     | 88.17                  | 88.79                   | DC     | 20.51      |

## 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 | CK T ID | CONT NAME                               | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|-----------------|---------------|---------|---------------|-------------|---------|-----------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 218187 | 255112    | 17STJOHN        | NIPS          | 270886  | ST JOHN ; T   | CE          | 1       | AEP_P4_#2978_05DUMONT 765_B             | breaker | 1091.0     | 132.01                 | 132.23                  | DC     | 27.79      |
| 828425 | 255113    | 17STILLWELL     | NIPS          | 243219  | 05DUMONT      | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B             | breaker | 1409.0     | 177.96                 | 178.75                  | DC     | 43.98      |
| 829254 | 255113    | 17STILLWELL     | NIPS          | 243219  | 05DUMONT      | AEP         | 1       | AEP_P1-2_#695A                          | single  | 1409.0     | 115.76                 | 116.53                  | DC     | 24.13      |
| 219554 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L94507_B-S+_345-L97008_R-S | tower   | 4105.0     | 107.01                 | 107.57                  | DC     | 98.6       |
| 219555 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L6607__B-S+_345-L97008_R-S | tower   | 4105.0     | 104.54                 | 105.16                  | DC     | 98.75      |
| 830278 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L94507_B-S+_345-L97008_R-S | tower   | 4105.0     | 107.01                 | 107.57                  | DC     | 98.6       |
| 830279 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L6607__B-S+_345-L97008_R-S | tower   | 4105.0     | 104.54                 | 105.16                  | DC     | 98.75      |
| 218346 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | AEP_P4_#2978_05DUMONT 765_B             | breaker | 1399.0     | 112.31                 | 113.36                  | DC     | 39.51      |
| 218347 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_023-65-BT2-3__                 | breaker | 1399.0     | 111.94                 | 112.97                  | DC     | 39.71      |
| 218348 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_112-65-BT4-5__                 | breaker | 1399.0     | 111.86                 | 112.89                  | DC     | 39.64      |
| 218349 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_112-65-BT3-4__                 | breaker | 1399.0     | 111.85                 | 112.89                  | DC     | 39.64      |
| 217745 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P2-2_116_GG-345R__2_NO_FSA        | bus     | 1802.0     | 118.16                 | 118.9                   | DC     | 29.36      |
| 217746 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P2-2_116_GG-345R__2_FSA           | bus     | 1802.0     | 116.94                 | 117.68                  | DC     | 29.37      |
| 218258 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P4_116-45-L11614__                | breaker | 1802.0     | 121.9                  | 122.64                  | DC     | 29.46      |
| 218259 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P4_116-45-L9801_FSA               | breaker | 1802.0     | 118.16                 | 118.9                   | DC     | 29.36      |
| 218202 | 270828    | NELSON ; B      | CE            | 270730  | ELECT JCT ; B | CE          | 1       | COMED_P4_155-45-BT6-7__                 | breaker | 1656.0     | 135.14                 | 136.36                  | DC     | 43.25      |

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS        | TO BUS AREA | CK T ID | CONT NAME                                         | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC/D C | MW IMPACT |
|--------|-----------|--------------|---------------|---------|---------------|-------------|---------|---------------------------------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 218203 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B  | CE          | 1       | COMED_P4_937-45-BT1-2                             | breaker | 1656.0     | 131.71                 | 132.96                  | DC     | 44.36     |
| 218204 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B  | CE          | 1       | COMED_P4_937-45-BT1-4                             | breaker | 1656.0     | 131.36                 | 132.61                  | DC     | 44.38     |
| 218192 | 270886    | ST JOHN ; T  | CE            | 255104  | 17GREEN_ACR E | NIPS        | 1       | AEP_P4_#2978_05DUMONT 765_B                       | breaker | 1091.0     | 132.01                 | 132.23                  | DC     | 27.79     |
| 218058 | 271018    | ANNAWAN; R   | CE            | 272110  | NORMANDY ; B  | CE          | 1       | COMED_P4_133-38-BT1-2                             | breaker | 275.0      | 144.26                 | 168.74                  | DC     | 67.33     |
| 219330 | 271241    | CRESCENT; R  | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L93008_R-R +_138-L18706_R-R          | tower   | 185.0      | 145.46                 | 167.69                  | DC     | 41.13     |
| 219331 | 271241    | CRESCENT; R  | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L7411_R-R +_138-L7408_R-R            | tower   | 185.0      | 141.0                  | 163.23                  | DC     | 41.13     |
| 219332 | 271241    | CRESCENT; R  | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L7411_R-R +_138-L7408_R-R_U4-027-FSA | tower   | 185.0      | 141.0                  | 163.23                  | DC     | 41.13     |
| 217515 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P2-2_074_KE-138__1_FSA                      | bus     | 214.0      | 196.26                 | 247.63                  | DC     | 109.93    |
| 217516 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                   | bus     | 214.0      | 196.26                 | 247.63                  | DC     | 109.93    |
| 217917 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P4_074-38-L7413__                           | breaker | 214.0      | 196.26                 | 247.63                  | DC     | 109.93    |
| 217982 | 271836    | KEWANEE ;11  | CE            | 271018  | ANNAWAN; R    | CE          | 1       | COMED_P4_133-38-BT1-2__                           | breaker | 229.0      | 157.53                 | 186.93                  | DC     | 67.33     |
| 217932 | 271837    | KEWANEE ;12  | CE            | 271836  | KEWANEE ;11   | CE          | 1       | COMED_P4_133-38-BT1-2__                           | breaker | 256.0      | 180.26                 | 219.66                  | DC     | 100.86    |
| 218353 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B  | CE          | 1       | COMED_P4_012-38-L1206__                           | breaker | 498.0      | 110.99                 | 118.43                  | DC     | 37.07     |
| 219494 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B  | CE          | 1       | COMED_P7_138-L1206_R-S+_345-L2311_R-S             | tower   | 498.0      | 111.01                 | 118.46                  | DC     | 37.11     |
| 217913 | 271845    | KEWANEE ;21  | CE            | 271838  | KEWANEE ;13   | CE          | 1       | COMED_P4_133-38-BT1-2__                           | breaker | 498.0      | 196.09                 | 247.73                  | DC     | 257.17    |
| 218070 | 272110    | NORMANDY ; B | CE            | 293710  | O29           | CE          | 1       | COMED_P4_133-38-BT1-2__                           | breaker | 275.0      | 142.0                  | 166.49                  | DC     | 67.33     |
| 217665 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP   | CE          | 1       | COMED_P2-2_001_LA-138B__1                         | bus     | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 218179 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP   | CE          | 1       | COMED_P4_001-38-L0108__                           | breaker | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 218180 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP   | CE          | 1       | COMED_P4_001-38-TR81__                            | breaker | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 218221 | 272189    | OGLESBY ; T  | CE            | 348935  | 4OGLESBY MN   | AMIL        | 1       | COMED_P4_012-38-L1206__                           | breaker | 202.0      | 128.1                  | 133.67                  | DC     | 24.98     |
| 219397 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP   | CE          | 1       | COMED_P7_138-L93008_R-R +_138-L18706_R-R          | tower   | 230.0      | 124.51                 | 140.11                  | DC     | 35.88     |
| 219424 | 272189    | OGLESBY ; T  | CE            | 348935  | 4OGLESBY MN   | AMIL        | 1       | COMED_P7_138-L0903_R-S+_138-L1206_R-S-A           | tower   | 202.0      | 128.1                  | 133.67                  | DC     | 24.98     |
| 217520 | 272269    | POWERTON ;   | CE            | 272285  | POWERTON ;RT  | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                   | bus     | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 217521 | 272269    | POWERTON ;   | CE            | 272285  | POWERTON ;RT  | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                      | bus     | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 217922 | 272269    | POWERTON ;   | CE            | 272285  | POWERTON ;RT  | CE          | 1       | COMED_P4_074-38-L7413__                           | breaker | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 218122 | 272366    | ROCK FALL; B | CE            | 272094  | NELSON ; B    | CE          | 1       | COMED_P4_155-38-L15508__                          | breaker | 426.0      | 136.64                 | 152.43                  | DC     | 67.26     |
| 217510 | 272367    | ROCK FALL; R | CE            | 272095  | NELSON ; R    | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                      | bus     | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 217511 | 272367    | ROCK FALL; R | CE            | 272095  | NELSON ; R    | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                   | bus     | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 217907 | 272367    | ROCK FALL; R | CE            | 272095  | NELSON ; R    | CE          | 1       | COMED_P4_074-38-L7413__                           | breaker | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 218142 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE       | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B                       | breaker | 971.0      | 137.39                 | 138.42                  | DC     | 30.36     |

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                                        | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC/D C | MW IMPAC T |
|--------|-----------|--------------|---------------|---------|--------------|-------------|---------|--------------------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 218143 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT2-3                            | breaker | 971.0      | 135.58                 | 136.71                  | DC     | 30.52      |
| 218144 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT4-5                            | breaker | 971.0      | 136.17                 | 137.21                  | DC     | 30.51      |
| 218145 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT3-4                            | breaker | 971.0      | 136.17                 | 137.21                  | DC     | 30.51      |
| 218146 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT4-5                            | breaker | 971.0      | 136.16                 | 137.2                   | DC     | 30.5       |
| 828558 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B                      | breaker | 971.0      | 137.39                 | 138.42                  | DC     | 30.36      |
| 828559 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT2-3                            | breaker | 971.0      | 135.58                 | 136.71                  | DC     | 30.52      |
| 828560 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT4-5                            | breaker | 971.0      | 136.17                 | 137.21                  | DC     | 30.51      |
| 828561 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT3-4                            | breaker | 971.0      | 136.17                 | 137.21                  | DC     | 30.51      |
| 828562 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT4-5                            | breaker | 971.0      | 136.16                 | 137.2                   | DC     | 30.5       |
| 217545 | 293510    | O09 OP1 138  | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P2-2_074_KE-138_1_NO_FSA                   | bus     | 331.0      | 162.03                 | 195.21                  | DC     | 109.85     |
| 217546 | 293510    | O09 OP1 138  | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P2-2_074_KE-138_1_FSA                      | bus     | 331.0      | 162.03                 | 195.21                  | DC     | 109.85     |
| 217967 | 293510    | O09 OP1 138  | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P4_074-38-L7413                            | breaker | 331.0      | 162.03                 | 195.21                  | DC     | 109.85     |
| 217778 | 293710    | O29          | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P2-2_155_NE-138B_4                         | bus     | 275.0      | 109.38                 | 114.76                  | DC     | 32.83      |
| 218295 | 293710    | O29          | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P4_155-38-TR81                             | breaker | 264.0      | 118.84                 | 124.36                  | DC     | 32.29      |
| 218296 | 293710    | O29          | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P4_155-38-TR84                             | breaker | 264.0      | 113.93                 | 119.54                  | DC     | 32.83      |
| 219248 | 293710    | O29          | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P7_138-L15509GR-R_+138-L15518GB-R-A        | tower   | 275.0      | 223.1                  | 250.88                  | DC     | 76.41      |
| 828525 | 346809    | 7CASEY       | AMIL          | 247712  | 05SULLIVAN   | AEP         | 1       | AEP_P4_#3128_05EUGEN E 345_A2                    | breaker | 1466.0     | 145.69                 | 146.68                  | DC     | 31.59      |
| 217525 | 348962    | 4KEEMIN      | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P2-2_074_KE-138_1_FSA                      | bus     | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 217526 | 348962    | 4KEEMIN      | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P2-2_074_KE-138_1_NO_FSA                   | bus     | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 217927 | 348962    | 4KEEMIN      | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P4_074-38-L7413                            | breaker | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 218740 | 930740    | AB1-122 TAP  | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P1-2_345-L1202_B-S-A                       | single  | 1195.0     | 104.66                 | 105.73                  | DC     | 12.74      |
| 219264 | 930740    | AB1-122 TAP  | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P7_345-L19601_B-S_+345-L9801_R-S_FSA       | tower   | 1195.0     | 133.61                 | 134.66                  | DC     | 27.69      |
| 219265 | 930740    | AB1-122 TAP  | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P7_345-L0301_B-S_+345-L9801_R-S_FSA        | tower   | 1195.0     | 128.96                 | 130.0                   | DC     | 27.72      |
| 217590 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P2-2_001_LA-138B_1                         | bus     | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 218032 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P4_001-38-TR81                             | breaker | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 218033 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P4_001-38-L0108                            | breaker | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 219320 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P7_138-L7411_R-R_+138-L7408_R-R            | tower   | 230.0      | 153.53                 | 169.13                  | DC     | 35.88      |
| 219321 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P7_138-L7411_R-R_+138-L7408_R-R_U4-027-FSA | tower   | 230.0      | 153.53                 | 169.13                  | DC     | 35.88      |

## 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 | CK T ID | CONT NAME                  | Type      | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|---------------|---------|--------------|-------------|---------|----------------------------|-----------|------------|------------------------|-------------------------|--------|------------|
| 829249 | 255113    | 17STILLWELL  | NIPS          | 243219  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#695A             | operation | 1409.0     | 174.65                 | 175.46                  | DC     | 44.64      |
| 829255 | 255113    | 17STILLWELL  | NIPS          | 243219  | 05DUMONT     | AEP         | 1       | Base Case                  | operation | 1409.0     | 114.48                 | 114.94                  | DC     | 24.87      |
| 219146 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#697A             | operation | 4105.0     | 97.84                  | 98.07                   | DC     | 91.26      |
| 829779 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#697A             | operation | 4105.0     | 97.84                  | 98.07                   | DC     | 91.26      |
| 219056 | 270728    | E FRANKFO; B | CE            | 274750  | CRETE EC ;BP | CE          | 1       | AEP_P1-2_#695A             | operation | 1399.0     | 111.81                 | 112.85                  | DC     | 39.62      |
| 219135 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1       | COMED_P1-2_345-L11622_R-S  | operation | 1802.0     | 104.59                 | 105.27                  | DC     | 26.98      |
| 219140 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1       | Base Case                  | operation | 1560.0     | 97.66                  | 98.38                   | DC     | 24.47      |
| 218939 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B | CE          | 1       | COMED_P1-2_345-L15501_B-R  | operation | 1656.0     | 131.33                 | 132.58                  | DC     | 44.38      |
| 218940 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B | CE          | 1       | Base Case                  | operation | 1334.0     | 108.5                  | 109.57                  | DC     | 31.42      |
| 218734 | 271018    | ANNAWAN; R   | CE            | 272110  | NORMANDY ; B | CE          | 1       | COMED_P1-2_138-L13304_R-R  | operation | 264.0      | 149.79                 | 175.31                  | DC     | 67.38      |
| 218736 | 271018    | ANNAWAN; R   | CE            | 272110  | NORMANDY ; B | CE          | 1       | Base Case                  | operation | 208.0      | 143.35                 | 170.22                  | DC     | 55.88      |
| 218794 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T  | CE          | 1       | COMED_P2-1_074-L6101       | operation | 174.0      | 144.72                 | 166.0                   | DC     | 37.04      |
| 218798 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T  | CE          | 1       | Base Case                  | operation | 174.0      | 109.13                 | 116.8                   | DC     | 29.62      |
| 218543 | 271655    | HENNEEPIN; T | CE            | 348918  | 4HENNEPIN S  | AMIL        | 1       | 271838                     | operation | 160.0      | 273.37                 | 340.99                  | DC     | 108.19     |
| 219150 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP  | CE          | 1       | Base Case                  | operation | 142.0      | 102.01                 | 109.51                  | DC     | 23.64      |
| 219151 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP  | CE          | 1       | COMED_P1-2_138-L1206_R-S-A | operation | 184.0      | 100.87                 | 107.49                  | DC     | 27.02      |
| 218553 | 271835    | KEWANEE ;23  | CE            | 271655  | HENNEEPIN; T | CE          | 1       | 271838                     | operation | 195.0      | 240.86                 | 309.58                  | DC     | 134.0      |
| 218558 | 271835    | KEWANEE ;23  | CE            | 271655  | HENNEEPIN; T | CE          | 1       | Base Case                  | operation | 190.0      | 83.09                  | 102.79                  | DC     | 37.44      |
| 218632 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN      | AMIL        | 1       | 271838                     | operation | 214.0      | 185.63                 | 236.34                  | DC     | 108.52     |
| 218637 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN      | AMIL        | 1       | Base Case                  | operation | 173.0      | 142.49                 | 169.17                  | DC     | 46.16      |

| ID     | FROM BUS# | FROM BUS     | FRO M BUS AREA | TO BUS# | TO BUS        | TO BUS ARE A | CK T ID | CONT NAME                   | Type       | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|----------------|---------|---------------|--------------|---------|-----------------------------|------------|------------|------------------------|-------------------------|--------|------------|
| 218650 | 271835    | KEWANEE ;23  | CE             | 271839  | KEWANEE ;22   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 153.16                 | 223.21                  | DC     | 314.55     |
| 218652 | 271835    | KEWANEE ;23  | CE             | 271839  | KEWANEE ;22   | CE           | 1       | Base Case                   | operatio n | 351.0      | 134.5                  | 212.39                  | DC     | 273.4      |
| 218700 | 271836    | KEWANEE ;11  | CE             | 271018  | ANNAWAN; R    | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 214.0      | 167.96                 | 199.45                  | DC     | 67.38      |
| 218702 | 271836    | KEWANEE ;11  | CE             | 271018  | ANNAWAN; R    | CE           | 1       | Base Case                   | operatio n | 173.0      | 152.83                 | 185.14                  | DC     | 55.88      |
| 219129 | 271836    | KEWANEE ;11  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | COMED_P2-1_981-L7713        | operatio n | 246.0      | 107.35                 | 113.32                  | DC     | 14.68      |
| 218638 | 271837    | KEWANEE ;12  | CE             | 271836  | KEWANEE ;11   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 246.0      | 187.1                  | 228.12                  | DC     | 100.91     |
| 218640 | 271837    | KEWANEE ;12  | CE             | 271836  | KEWANEE ;11   | CE           | 1       | Base Case                   | operatio n | 190.0      | 180.82                 | 225.84                  | DC     | 85.54      |
| 218861 | 271837    | KEWANEE ;12  | CE             | 349637  | 4EDWARDS3     | AMIL         | 1       | COMED_P1-2_138-L1352__S     | operatio n | 189.0      | 119.39                 | 144.37                  | DC     | 47.21      |
| 218866 | 271837    | KEWANEE ;12  | CE             | 349637  | 4EDWARDS3     | AMIL         | 1       | Base Case                   | operatio n | 159.0      | 103.22                 | 128.38                  | DC     | 40.01      |
| 218786 | 271838    | KEWANEE ;13  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | Base Case                   | operatio n | 351.0      | 131.93                 | 167.69                  | DC     | 125.55     |
| 218787 | 271838    | KEWANEE ;13  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 135.06                 | 167.65                  | DC     | 146.33     |
| 218845 | 271838    | KEWANEE ;13  | CE             | 348923  | 4KEWANEE N    | AMIL         | Z1      | Base Case                   | operatio n | 351.0      | 122.68                 | 150.34                  | DC     | 97.09      |
| 218846 | 271838    | KEWANEE ;13  | CE             | 348923  | 4KEWANEE N    | AMIL         | Z1      | 271837                      | operatio n | 449.0      | 116.15                 | 149.84                  | DC     | 151.27     |
| 218674 | 271839    | KEWANEE ;22  | CE             | 271845  | KEWANEE ;21   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 159.18                 | 216.48                  | DC     | 257.26     |
| 218676 | 271839    | KEWANEE ;22  | CE             | 271845  | KEWANEE ;21   | CE           | 1       | Base Case                   | operatio n | 351.0      | 148.72                 | 212.18                  | DC     | 222.72     |
| 218988 | 271839    | KEWANEE ;22  | CE             | 272607  | TOULON ; R    | CE           | 1       | 271838                      | operatio n | 317.0      | 89.33                  | 125.42                  | DC     | 114.41     |
| 219214 | 271839    | KEWANEE ;22  | CE             | 271835  | KEWANEE ;23   | CE           | 1       | 271838                      | operatio n | 449.0      | 93.9                   | 100.26                  | DC     | 28.54      |
| 218934 | 271844    | KICKAPOO ; B | CE             | 271908  | LASCO STA; B  | CE           | 1       | COMED_P1-2_138-L1206__R-S-A | operatio n | 442.0      | 124.77                 | 133.16                  | DC     | 37.07      |
| 218936 | 271844    | KICKAPOO ; B | CE             | 271908  | LASCO STA; B  | CE           | 1       | Base Case                   | operatio n | 351.0      | 128.82                 | 132.9                   | DC     | 31.63      |
| 218606 | 271845    | KEWANEE ;21  | CE             | 271838  | KEWANEE ;13   | CE           | 1       | Base Case                   | operatio n | 351.0      | 214.5                  | 277.93                  | DC     | 222.64     |
| 218607 | 271845    | KEWANEE ;21  | CE             | 271838  | KEWANEE ;13   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 217.39                 | 274.68                  | DC     | 257.19     |
| 218850 | 271908    | LASCO STA; B | CE             | 271986  | MAZON ; B     | CE           | 1       | COMED_P1-3_TR81_LASCO_B-S   | operatio n | 223.0      | 144.85                 | 148.94                  | DC     | 20.16      |
| 218852 | 271987    | MAZON ; R    | CE             | 271187  | CHANNAHON ; R | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 223.0      | 141.01                 | 146.64                  | DC     | 27.85      |
| 218853 | 271987    | MAZON ; R    | CE             | 271187  | CHANNAHON ; R | CE           | 1       | Base Case                   | operatio n | 173.0      | 138.62                 | 144.64                  | DC     | 23.13      |
| 219194 | 272095    | NELSON ; R   | CE             | 275203  | NELSON ;2M    | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 480.0      | 86.34                  | 99.33                   | DC     | 62.34      |
| 218760 | 272110    | NORMANDY ; B | CE             | 293710  | O29           | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 264.0      | 147.44                 | 172.96                  | DC     | 67.38      |
| 218762 | 272110    | NORMANDY ; B | CE             | 293710  | O29           | CE           | 1       | Base Case                   | operatio n | 208.0      | 140.37                 | 167.24                  | DC     | 55.88      |
| 218694 | 272111    | NORMANDY ; R | CE             | 293510  | O09 OP1 138   | CE           | 1       | 271838                      | operatio n | 223.0      | 157.6                  | 206.26                  | DC     | 108.52     |

| ID      | FROM BUS# | FROM BUS      | FRO M BUS AREA | TO BUS# | TO BUS       | TO BUS ARE A | CK T ID | CONT NAME                   | Type       | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|---------|-----------|---------------|----------------|---------|--------------|--------------|---------|-----------------------------|------------|------------|------------------------|-------------------------|--------|------------|
| 21869 9 | 27211 1   | NORMANDY ; R  | CE             | 29351 0 | O09 OP1 138  | CE           | 1       | Base Case                   | operatio n | 173.0      | 116.02                 | 142.7                   | DC     | 46.16      |
| 21909 6 | 27212 4   | ESS J339 ; B  | CE             | 27133 6 | DRESDEN ; B  | CE           | 1       | COMED_P1-3_TR81_LASCO_B-S   | operatio n | 268.0      | 112.11                 | 115.65                  | DC     | 20.89      |
| 21898 3 | 27212 5   | ESS J339 ; R  | CE             | 27133 7 | DRESDEN ; R  | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 268.0      | 121.43                 | 126.11                  | DC     | 27.69      |
| 21898 4 | 27212 5   | ESS J339 ; R  | CE             | 27133 7 | DRESDEN ; R  | CE           | 1       | Base Case                   | operatio n | 210.0      | 119.47                 | 124.43                  | DC     | 22.97      |
| 21888 6 | 27218 9   | OGLESBY ; T   | CE             | 93651 0 | AD2-066 TAP  | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 223.0      | 132.49                 | 138.92                  | DC     | 31.77      |
| 21888 7 | 27218 9   | OGLESBY ; T   | CE             | 93651 0 | AD2-066 TAP  | CE           | 1       | Base Case                   | operatio n | 173.0      | 120.24                 | 126.94                  | DC     | 25.74      |
| 21892 6 | 27218 9   | OGLESBY ; T   | CE             | 34893 5 | 4OGLESBY MN  | AMIL         | 1       | COMED_P1-2_138-L1206__R-S-A | operatio n | 202.0      | 128.0                  | 133.57                  | DC     | 24.98      |
| 21861 6 | 27226 9   | POWERTON ;    | CE             | 27228 5 | POWERTON ;RT | CE           | 1       | 271838                      | operatio n | 214.0      | 193.35                 | 246.79                  | DC     | 114.35     |
| 21862 0 | 27226 9   | POWERTON ;    | CE             | 27228 5 | POWERTON ;RT | CE           | 1       | Base Case                   | operatio n | 184.0      | 139.51                 | 167.03                  | DC     | 50.63      |
| 21899 1 | 27228 5   | POWERTON ;RT  | CE             | 34950 5 | 4HUFF        | AMIL         | 1       | 271838                      | operatio n | 268.0      | 104.12                 | 124.74                  | DC     | 55.25      |
| 21897 2 | 27236 6   | ROCK FALL; B  | CE             | 27209 4 | NELSON ; B   | CE           | 1       | COMED_P1-2_138-L15508_R-R   | operatio n | 401.0      | 114.17                 | 126.67                  | DC     | 50.1       |
| 21897 6 | 27236 6   | ROCK FALL; B  | CE             | 27209 4 | NELSON ; B   | CE           | 1       | Base Case                   | operatio n | 351.0      | 93.71                  | 105.69                  | DC     | 42.03      |
| 21861 1 | 27236 7   | ROCK FALL; R  | CE             | 27209 5 | NELSON ; R   | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 223.0      | 221.99                 | 252.76                  | DC     | 68.62      |
| 21861 5 | 27236 7   | ROCK FALL; R  | CE             | 27209 5 | NELSON ; R   | CE           | 1       | Base Case                   | operatio n | 173.0      | 179.22                 | 205.37                  | DC     | 45.25      |
| 21862 1 | 27260 7   | TOULON ; R    | CE             | 27226 9 | POWERTON ;   | CE           | 1       | 271838                      | operatio n | 194.0      | 184.24                 | 243.19                  | DC     | 114.35     |
| 21862 3 | 27260 7   | TOULON ; R    | CE             | 27226 9 | POWERTON ;   | CE           | 1       | Base Case                   | operatio n | 155.0      | 133.02                 | 165.68                  | DC     | 50.63      |
| 21887 7 | 27480 4   | UNIV PK N;RP  | CE             | 24322 9 | 05OLIVE      | AEP          | 1       | AEP_P1-2_#695A              | operatio n | 971.0      | 136.16                 | 137.2                   | DC     | 30.5       |
| 82941 9 | 27480 4   | UNIV PK N;RP  | CE             | 24322 9 | 05OLIVE      | AEP          | 1       | AEP_P1-2_#695A              | operatio n | 971.0      | 136.16                 | 137.2                   | DC     | 30.5       |
| 21919 5 | 27520 3   | NELSON ;2M    | CE             | 27082 8 | NELSON ; B   | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 480.0      | 86.32                  | 99.31                   | DC     | 62.34      |
| 21866 8 | 29351 0   | O09 OP1 138   | CE             | 27236 7 | ROCK FALL; R | CE           | 1       | 271838                      | operatio n | 283.0      | 180.82                 | 219.14                  | DC     | 108.44     |
| 21867 3 | 29351 0   | O09 OP1 138   | CE             | 27236 7 | ROCK FALL; R | CE           | 1       | Base Case                   | operatio n | 238.0      | 149.8                  | 169.16                  | DC     | 46.08      |
| 21903 1 | 29371 0   | O29           | CE             | 27236 6 | ROCK FALL; B | CE           | 1       | COMED_P1-2_138-L15508_R-R   | operatio n | 449.0      | 109.03                 | 121.36                  | DC     | 55.36      |
| 21903 4 | 29371 0   | O29           | CE             | 27236 6 | ROCK FALL; B | CE           | 1       | Base Case                   | operatio n | 351.0      | 105.73                 | 119.14                  | DC     | 47.05      |
| 21909 7 | 29371 0   | O29           | CE             | 27209 7 | NELSON ;RT   | CE           | 1       | COMED_P2-1_155-L15518__     | operatio n | 264.0      | 109.75                 | 115.51                  | DC     | 33.7       |
| 82941 3 | 34680 9   | 7CASEY        | AMIL           | 24771 2 | 05SULLIVAN   | AEP          | 1       | AEP_P1-2_#286               | operatio n | 1466.0     | 140.05                 | 141.04                  | DC     | 31.86      |
| 82941 4 | 34680 9   | 7CASEY        | AMIL           | 24771 2 | 05SULLIVAN   | AEP          | 1       | Base Case                   | operatio n | 1334.0     | 123.97                 | 124.85                  | DC     | 25.74      |
| 82988 8 | 34888 5   | 7BUNSONVILL E | AMIL           | 24322 1 | 05EUGENE     | AEP          | 1       | AEP_P1-2_#8907              | operatio n | 1793.0     | 102.49                 | 103.06                  | DC     | 30.02      |
| 21884 2 | 34891 8   | 4HENNEPIN S   | AMIL           | 27165 5 | HENNEPIN; T  | CE           | 1       | 271835                      | operatio n | 160.0      | 126.62                 | 152.15                  | DC     | 40.86      |
| 21888 3 | 34893 5   | 4OGLESBY MN   | AMIL           | 27218 9 | OGLESBY ; T  | CE           | 1       | 271837                      | operatio n | 202.0      | 122.76                 | 142.17                  | DC     | 39.21      |

| ID         | FROM BUS#  | FROM BUS    | FROM BUS AREA | TO BUS#    | TO BUS          | TO BUS AREA | CK T ID | CONT NAME                           | Type      | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|------------|------------|-------------|---------------|------------|-----------------|-------------|---------|-------------------------------------|-----------|------------|------------------------|-------------------------|--------|------------|
| 21866<br>2 | 34896<br>2 | 4KEEMIN     | AMIL          | 27211<br>1 | NORMANDY ;<br>R | CE          | 1       | 271838                              | operation | 214.0      | 171.33                 | 222.04                  | DC     | 108.52     |
| 21866<br>7 | 34896<br>2 | 4KEEMIN     | AMIL          | 27211<br>1 | NORMANDY ;<br>R | CE          | 1       | Base Case                           | operation | 173.0      | 124.75                 | 151.43                  | DC     | 46.16      |
| 21900<br>3 | 92682<br>0 | AC1-168 TAP | CE            | 27252<br>1 | STREATOR ;      | CE          | 1       | Base Case                           | operation | 142.0      | 115.72                 | 123.22                  | DC     | 23.64      |
| 21900<br>4 | 92682<br>0 | AC1-168 TAP | CE            | 27252<br>1 | STREATOR ;      | CE          | 1       | COMED_P1-<br>2_138-L1206__R-<br>S-A | operation | 184.0      | 112.09                 | 118.7                   | DC     | 27.02      |
| 21876<br>5 | 93651<br>0 | AD2-066 TAP | CE            | 27198<br>7 | MAZON ; R       | CE          | 1       | COMED_P1-<br>2_138-L0112__B-<br>S   | operation | 223.0      | 165.91                 | 172.34                  | DC     | 31.77      |
| 21876<br>6 | 93651<br>0 | AD2-066 TAP | CE            | 27198<br>7 | MAZON ; R       | CE          | 1       | Base Case                           | operation | 173.0      | 162.4                  | 169.1                   | DC     | 25.74      |

## System Reinforcements

| ID                   | Index | Facility                                                  | Upgrade Description                                                                                                                                                                                                                                                                                                                                                       | Cost         |
|----------------------|-------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 218058               | 30    | <b>ANNAWAN; R 138.0 kV - NORMANDY ; B 138.0 kV Ckt 1</b>  | <u><b>CE</b></u><br>Description : Line conductor upgrade, station conductor & 138kV bus upgrade, new line wave trap & line relay package upgrade.<br>Time Estimate : 36 Months<br>Cost : \$28,900,000                                                                                                                                                                     | \$28,900,000 |
| 217545,217546,217967 | 42    | <b>O09 OP1 138 138.0 kV - ROCK FALL; R 138.0 kV Ckt 1</b> | <u><b>CE</b></u><br>Description : Reconductor line. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br>Time Estimate : 24-30 Months<br>Cost : \$7,800,000                                                                                                            | \$7,800,000  |
| 218341               | 21    | <b>O29 138.0 kV - ROCK FALL; B 138.0 kV Ckt 1</b>         | <u><b>CE</b></u><br>Description : Station conductor upgrade.<br>Time Estimate : 30 Months<br>Cost : \$1,000,000                                                                                                                                                                                                                                                           | \$1,000,000  |
| 218192               | 29    | <b>ST JOHN ; T 345.0 kV - 17GREEN_ACRE 345.0 kV Ckt 1</b> | <u><b>CE</b></u><br>Description : The upgrade will be to mitigate the sag on the line. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br>Time Estimate : 24-30 Months<br>Cost : \$2,600,000                                                                         | \$2,600,000  |
| 218187               | 25    | <b>17STJOHN 345.0 kV - ST JOHN ; T 345.0 kV Ckt 1</b>     | <u><b>NIPS</b></u><br>Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.                                                                                                                                                                                                                  |              |
| 217932               | 34    | <b>KEWANEE ;12 138.0 kV - KEWANEE ;11 138.0 kV Ckt 1</b>  | <u><b>CE</b></u><br>Description : Upgrade station conductor at Kewanee substation.<br>Time Estimate : 24 Months<br>Cost : \$500,000                                                                                                                                                                                                                                       | \$500,000    |
| 218122               | 39    | <b>ROCK FALL; B 138.0 kV - NELSON ; B 138.0 kV Ckt 1</b>  | <u><b>CE</b></u><br>Description : Line conductor upgrade, station conductor upgrade, relay package upgrade. (Note that there may be additional 138kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study).<br>Time Estimate : 36 Months<br>Cost : \$4,500,000 | \$4,500,000  |

| ID                                        | Index | Facility                                                 | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                               | Cost         |
|-------------------------------------------|-------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 217576,218012,217575                      | 19    | TOULON ; R 138.0 kV -<br>POWERTON ; 138.0 kV<br>Ckt 1    | <u>CE</u><br>Description : Line conductor upgrade, upgrade 2-138kV disconnect switches, upgrade station 138kV bus work.<br>Time Estimate : 36 Months<br>Cost : \$42,300,000                                                                                                                                                                                                                                                                       | \$42,300,000 |
| 217665,218179,218180,219397,219398,219399 | 16    | OGLESBY ; T 138.0 kV -<br>AD2-066 TAP 138.0 kV<br>Ckt 1  | <u>CE</u><br>Description : Sag mitigation along with line conductor upgrades.<br>Time Estimate : 30 Months<br>Cost : \$ 17,300,000                                                                                                                                                                                                                                                                                                                | \$17,300,000 |
| 219424,218221                             | 37    | OGLESBY ; T 138.0 kV -<br>4OGLESBY MN 138.0 kV<br>Ckt 1  |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 218032,218033,218770,217590,219320,219321 | 3     | AD2-066 TAP 138.0 kV -<br>MAZON ; R 138.0 kV Ckt<br>1    | <u>CE</u><br>Description : Line reconductoring required. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br>Time Estimate : 24-30 Months<br>Cost : \$22,900,000                                                                                                                                                                              | \$22,900,000 |
| 219330,219331,219332                      | 31    | CRESCENT ; R 138.0 kV -<br>OGLESBY ; T 138.0 kV Ckt<br>1 | <u>CE</u><br>Description : Mitigate sag limits (28.2 miles).<br>Time Estimate : 30 Months<br>Cost : \$10,100,000                                                                                                                                                                                                                                                                                                                                  | \$10,100,000 |
| 217520,217521,217922                      | 38    | POWERTON ; 138.0 kV -<br>POWERTON ;RT 138.0 kV<br>Ckt 1  | <u>CE</u><br>Description : The post contingency flow exceeds the rating therefore an upgrade is required. The upgrade will be to re-conductor the line along with upgraded line disconnect switches, line trap and station conductor. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br>Time Estimate : 24-30 Months<br>Cost : \$13,200,000 | \$13,200,000 |
| 217728,217729,218279                      | 17    | POWERTON ;RT 138.0 kV<br>- 4HUFF 138.0 kV Ckt 1          |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 217913                                    | 35    | KEWANEE ;21 138.0 kV -<br>KEWANEE ;13 138.0 kV<br>Ckt 1  | <u>CE</u><br>Description : Upgrade station conductor at Kewanee substation, upgrade 1-138kV Bus Tie circuit breaker along with the 2-138kV Bus Tie motor operated disconnect switches. Additional pole work may be required. This cost is not included in this estimate. A final cost will be determined during the Facilities Study phase.<br>Time Estimate : 36 Months<br>Cost : \$3,200,000                                                    | \$3,200,000  |

| ID                   | Index | Facility                                                  | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Cost         |
|----------------------|-------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 219534               | 13    | LASCO STA; B 138.0 kV -<br>LASCO STA; B 345.0 kV<br>Ckt 1 | <u>CE</u><br>Description : No Violation. The ALDR rating is 572 MVA.                                                                                                                                                                                                                                                                                                                                                                                                                              | \$0          |
| 218202,218203,218204 | 28    | NELSON ; B 345.0 kV -<br>ELECT JCT; B 345.0 kV Ckt 1      | <u>CE</u><br>Description : Line & station conductor upgrades, 2-345kV disconnect switch upgrades, 1-345kV circuit breaker upgrade.(Note that there may be additional 345kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study).<br>Time Estimate : 36 Months<br>Cost : \$74,200,000                                                                                                  | \$74,200,000 |
| 217536,217947,217535 | 15    | NORMANDY ; R 138.0 kV -<br>O09 OP1 138 138.0 kV<br>Ckt 1  | <u>CE</u><br>Description : The post contingency flow exceeds the rating therefore an upgrade is required. The upgrade will be to re-conductor a portion of the line. Tower work may be required. The scope of towers and cost to be determined during the Facilities Study phase.<br>Time Estimate : 24-30 Months<br>Cost : \$13,500,000<br><br><u>AMIL</u><br>Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. | \$13,500,000 |
| 217525,217526,217927 | 45    | 4KEEMIN 138.0 kV -<br>NORMANDY ; R 138.0 kV<br>Ckt 1      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 218070               | 36    | NORMANDY ; B 138.0 kV -<br>O29 138.0 kV Ckt 1             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 218353,219493,219494 | 12    | KICKAPOO ; B 138.0 kV -<br>LASCO STA; B 138.0 kV<br>Ckt 1 | <u>CE</u><br>Description : Reconductor (0.05 miles) and replace station conductor.<br>Time Estimate : 24-30 Months<br>Cost : \$2,100,000                                                                                                                                                                                                                                                                                                                                                          | \$2,100,000  |
| 219336,219337,219335 | 7     | KEWANEE ;12 138.0 kV -<br>4EDWARDS3 138.0 kV Ckt 1        | <u>CE</u><br>Description : Mitigate sag & replace station conductor at TSS 74 Kewanee (string bus).<br>Time Estimate : 30-36 Months<br>Cost : \$43,200,000<br><br><u>AMIL</u><br>Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase.                                                                                                                                                                               | \$43,200,000 |

| ID                                        | Index | Facility                                             | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                               | Cost         |
|-------------------------------------------|-------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 217515,217516,217917                      | 32    | KEWANEE ;23 138.0 kV -<br>4KEEMIN 138.0 kV Ckt 1     | <p><b>CE</b><br/>Description : Sag mitigation and line reconductoring. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br/>Time Estimate : 30-36 Months<br/>Cost : \$5,100,000</p> <p><b>AMIL</b><br/>Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase.</p> | \$5,100,000  |
| 217753,217754,218318                      | 10    | KEWANEE ;22 138.0 kV -<br>TOULON ; R 138.0 kV Ckt 1  | <p><b>CE</b><br/>Description : Sag mitigation on line &amp; station conductor upgrade.(Note that there may be additional 138kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study).<br/>Time Estimate : 30 Months<br/>Cost : \$4,500,000</p>                                                                                         | \$4,500,000  |
| 217982                                    | 33    | KEWANEE ;11 138.0 kV -<br>ANNAWAN; R 138.0 kV Ckt 1  | <p><b>CE</b><br/>Description : Line conductor upgrades, station conductor work, upgrade line trap and new relay package.<br/>Time Estimate : 30 Months<br/>Cost : \$7,500,000</p>                                                                                                                                                                                                                                                                 | \$7,500,000  |
| 217952                                    | 6     | KEWANEE ;23 138.0 kV -<br>KEWANEE ;22 138.0 kV Ckt 1 | <p><b>CE</b><br/>Description : Construct a new Kewanee Substation<br/>Time Estimate : 60 Months<br/>Cost : \$60,000,000</p>                                                                                                                                                                                                                                                                                                                       | \$60,000,000 |
| 218111                                    | 8     | KEWANEE ;13 138.0 kV -<br>KEWANEE ;12 138.0 kV Ckt 1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 217963                                    | 11    | KEWANEE ;22 138.0 kV -<br>KEWANEE ;21 138.0 kV Ckt 1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| 219554,219555,218469,830278,830279,829053 | 4     | WILTON ; 765.0 kV -<br>05DUMONT 765.0 kV Ckt 1       | <p><b>CE</b><br/>Description : No Violation. The SLD rating is 4802 MVA.</p> <p><b>AEP</b><br/>Description :<br/>1) Replace Dumont Circuit Breaker [Breaker (3000A) Non oil - Dumont]<br/>Time Estimate : 24-36 Months<br/>Cost : \$3,000,000</p>                                                                                                                                                                                                 | \$3,000,000  |
| 218296,219248,217778,218295               | 43    | O29 138.0 kV - NELSON<br>;RT 138.0 kV Ckt 1          | <p><b>CE</b><br/>Description : Reconductor the line. Additional tower upgrades and replacement work may be required. This will increase the estimate significantly if required. The estimate given does not include this work. The cost and scope for tower work will be determined during the Facility Study.<br/>Time Estimate : 24-30 Months<br/>Cost : \$28,700,000</p>                                                                       | \$28,700,000 |

| ID                                                                    | Index | Facility                                                  | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Cost          |
|-----------------------------------------------------------------------|-------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 218144,218145,218146,828558,828559,828560,828561,828562,218142,218143 | 41    | UNIV PK N;RP 345.0 kV -<br>05OLIVE 345.0 kV Ckt 1         | <p><b>CE</b><br/>Description : Line sag mitigation. Note that there may be additional 345kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study<br/>Time Estimate : 24-30 Months<br/>Cost : \$13,800,000</p> <p><b>AEP</b><br/>Description :<br/>1) 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.<br/>Time Estimate : 6-12 Months<br/>Cost : \$337,560</p>                                                                                                        | \$ 14,137,560 |
| 217745,217746,218259,218258,219141                                    | 1     | GOODINGS ;4B 345.0 kV -<br>GOODINGS ;3B 345.0 kV<br>Ckt 1 | <p><b>CE</b><br/>Description : Upgrade 1-345kV circuit breaker &amp; associated equipment, station conductor upgrade required.<br/>Time Estimate : 24-30 Months<br/>Cost : \$ 3,600,000</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | \$3,600,000   |
| 828425,829254                                                         | 26    | 17STILLWELL 345.0 kV -<br>05DUMONT 345.0 kV Ckt<br>1      | <p><b>AEP</b><br/>Description : 1) Rebuild / reconductor 8.58 miles of conductor (ACSR ~ 954 ~ 45/7 ~ RAIL - Conductor section 1), Estimated Cost : \$17.16 million .<br/>2) Replace Dumont Wavetrap , Estimated Cost : \$200k.<br/>3) An Engineering study will need to be conducted to determine if the CT Thermal Limits can be adjusted to mitigate the overload. Estimated Cost: \$25,000.<br/>4) Replace two Dumont Breakers , Estimated Cost: \$2.4 million<br/>5) Replace 11 Dumont risers (11 Sub cond 2-1700 kcm AAC 61 Str.- Dumont) , Estimated Cost : \$ 175,000<br/>6) Replace four 3000 A Dumont Switches , Estimated Cost : \$2,000,000<br/>7) An Engineering study will need to be conducted to determine if the CT Thermal Limit settings can be adjusted to mitigate the overload. Estimated Cost: \$25,000. New relay package will be required if the settings cannot be adjusted, Estimated Cost: \$600,000.<br/>Time Estimate : 24-36 Months<br/>Cost : \$21,985,000</p> <p><b>NIPS</b><br/>Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.</p> | \$21,985,000  |

| ID                          | Index | Facility                                            | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Cost         |
|-----------------------------|-------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 219264,218745,218740,219265 | 2     | AB1-122 TAP 345.0 kV - DRESDEN ; R 345.0 kV Ckt 1   | <u>CE</u><br>Description : Mitigate sag limit (91.7 miles)<br>Time Estimate : 36 Months<br>Cost : \$ 31,500,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | \$31,500,000 |
| 217907,217510,217511        | 40    | ROCK FALL; R 138.0 kV - NELSON ; R 138.0 kV Ckt 1   | <u>CE</u><br>Description : Line reconductoring, replace 1-138kV circuit breaker and current transformers, upgrade station conductor, upgrade 1-138kV motor operated disconnect switch & 2-138kV line relay schemes and 1-138kV line trap. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies.<br>Time Estimate : 36 Months<br>Cost : \$ 7,400,000                                                                                                                                               | \$7,400,000  |
| 219548                      | 22    | AA1-018 TAP 345.0 kV - GOODINGS ;2R 345.0 kV Ckt 1  | <u>CE</u><br>Description : No Violation. The ALDR rating is 1718 MVA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$0          |
| 219524,218411,219523        | 23    | AC1-168 TAP 138.0 kV - STREATOR ; 138.0 kV Ckt 1    | <u>CE</u><br>Description : No Violation. The ALDR rating is 265 MVA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | \$0          |
| 219605                      | 18    | ROCK FALL; R 138.0 kV - ROCK FALL; B 138.0 kV Ckt 1 | <u>CE</u><br>Description : No Violation. The ALDR rating is 264 MVA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | \$0          |
| 828525                      | 44    | 7CASEY 345.0 kV - 05SULLIVAN 345.0 kV Ckt 1         | <u>AEP</u><br>Description : 1) Rebuild / reconductor 0.6 miles of conductor (ACAR ~ 1024.5 ~ 30/7 ~ RAIL1 - Conductor section 5), estimated cost : \$1.2 million<br>2) Rebuild / reconductor 1.44 miles of conductor (ACSR/PE ~ 1414 ~ 62/19 ~ - Conductor section 2), estimated cost : \$2.88 million.<br>3) Replace two Sullivan 3000A Wavetraps , Estimated cost : \$225, 000.<br>Time Estimate : 24-36 Months<br>Cost : \$4,305,000<br><br><u>AMIL</u><br>Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. | \$4,305,000  |
| 219617,219618,218462        | 5     | HENNEEPIN; T 138.0 kV - AC1-168 TAP 138.0 kV Ckt 1  | <u>CE</u><br>Description : No Violation. The ALDR rating is 322 MVA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | \$0          |

| ID                          | Index | Facility                                                  | Upgrade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                | Cost                 |
|-----------------------------|-------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 219355,219356               | 9     | KEWANEE ;13 138.0 kV -<br>4KEWANEE N 138.0 kV<br>Ckt 21   | <u>CE</u><br>Description : Replace 1113 ACSR station conductor. Assume replaced with 3" tubular bus. Assuming that this upgrade is achievable in the field, the work at TSS 74 will require significant outages and temporary switching configurations. Time Estimate : 30 Months<br>Cost : \$ 50,000,000<br><br><u>AMIL</u><br>Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. | \$50,000,000         |
| 219604                      | 24    | AD2-038 TAP 345.0 kV -<br>AA1-018 TAP 345.0 kV<br>Ckt 1   | <u>CE</u><br>Description : No Violation. No Violation. Facility loading does not exceed 100%.                                                                                                                                                                                                                                                                                                                                                                      | \$0                  |
| 218457                      | 14    | NELSON ; R 138.0 kV -<br>NELSON ;2M 138.0 kV<br>Ckt 1     | <u>CE</u><br>Description : No Violation. The ALDR rating is 598 MVA.                                                                                                                                                                                                                                                                                                                                                                                               | \$0                  |
| 218459                      | 20    | NELSON ;2M 138.0 kV -<br>NELSON ; B 345.0 kV Ckt<br>1     | <u>CE</u><br>Description : No Violation. The ALDR rating is 598 MVA.                                                                                                                                                                                                                                                                                                                                                                                               | \$0                  |
| 218346,218347,218348,218349 | 27    | E FRANKFO; B 345.0 kV -<br>CRETE EC ;BP 345.0 kV<br>Ckt 1 | <u>CE</u><br>Description : Line conductoring upgrade. Note that there may be additional 345kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study. Time Estimate : 30 Months<br>Cost : \$ 14,400,000                                                                                                                                                   | \$14,400,000         |
|                             |       |                                                           | <b>TOTAL COST</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>\$543,427,560</b> |

## 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.

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## 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 |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218258 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1      | COMED_P4_116-45-L11614_ | breaker | 1802.0     | 121.9                 | 122.64                 | DC    | 29.46     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 7.96      |
| 274722 | S-055 E      | 7.38      |
| 274728 | ELWOOD EC;5P | 4.75      |
| 274730 | ELWOOD EC;6P | 4.75      |
| 274732 | ELWOOD EC;7P | 4.75      |
| 274734 | ELWOOD EC;8P | 4.75      |
| 274735 | ELWOOD EC;4P | 4.72      |
| 274736 | ELWOOD EC;9P | 4.75      |
| 274832 | U4-027       | 8.21      |
| 274859 | EASYR;U1 E   | 7.73      |
| 274860 | EASYR;U2 E   | 7.73      |
| 274861 | TOP CROP ;1U | 0.95      |
| 274862 | TOP CROP ;2U | 1.84      |
| 290021 | O50 E        | 25.65     |
| 290051 | GSG-6; E     | 6.67      |
| 293516 | O-009 E1     | 6.67      |
| 293517 | O-009 E2     | 3.39      |
| 293518 | O-009 E3     | 3.73      |
| 293644 | O22 E1       | 24.77     |
| 293645 | O22 E2       | 48.08     |
| 293715 | O-029 E      | 7.07      |
| 293716 | O-029 E      | 3.88      |
| 293717 | O-029 E      | 3.56      |
| 293771 | O-035 E      | 4.74      |
| 294401 | BSHIL;1U E   | 6.6       |
| 294410 | BSHIL;2U E   | 6.6       |
| 294763 | P-046 E      | 6.37      |
| 295109 | WESTBROOK E  | 3.57      |
| 295111 | SUBLETTE E   | 1.82      |
| 914641 | Y2-103       | 29.53     |
| 915011 | Y3-013 1     | 2.46      |
| 915021 | Y3-013 2     | 2.46      |
| 915031 | Y3-013 3     | 2.46      |
| 916211 | Z1-072 E     | 3.58      |
| 916221 | Z1-073 E     | 3.44      |
| 916502 | Z1-106 E1    | 0.78      |
| 916504 | Z1-106 E2    | 0.78      |
| 916522 | Z1-108 E     | 1.6       |
| 918052 | AA1-018 E    | 19.58     |
| 919221 | AA1-146      | 12.7      |
| 919581 | AA2-030      | 12.7      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 919621 | AA2-039 C    | 1.61      |
| 919622 | AA2-039 E    | 10.77     |
| 920272 | AA2-123 E    | 1.59      |
| 924471 | AB2-096      | 27.85     |
| 925161 | AB2-173      | 2.27      |
| 925302 | AB2-191 E    | 0.88      |
| 925581 | AC1-033 C    | 1.08      |
| 925582 | AC1-033 E    | 7.24      |
| 926331 | AC1-110 1    | 1.2       |
| 926341 | AC1-110 2    | 1.2       |
| 926431 | AC1-114      | 1.59      |
| 926841 | AC1-171 C O1 | 0.79      |
| 926842 | AC1-171 E O1 | 5.24      |
| 927091 | AC1-204 1    | 115.11    |
| 927101 | AC1-204 2    | 114.46    |
| 927201 | AC1-214 C O1 | 1.52      |
| 927202 | AC1-214 E O1 | 4.83      |
| 927451 | AC1-142A 1   | 3.64      |
| 927461 | AC1-142A 2   | 3.67      |
| 927511 | AC1-113 1    | 0.79      |
| 927521 | AC1-113 2    | 0.79      |
| 927531 | AC1-185 1    | 0.48      |
| 927541 | AC1-185 2    | 0.48      |
| 927551 | AC1-185 3    | 0.48      |
| 927561 | AC1-185 4    | 0.48      |
| 927571 | AC1-185 5    | 0.48      |
| 927581 | AC1-185 6    | 0.48      |
| 927591 | AC1-185 7    | 0.48      |
| 927601 | AC1-185 8    | 0.48      |
| 930481 | AB1-089      | 43.91     |
| 930741 | AB1-122 1O1  | 65.29     |
| 930751 | AB1-122 2O1  | 95.35     |
| 932881 | AC2-115 1    | 1.59      |
| 932891 | AC2-115 2    | 1.59      |
| 932921 | AC2-116      | 0.56      |
| 933341 | AC2-147 C    | 0.61      |
| 933342 | AC2-147 E    | 0.99      |
| 933911 | AD1-013 C    | 1.17      |
| 933912 | AD1-013 E    | 1.87      |
| 933931 | AD1-016 C    | 0.61      |
| 933932 | AD1-016 E    | 0.99      |
| 934051 | AD1-031 C O1 | 2.2       |
| 934052 | AD1-031 E O1 | 3.58      |
| 934101 | AD1-039 1    | 6.4       |
| 934111 | AD1-039 2    | 9.34      |
| 934401 | AD1-064 C O1 | 2.11      |
| 934402 | AD1-064 E O1 | 9.87      |
| 934431 | AD1-067 C    | 0.08      |
| 934432 | AD1-067 E    | 0.35      |
| 934651 | AD1-096 C    | 0.6       |
| 934652 | AD1-096 E    | 0.99      |
| 934701 | AD1-098 C O1 | 4.41      |

| Bus #     | Bus          | MW Impact |
|-----------|--------------|-----------|
| 934702    | AD1-098 E O1 | 3.22      |
| 934871    | AD1-116 C    | 1.14      |
| 934872    | AD1-116 E    | 1.86      |
| 934881    | AD1-117 C    | 3.74      |
| 934882    | AD1-117 E    | 2.49      |
| 934971    | AD1-129 C    | 0.6       |
| 934972    | AD1-129 E    | 0.4       |
| 935001    | AD1-133 C O1 | 14.7      |
| 935002    | AD1-133 E O1 | 9.8       |
| 936291    | AD2-038 C O1 | 2.98      |
| 936292    | AD2-038 E O1 | 19.92     |
| 936511    | AD2-066 C O1 | 6.45      |
| 936512    | AD2-066 E O1 | 4.3       |
| 936791    | AD2-102 C    | 8.1       |
| 936792    | AD2-102 E    | 7.78      |
| 937001    | AD2-134 C    | 1.74      |
| 937002    | AD2-134 E    | 7.2       |
| 937311    | AD2-172 C    | 1.67      |
| 937312    | AD2-172 E    | 2.31      |
| 937331    | AD2-176 C O1 | 4.78      |
| 937332    | AD2-176 E O1 | 3.18      |
| 937401    | AD2-194 1    | 12.38     |
| 937411    | AD2-194 2    | 12.31     |
| 937531    | AD2-214 C    | 3.27      |
| 937532    | AD2-214 E    | 1.54      |
| 938511    | AE1-070 1    | 14.54     |
| 938521    | AE1-070 2    | 13.23     |
| 938851    | AE1-113 C O1 | 11.61     |
| 938852    | AE1-113 E O1 | 36.49     |
| 938861    | AE1-114 C O1 | 2.48      |
| 938862    | AE1-114 E O1 | 9.49      |
| 939051    | AE1-134 1    | 0.99      |
| 939061    | AE1-134 2    | 0.99      |
| 939321    | AE1-163 C O1 | 7.48      |
| 939322    | AE1-163 E O1 | 45.95     |
| 939631    | AE1-193 C O1 | 5.36      |
| 939632    | AE1-193 E O1 | 35.9      |
| 939681    | AE1-198 C O1 | 15.93     |
| 939682    | AE1-198 E O1 | 13.53     |
| 939691    | AE1-199      | 1.52      |
| 939701    | AE1-201 C    | 1.31      |
| 939702    | AE1-201 E    | 0.29      |
| 939732    | AE1-204 E    | 0.19      |
| 939861    | AE1-222 1    | 72.1      |
| 939871    | AE1-222 2    | 105.3     |
| 939921    | AE1-228 C O1 | 6.37      |
| 939922    | AE1-228 E O1 | 4.25      |
| 990901    | L-005 E      | 9.75      |
| AB2-013   | AB2-013      | 17.74     |
| AE1-033   | AE1-033      | 12.31     |
| BLUEG     | BLUEG        | 2.87      |
| CANNELTON | CANNELTON    | 0.0       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CARR</b>       | CARR       | 0.36             |
| <b>CATAWBA</b>    | CATAWBA    | 0.06             |
| <b>CBM-S1</b>     | CBM-S1     | 2.13             |
| <b>CBM-W1</b>     | CBM-W1     | 18.07            |
| <b>CBM-W2</b>     | CBM-W2     | 45.91            |
| <b>DEARBORN</b>   | DEARBORN   | 1.82             |
| <b>G-007</b>      | G-007      | 0.99             |
| <b>GIBSON</b>     | GIBSON     | 0.01             |
| <b>HAMLET</b>     | HAMLET     | 0.28             |
| <b>MEC</b>        | MEC        | 29.52            |
| <b>O-066</b>      | O-066      | 3.34             |
| <b>RENSSELAER</b> | RENSSELAER | 0.28             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.35             |
| <b>WEC</b>        | WEC        | 5.37             |
| <b>Z1-043</b>     | Z1-043     | 19.7             |

## 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 |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|----------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219264 | 930740    | AB1-122 TAP | CE            | 270717  | DRESDEN ; R | CE          | 1      | COMED_P7_345-L19601_B-S_+_345-L9801__R-S_FSA | tower | 1195.0     | 133.61                | 134.66                 | DC    | 27.69     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274677  | POWERTON ;5U | 26.24     |
| 274678  | POWERTON ;6U | 26.31     |
| 274861  | TOP CROP ;1U | 0.7       |
| 274862  | TOP CROP ;2U | 1.35      |
| 274879  | MINONK ;1U   | 0.74      |
| 290021  | O50 E        | 19.44     |
| 293644  | O22 E1       | 18.15     |
| 293645  | O22 E2       | 35.22     |
| 294401  | BSHIL;1U E   | 6.21      |
| 294410  | BSHIL;2U E   | 6.21      |
| 918051  | AA1-018 C    | 0.67      |
| 918052  | AA1-018 E    | 29.1      |
| 919621  | AA2-039 C    | 1.51      |
| 919622  | AA2-039 E    | 10.13     |
| 925581  | AC1-033 C    | 1.02      |
| 925582  | AC1-033 E    | 6.81      |
| 926841  | AC1-171 C O1 | 0.85      |
| 926842  | AC1-171 E O1 | 5.66      |
| 930741  | AB1-122 1O1  | 524.81    |
| 934051  | AD1-031 C O1 | 2.06      |
| 934052  | AD1-031 E O1 | 3.37      |
| 934101  | AD1-039 1    | 51.43     |
| 934871  | AD1-116 C    | 1.69      |
| 934872  | AD1-116 E    | 2.77      |
| 936291  | AD2-038 C O1 | 4.35      |
| 936292  | AD2-038 E O1 | 29.11     |
| 938851  | AE1-113 C O1 | 8.79      |
| 938852  | AE1-113 E O1 | 27.65     |
| 939321  | AE1-163 C O1 | 10.93     |
| 939322  | AE1-163 E O1 | 67.15     |
| 939631  | AE1-193 C O1 | 5.04      |
| 939632  | AE1-193 E O1 | 33.74     |
| 939681  | AE1-198 C O1 | 14.97     |
| 939682  | AE1-198 E O1 | 12.72     |
| 939861  | AE1-222 1    | 579.57    |
| 954702  | J844 E       | 27.32     |
| 990901  | L-005 E      | 9.43      |
| AB2-013 | AB2-013      | 28.99     |
| CARR    | CARR         | 0.04      |
| CBM-S1  | CBM-S1       | 3.25      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S2</b>     | CBM-S2     | 0.73             |
| <b>CBM-W1</b>     | CBM-W1     | 6.57             |
| <b>CBM-W2</b>     | CBM-W2     | 48.55            |
| <b>CIN</b>        | CIN        | 1.0              |
| <b>CPL</b>        | CPL        | 0.21             |
| <b>DEARBORN</b>   | DEARBORN   | 0.55             |
| <b>G-007</b>      | G-007      | 0.1              |
| <b>IPL</b>        | IPL        | 0.49             |
| <b>LGEE</b>       | LGEE       | 0.12             |
| <b>MEC</b>        | MEC        | 20.19            |
| <b>O-066</b>      | O-066      | 0.35             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>Z1-043</b>     | Z1-043     | 18.2             |

## 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 |
|--------|-----------|-------------|---------------|---------|-----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218033 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R | CE          | 1      | COMED_P4_001-38-L0108__ | breaker | 223.0      | 167.15                | 173.55                 | DC    | 31.64     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 7.15      |
| 274847   | GR RIDGE ;BU | 0.82      |
| 274849   | CRESCENT ;1U | 0.2       |
| 274851   | PROVIDENC;RU | 0.3       |
| 274871   | GR RIDGE ;2U | 1.04      |
| 293061   | N-015 E      | 21.37     |
| 293771   | O-035 E      | 7.88      |
| 294392   | P-010 E      | 27.14     |
| 294401   | BSHIL;1U E   | 7.09      |
| 294410   | BSHIL;2U E   | 7.09      |
| 916211   | Z1-072 E     | 5.96      |
| 917451   | Z2-081       | 0.35      |
| 919621   | AA2-039 C    | 1.73      |
| 919622   | AA2-039 E    | 11.57     |
| 925581   | AC1-033 C    | 1.16      |
| 925582   | AC1-033 E    | 7.77      |
| 926821   | AC1-168 C O1 | 1.69      |
| 926822   | AC1-168 E O1 | 11.35     |
| 927201   | AC1-214 C O1 | 2.53      |
| 927202   | AC1-214 E O1 | 8.04      |
| 934051   | AD1-031 C O1 | 2.36      |
| 934052   | AD1-031 E O1 | 3.85      |
| 936511   | AD2-066 C O1 | 44.66     |
| 936512   | AD2-066 E O1 | 29.77     |
| 939631   | AE1-193 C O1 | 5.76      |
| 939632   | AE1-193 E O1 | 38.56     |
| 939681   | AE1-198 C O1 | 17.11     |
| 939682   | AE1-198 E O1 | 14.54     |
| 953201   | J715 C       | 3.38      |
| 953202   | J715 E       | 18.26     |
| 954201   | J887 C       | 0.99      |
| 954202   | J887 E       | 5.37      |
| 990901   | L-005 E      | 9.6       |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.8       |
| CBM-S2   | CBM-S2       | 0.21      |
| CBM-W1   | CBM-W1       | 1.35      |
| CBM-W2   | CBM-W2       | 12.0      |
| CIN      | CIN          | 0.46      |
| CPL      | CPL          | 0.07      |
| DEARBORN | DEARBORN     | 0.09      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>G-007A</b> | G-007A     | 0.05             |
| <b>IPL</b>    | IPL        | 0.24             |
| <b>LGEE</b>   | LGEE       | 0.07             |
| <b>MEC</b>    | MEC        | 4.04             |
| <b>NYISO</b>  | NYISO      | 0.05             |
| <b>O-066A</b> | O-066A     | 0.02             |
| <b>VFT</b>    | VFT        | 0.12             |
| <b>Z1-043</b> | Z1-043     | 42.98            |

## Index 4

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 830278 | 270644    | WILTON ; | CE            | 243206  | 05DUMONT | AEP         | 1      | COMED_P7_345-L94507_B-S+_345-L97008_R-S | tower | 4105.0     | 107.01                | 107.57                 | DC    | 98.6      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 32.17     |
| 274722 | S-055 E      | 29.55     |
| 274772 | LINCOLN ;3U  | 4.7       |
| 274773 | LINCOLN ;4U  | 4.7       |
| 274774 | LINCOLN ;5U  | 4.7       |
| 274775 | LINCOLN ;6U  | 4.7       |
| 274776 | LINCOLN ;7U  | 4.7       |
| 274777 | LINCOLN ;8U  | 4.7       |
| 274832 | U4-027       | 28.06     |
| 274859 | EASYR;U1 E   | 29.13     |
| 274860 | EASYR;U2 E   | 29.13     |
| 274888 | PILOT HIL;1E | 44.3      |
| 274890 | CAYUG;1U E   | 36.07     |
| 274891 | CAYUG;2U E   | 36.07     |
| 275149 | KEMPTON ;1E  | 44.3      |
| 290021 | O50 E        | 49.24     |
| 290051 | GSG-6; E     | 28.08     |
| 290108 | LEEDK;1U E   | 65.57     |
| 293061 | N-015 E      | 41.22     |
| 293516 | O-009 E1     | 23.79     |
| 293517 | O-009 E2     | 12.09     |
| 293518 | O-009 E3     | 13.31     |
| 293644 | O22 E1       | 25.31     |
| 293645 | O22 E2       | 49.12     |
| 293715 | O-029 E      | 25.78     |
| 293716 | O-029 E      | 14.13     |
| 293717 | O-029 E      | 12.99     |
| 293771 | O-035 E      | 16.49     |
| 294392 | P-010 E      | 52.34     |
| 294763 | P-046 E      | 24.88     |
| 295109 | WESTBROOK E  | 15.03     |
| 295111 | SUBLETTE E   | 6.87      |
| 296125 | R-030 C3     | 9.31      |
| 296128 | R-030 E3     | 37.24     |
| 296271 | R-030 C2     | 9.2       |
| 296272 | R-030 E2     | 36.8      |
| 296308 | R-030 C1     | 9.2       |
| 296309 | R-030 E1     | 36.8      |
| 910542 | X3-005 E     | 1.57      |
| 914641 | Y2-103       | 118.19    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 915011 | Y3-013 1     | 9.85      |
| 915021 | Y3-013 2     | 9.85      |
| 915031 | Y3-013 3     | 9.85      |
| 916211 | Z1-072 E     | 12.48     |
| 916221 | Z1-073 E     | 14.49     |
| 916502 | Z1-106 E1    | 3.41      |
| 916504 | Z1-106 E2    | 3.41      |
| 916512 | Z1-107 E     | 6.53      |
| 916522 | Z1-108 E     | 6.62      |
| 917502 | Z2-087 E     | 48.13     |
| 918052 | AA1-018 E    | 40.41     |
| 919221 | AA1-146      | 46.5      |
| 919581 | AA2-030      | 46.5      |
| 919621 | AA2-039 C    | 3.78      |
| 919622 | AA2-039 E    | 25.31     |
| 920272 | AA2-123 E    | 6.51      |
| 924471 | AB2-096      | 112.6     |
| 925161 | AB2-173      | 8.29      |
| 925302 | AB2-191 E    | 3.72      |
| 925581 | AC1-033 C    | 3.62      |
| 925582 | AC1-033 E    | 24.22     |
| 926311 | AC1-109 1    | 5.21      |
| 926321 | AC1-109 2    | 5.21      |
| 926331 | AC1-110 1    | 5.12      |
| 926341 | AC1-110 2    | 5.12      |
| 926351 | AC1-111 1    | 2.07      |
| 926361 | AC1-111 2    | 2.07      |
| 926371 | AC1-111 3    | 2.07      |
| 926381 | AC1-111 4    | 2.07      |
| 926391 | AC1-111 5    | 2.07      |
| 926401 | AC1-111 6    | 2.07      |
| 926431 | AC1-114      | 6.32      |
| 926821 | AC1-168 C O1 | 2.98      |
| 926822 | AC1-168 E O1 | 20.01     |
| 927091 | AC1-204 1    | 184.27    |
| 927101 | AC1-204 2    | 184.31    |
| 927201 | AC1-214 C O1 | 5.29      |
| 927202 | AC1-214 E O1 | 16.83     |
| 927451 | AC1-142A 1   | 10.61     |
| 927461 | AC1-142A 2   | 10.61     |
| 927511 | AC1-113 1    | 3.16      |
| 927521 | AC1-113 2    | 3.16      |
| 927531 | AC1-185 1    | 1.82      |
| 927541 | AC1-185 2    | 1.82      |
| 927551 | AC1-185 3    | 1.82      |
| 927561 | AC1-185 4    | 1.82      |
| 927571 | AC1-185 5    | 1.82      |
| 927581 | AC1-185 6    | 1.82      |
| 927591 | AC1-185 7    | 1.82      |
| 927601 | AC1-185 8    | 1.82      |
| 930481 | AB1-089      | 175.15    |
| 930501 | AB1-091 O1   | 173.97    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 930741 | AB1-122 1O1  | 194.95    |
| 930751 | AB1-122 2O1  | 188.67    |
| 932881 | AC2-115 1    | 6.32      |
| 932891 | AC2-115 2    | 6.32      |
| 932921 | AC2-116      | 2.21      |
| 932931 | AC2-117      | 14.95     |
| 933341 | AC2-147 C    | 2.31      |
| 933342 | AC2-147 E    | 3.77      |
| 933411 | AC2-154 C    | 6.01      |
| 933412 | AC2-154 E    | 9.81      |
| 933431 | AC2-156 C O1 | 2.64      |
| 933432 | AC2-156 E O1 | 4.3       |
| 933911 | AD1-013 C    | 4.95      |
| 933912 | AD1-013 E    | 7.9       |
| 933931 | AD1-016 C    | 2.47      |
| 933932 | AD1-016 E    | 4.03      |
| 934051 | AD1-031 C O1 | 7.35      |
| 934052 | AD1-031 E O1 | 11.99     |
| 934101 | AD1-039 1    | 19.1      |
| 934111 | AD1-039 2    | 18.49     |
| 934401 | AD1-064 C O1 | 8.56      |
| 934402 | AD1-064 E O1 | 40.08     |
| 934431 | AD1-067 C    | 0.35      |
| 934432 | AD1-067 E    | 1.48      |
| 934651 | AD1-096 C    | 2.37      |
| 934652 | AD1-096 E    | 3.86      |
| 934701 | AD1-098 C O1 | 18.47     |
| 934702 | AD1-098 E O1 | 13.48     |
| 934721 | AD1-100 C    | 51.04     |
| 934722 | AD1-100 E    | 238.17    |
| 934871 | AD1-116 C    | 2.35      |
| 934872 | AD1-116 E    | 3.84      |
| 934881 | AD1-117 C    | 14.23     |
| 934882 | AD1-117 E    | 9.49      |
| 934971 | AD1-129 C    | 2.4       |
| 934972 | AD1-129 E    | 1.6       |
| 935001 | AD1-133 C O1 | 55.95     |
| 935002 | AD1-133 E O1 | 37.3      |
| 936291 | AD2-038 C O1 | 5.86      |
| 936292 | AD2-038 E O1 | 39.2      |
| 936371 | AD2-047 C O1 | 5.38      |
| 936372 | AD2-047 E O1 | 57.91     |
| 936461 | AD2-060      | 6.33      |
| 936511 | AD2-066 C O1 | 21.47     |
| 936512 | AD2-066 E O1 | 14.31     |
| 936781 | AD2-101 C    | 10.68     |
| 936782 | AD2-101 E    | 49.98     |
| 936791 | AD2-102 C    | 31.89     |
| 936792 | AD2-102 E    | 30.64     |
| 936961 | AD2-130      | 1.4       |
| 937001 | AD2-134 C    | 7.34      |
| 937002 | AD2-134 E    | 30.33     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937031 | AD2-137 C O1 | 10.26     |
| 937032 | AD2-137 E O1 | 48.01     |
| 937051 | AD2-140 C O1 | 10.5      |
| 937052 | AD2-140 E O1 | 49.17     |
| 937061 | AD2-141 C O1 | 10.44     |
| 937062 | AD2-141 E O1 | 49.23     |
| 937071 | AD2-142 C O1 | 21.0      |
| 937072 | AD2-142 E O1 | 98.34     |
| 937121 | AD2-148 C O1 | 8.35      |
| 937122 | AD2-148 E O1 | 39.1      |
| 937131 | AD2-149 C O1 | 8.35      |
| 937132 | AD2-149 E O1 | 39.1      |
| 937141 | AD2-150 C O1 | 8.35      |
| 937142 | AD2-150 E O1 | 39.1      |
| 937181 | AD2-155 C O1 | 8.35      |
| 937182 | AD2-155 E O1 | 39.1      |
| 937311 | AD2-172 C    | 6.53      |
| 937312 | AD2-172 E    | 9.02      |
| 937321 | AD2-175 C    | 38.91     |
| 937322 | AD2-175 E    | 25.94     |
| 937331 | AD2-176 C O1 | 19.52     |
| 937332 | AD2-176 E O1 | 13.01     |
| 937401 | AD2-194 1    | 19.82     |
| 937411 | AD2-194 2    | 19.82     |
| 937531 | AD2-214 C    | 11.6      |
| 937532 | AD2-214 E    | 5.46      |
| 938012 | AE1-002 E O1 | 20.59     |
| 938511 | AE1-070 1    | 23.28     |
| 938521 | AE1-070 2    | 21.31     |
| 938851 | AE1-113 C O1 | 22.28     |
| 938852 | AE1-113 E O1 | 70.05     |
| 938861 | AE1-114 C O1 | 9.53      |
| 938862 | AE1-114 E O1 | 36.45     |
| 939051 | AE1-134 1    | 3.61      |
| 939061 | AE1-134 2    | 3.61      |
| 939321 | AE1-163 C O1 | 14.72     |
| 939322 | AE1-163 E O1 | 90.42     |
| 939351 | AE1-166 C O1 | 26.27     |
| 939352 | AE1-166 E O1 | 24.25     |
| 939401 | AE1-172 C O1 | 16.57     |
| 939402 | AE1-172 E O1 | 77.57     |
| 939631 | AE1-193 C O1 | 17.95     |
| 939632 | AE1-193 E O1 | 120.14    |
| 939641 | AE1-194 C    | 21.1      |
| 939642 | AE1-194 E    | 141.24    |
| 939651 | AE1-195 C    | 21.1      |
| 939652 | AE1-195 E    | 141.24    |
| 939681 | AE1-198 C O1 | 53.3      |
| 939682 | AE1-198 E O1 | 45.3      |
| 939691 | AE1-199      | 6.42      |
| 939701 | AE1-201 C    | 5.34      |
| 939702 | AE1-201 E    | 1.17      |

| <b>Bus #</b> | <b>Bus</b>   | <b>MW Impact</b> |
|--------------|--------------|------------------|
| 939732       | AE1-204 E    | 0.77             |
| 939741       | AE1-205 C O1 | 23.29            |
| 939742       | AE1-205 E O1 | 32.16            |
| 939861       | AE1-222 1    | 215.29           |
| 939871       | AE1-222 2    | 208.36           |
| 939921       | AE1-228 C O1 | 27.02            |
| 939922       | AE1-228 E O1 | 18.01            |
| 939961       | AE1-233 C O1 | 6.29             |
| 939962       | AE1-233 E O1 | 25.97            |
| 940101       | AE1-252 C O1 | 28.24            |
| 940102       | AE1-252 E O1 | 18.83            |
| AB2-013      | AB2-013      | 41.07            |
| AE1-033      | AE1-033      | 47.69            |
| BLUEG        | BLUEG        | 16.82            |
| CALDERWOOD   | CALDERWOOD   | 0.23             |
| CANNELTON    | CANNELTON    | 0.26             |
| CARR         | CARR         | 1.97             |
| CATAWBA      | CATAWBA      | 0.8              |
| CBM-S1       | CBM-S1       | 3.44             |
| CBM-W1       | CBM-W1       | 76.96            |
| CBM-W2       | CBM-W2       | 140.68           |
| CHEOAH       | CHEOAH       | 0.24             |
| CHILHOWEE    | CHILHOWEE    | 0.07             |
| DEARBORN     | DEARBORN     | 6.43             |
| ELMERSMITH   | ELMERSMITH   | 0.27             |
| G-007        | G-007        | 5.53             |
| GIBSON       | GIBSON       | 0.08             |
| HAMLET       | HAMLET       | 3.02             |
| MEC          | MEC          | 98.2             |
| O-066        | O-066        | 18.61            |
| RENSSELAER   | RENSSELAER   | 1.56             |
| SANTEETLA    | SANTEETLA    | 0.08             |
| TRIMBLE      | TRIMBLE      | 1.99             |
| WEC          | WEC          | 20.94            |
| Z1-043       | Z1-043       | 73.86            |

## 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 |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219618 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L0903__R-S+_138-L1206__R-S-A | tower | 192.0      | 97.08                 | 103.42                 | DC    | 27.02     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 6.13      |
| 293771   | O-035 E      | 5.44      |
| 294401   | BSHIL;1U E   | 6.05      |
| 294410   | BSHIL;2U E   | 6.05      |
| 916211   | Z1-072 E     | 4.11      |
| 919621   | AA2-039 C    | 1.47      |
| 919622   | AA2-039 E    | 9.87      |
| 925581   | AC1-033 C    | 0.99      |
| 925582   | AC1-033 E    | 6.63      |
| 927201   | AC1-214 C O1 | 1.75      |
| 927202   | AC1-214 E O1 | 5.55      |
| 934051   | AD1-031 C O1 | 2.01      |
| 934052   | AD1-031 E O1 | 3.28      |
| 936511   | AD2-066 C O1 | 8.64      |
| 936512   | AD2-066 E O1 | 5.76      |
| 939631   | AE1-193 C O1 | 4.92      |
| 939632   | AE1-193 E O1 | 32.93     |
| 939681   | AE1-198 C O1 | 14.61     |
| 939682   | AE1-198 E O1 | 12.41     |
| 953201   | J715 C       | 1.88      |
| 953202   | J715 E       | 10.15     |
| 954201   | J887 C       | 0.84      |
| 954202   | J887 E       | 4.54      |
| 990901   | L-005 E      | 8.19      |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.19      |
| CBM-W1   | CBM-W1       | 1.69      |
| CBM-W2   | CBM-W2       | 10.8      |
| CIN      | CIN          | 0.36      |
| CPL      | CPL          | 0.06      |
| DEARBORN | DEARBORN     | 0.08      |
| G-007A   | G-007A       | 0.04      |
| IPL      | IPL          | 0.19      |
| LGEE     | LGEE         | 0.06      |
| MEC      | MEC          | 4.0       |
| NYISO    | NYISO        | 0.05      |
| O-066A   | O-066A       | 0.02      |
| VFT      | VFT          | 0.12      |
| WEC      | WEC          | 0.05      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| Z1-043 | Z1-043 | 40.82     |

## 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 |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217952 | 271835    | KEWANEE ;23 | CE            | 271839  | KEWANEE ;22 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 138.12                | 201.28                 | DC    | 314.54    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 293513     | O-009 C1     | 2.77      |
| 293514     | O-009 C2     | 1.4       |
| 293515     | O-009 C3     | 1.55      |
| 293516     | O-009 E1     | 72.28     |
| 293517     | O-009 E2     | 36.71     |
| 293518     | O-009 E3     | 40.43     |
| 926821     | AC1-168 C O1 | 1.5       |
| 926822     | AC1-168 E O1 | 10.1      |
| 934051     | AD1-031 C O1 | 23.44     |
| 934052     | AD1-031 E O1 | 38.24     |
| 939631     | AE1-193 C O1 | 57.27     |
| 939632     | AE1-193 E O1 | 383.26    |
| 939681     | AE1-198 C O1 | 170.04    |
| 939682     | AE1-198 E O1 | 144.49    |
| 953201     | J715 C       | 1.5       |
| 953202     | J715 E       | 8.11      |
| BAYOU      | BAYOU        | 0.21      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.31      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.62      |
| BLUEG      | BLUEG        | 0.1       |
| CALDERWOOD | CALDERWOOD   | 0.05      |
| CANNELTON  | CANNELTON    | 0.02      |
| CARR       | CARR         | 0.0       |
| CATAWBA    | CATAWBA      | 0.02      |
| CHEOAH     | CHEOAH       | 0.04      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| CHOCTAW    | CHOCTAW      | 0.18      |
| COFFEEN    | COFFEEN      | 0.09      |
| COTTONWOOD | COTTONWOOD   | 0.87      |
| DUCKCREEK  | DUCKCREEK    | 0.55      |
| EDWARDS    | EDWARDS      | 0.05      |
| ELMERSMITH | ELMERSMITH   | 0.03      |
| FARMERCITY | FARMERCITY   | 0.19      |
| G-007      | G-007        | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.06      |
| MECS       | MECS         | 0.16      |
| NEWTON     | NEWTON       | 0.16      |
| O-066      | O-066        | 0.03      |
| PRAIRIE    | PRAIRIE      | 0.63      |
| RENSELAER  | RENSELAER    | 0.0       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 0.35             |
| <b>TILTON</b>     | TILTON     | 0.01             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.01             |
| <b>TVA</b>        | TVA        | 0.23             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>Z1-043</b>     | Z1-043     | 39.42            |

## Index 7

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-----------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219335 | 271837    | KEWANEE ;12 | CE            | 349637  | 4EDWARDS3 | AMIL        | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R | tower | 189.0      | 136.38                | 166.03                 | DC    | 56.03     |

| Bus #     | Bus          | MW Impact |
|-----------|--------------|-----------|
| 274832    | U4-027       | 15.76     |
| 274848    | CAMPGROVE;RU | 0.63      |
| 274849    | CRESCENT ;1U | 0.19      |
| 274851    | PROVIDENC;RU | 0.29      |
| 274877    | BISHOP HL;1U | 0.48      |
| 274878    | BISHOP HL;2U | 0.48      |
| 293771    | O-035 E      | 7.64      |
| 294401    | BSHIL;1U E   | 12.57     |
| 294410    | BSHIL;2U E   | 12.57     |
| 916211    | Z1-072 E     | 5.78      |
| 919621    | AA2-039 C    | 3.06      |
| 919622    | AA2-039 E    | 20.51     |
| 925581    | AC1-033 C    | 2.06      |
| 925582    | AC1-033 E    | 13.82     |
| 926821    | AC1-168 C O1 | 0.72      |
| 926822    | AC1-168 E O1 | 4.84      |
| 926841    | AC1-171 C O1 | 0.64      |
| 926842    | AC1-171 E O1 | 4.3       |
| 927201    | AC1-214 C O1 | 2.45      |
| 927202    | AC1-214 E O1 | 7.8       |
| 934051    | AD1-031 C O1 | 4.17      |
| 934052    | AD1-031 E O1 | 6.81      |
| 939631    | AE1-193 C O1 | 10.2      |
| 939632    | AE1-193 E O1 | 68.27     |
| 939681    | AE1-198 C O1 | 30.29     |
| 939682    | AE1-198 E O1 | 25.74     |
| 953201    | J715 C       | 1.13      |
| 953202    | J715 E       | 6.11      |
| 954201    | J887 C       | 1.84      |
| 954202    | J887 E       | 9.94      |
| 990901    | L-005 E      | 16.45     |
| CBM-N     | CBM-N        | 0.01      |
| CBM-S1    | CBM-S1       | 0.05      |
| CBM-S2    | CBM-S2       | 0.02      |
| CBM-W2    | CBM-W2       | 0.35      |
| CIN       | CIN          | 0.09      |
| CPL       | CPL          | 0.01      |
| DEARBORN  | DEARBORN     | 0.0       |
| DUCKCREEK | DUCKCREEK    | 1.24      |
| EDWARDS   | EDWARDS      | 1.91      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>G-007A</b> | G-007A     | 0.02             |
| <b>IPL</b>    | IPL        | 0.05             |
| <b>LGEE</b>   | LGEE       | 0.01             |
| <b>MEC</b>    | MEC        | 0.16             |
| <b>NYISO</b>  | NYISO      | 0.02             |
| <b>O-066A</b> | O-066A     | 0.01             |
| <b>VFT</b>    | VFT        | 0.05             |
| <b>Z1-043</b> | Z1-043     | 20.32            |

## Index 8

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218111 | 271838    | KEWANEE ;13 | CE            | 271837  | KEWANEE ;12 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 121.95                | 151.33                 | DC    | 146.29    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.66      |
| 274877     | BISHOP HL;1U | 1.26      |
| 274878     | BISHOP HL;2U | 1.26      |
| 293513     | O-009 C1     | 1.29      |
| 293514     | O-009 C2     | 0.65      |
| 293515     | O-009 C3     | 0.72      |
| 293516     | O-009 E1     | 33.61     |
| 293517     | O-009 E2     | 17.07     |
| 293518     | O-009 E3     | 18.8      |
| 294401     | BSHIL;1U E   | 32.84     |
| 294410     | BSHIL;2U E   | 32.84     |
| 919621     | AA2-039 C    | 8.0       |
| 919622     | AA2-039 E    | 53.56     |
| 926821     | AC1-168 C O1 | 1.05      |
| 926822     | AC1-168 E O1 | 7.05      |
| 926841     | AC1-171 C O1 | 1.82      |
| 926842     | AC1-171 E O1 | 12.15     |
| 934051     | AD1-031 C O1 | 10.9      |
| 934052     | AD1-031 E O1 | 17.78     |
| 939631     | AE1-193 C O1 | 26.64     |
| 939632     | AE1-193 E O1 | 178.25    |
| 939681     | AE1-198 C O1 | 79.09     |
| 939682     | AE1-198 E O1 | 67.2      |
| 954201     | J887 C       | 4.81      |
| 954202     | J887 E       | 26.03     |
| 990901     | L-005 E      | 43.31     |
| CBM-N      | CBM-N        | 0.06      |
| CBM-S1     | CBM-S1       | 0.51      |
| CBM-S2     | CBM-S2       | 0.19      |
| CBM-W2     | CBM-W2       | 7.03      |
| CIN        | CIN          | 0.54      |
| CPL        | CPL          | 0.07      |
| EDWARDS    | EDWARDS      | 0.24      |
| FARMERCITY | FARMERCITY   | 0.04      |
| G-007A     | G-007A       | 0.19      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.04      |
| NYISO      | NYISO        | 0.26      |
| O-066A     | O-066A       | 0.09      |
| TATANKA    | TATANKA      | 0.28      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.52      |
| Z1-043 | Z1-043 | 28.97     |

## Index 9

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219355 | 271838    | KEWANEE ;13 | CE            | 348923  | 4KEWANEE N | AMIL        | Z1     | COMED_P7_138-L6101__-S+_138-L7713__R-S-B | tower | 449.0      | 134.53                | 162.57                 | DC    | 125.87    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 28.1      |
| 274848     | CAMPGROVE;RU | 1.41      |
| 274849     | CRESCENT ;1U | 0.52      |
| 274851     | PROVIDENC;RU | 0.8       |
| 274877     | BISHOP HL;1U | 1.08      |
| 274878     | BISHOP HL;2U | 1.08      |
| 293513     | O-009 C1     | 0.44      |
| 293514     | O-009 C2     | 0.22      |
| 293515     | O-009 C3     | 0.25      |
| 293516     | O-009 E1     | 11.49     |
| 293517     | O-009 E2     | 5.84      |
| 293518     | O-009 E3     | 6.43      |
| 293715     | O-029 E      | 5.27      |
| 293716     | O-029 E      | 2.89      |
| 293717     | O-029 E      | 2.66      |
| 293771     | O-035 E      | 20.89     |
| 294401     | BSHIL;1U E   | 28.25     |
| 294410     | BSHIL;2U E   | 28.25     |
| 916211     | Z1-072 E     | 15.81     |
| 919621     | AA2-039 C    | 6.89      |
| 919622     | AA2-039 E    | 46.08     |
| 925581     | AC1-033 C    | 4.63      |
| 925582     | AC1-033 E    | 30.97     |
| 926841     | AC1-171 C O1 | 1.41      |
| 926842     | AC1-171 E O1 | 9.43      |
| 927201     | AC1-214 C O1 | 6.7       |
| 927202     | AC1-214 E O1 | 21.31     |
| 934051     | AD1-031 C O1 | 9.38      |
| 934052     | AD1-031 E O1 | 15.3      |
| 939631     | AE1-193 C O1 | 22.92     |
| 939632     | AE1-193 E O1 | 153.37    |
| 939681     | AE1-198 C O1 | 68.05     |
| 939682     | AE1-198 E O1 | 57.82     |
| 990901     | L-005 E      | 36.88     |
| BAYOU      | BAYOU        | 0.18      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.27      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.54      |
| BLUEG      | BLUEG        | 0.5       |
| CALDERWOOD | CALDERWOOD   | 0.07      |
| CANNELTON  | CANNELTON    | 0.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CARR</b>       | CARR       | 0.03             |
| <b>CATAWBA</b>    | CATAWBA    | 0.04             |
| <b>CBM-W1</b>     | CBM-W1     | 0.45             |
| <b>CHEOAH</b>     | CHEOAH     | 0.06             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.02             |
| <b>CHOCTAW</b>    | CHOCTAW    | 0.17             |
| <b>COFFEEN</b>    | COFFEEN    | 0.13             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.72             |
| <b>DEARBORN</b>   | DEARBORN   | 0.04             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.12             |
| <b>EDWARDS</b>    | EDWARDS    | 0.33             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>FARMERCITY</b> | FARMERCITY | 0.07             |
| <b>G-007</b>      | G-007      | 0.08             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.12             |
| <b>NEWTON</b>     | NEWTON     | 0.26             |
| <b>O-066</b>      | O-066      | 0.28             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.61             |
| <b>RENSSELAER</b> | RENSSELAER | 0.02             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.04             |
| <b>TILTON</b>     | TILTON     | 0.13             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.05             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.13             |
| <b>WEC</b>        | WEC        | 0.35             |

## Index 10

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218318 | 271839    | KEWANEE ;22 | CE            | 272607  | TOULON ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 336.0      | 88.28                 | 122.57                 | DC    | 115.21    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.94      |
| 293517     | O-009 E2     | 5.05      |
| 293518     | O-009 E3     | 5.56      |
| 293771     | O-035 E      | 3.85      |
| 294401     | BSHIL;1U E   | 25.84     |
| 294410     | BSHIL;2U E   | 25.84     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.16     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.44      |
| 927201     | AC1-214 C O1 | 1.24      |
| 927202     | AC1-214 E O1 | 3.93      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.01     |
| 939631     | AE1-193 C O1 | 20.98     |
| 939632     | AE1-193 E O1 | 140.38    |
| 939681     | AE1-198 C O1 | 62.28     |
| 939682     | AE1-198 E O1 | 52.93     |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| BAYOU      | BAYOU        | 0.18      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.28      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.56      |
| BLUEG      | BLUEG        | 0.82      |
| CALDERWOOD | CALDERWOOD   | 0.09      |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.03      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.87      |
| CHEOAH     | CHEOAH       | 0.08      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |
| CHOCTAW    | CHOCTAW      | 0.19      |
| COFFEEN    | COFFEEN      | 0.36      |
| COTTONWOOD | COTTONWOOD   | 0.7       |
| DEARBORN   | DEARBORN     | 0.02      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.02             |
| <b>EDWARDS</b>    | EDWARDS    | 0.7              |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.11             |
| <b>G-007</b>      | G-007      | 0.1              |
| <b>GIBSON</b>     | GIBSON     | 0.05             |
| <b>HAMLET</b>     | HAMLET     | 0.15             |
| <b>MEC</b>        | MEC        | 1.58             |
| <b>NEWTON</b>     | NEWTON     | 0.63             |
| <b>O-066</b>      | O-066      | 0.32             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.02             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.38             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.09             |
| <b>TVA</b>        | TVA        | 0.33             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.13             |
| <b>WEC</b>        | WEC        | 0.45             |
| <b>Z1-043</b>     | Z1-043     | 21.96            |

## Index 11

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217963 | 271839    | KEWANEE ;22 | CE            | 271845  | KEWANEE ;21 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 143.6                 | 195.26                 | DC    | 257.25    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 2.91      |
| 293513     | O-009 C1     | 2.26      |
| 293514     | O-009 C2     | 1.15      |
| 293515     | O-009 C3     | 1.27      |
| 293516     | O-009 E1     | 59.11     |
| 293517     | O-009 E2     | 30.02     |
| 293518     | O-009 E3     | 33.06     |
| 926841     | AC1-171 C O1 | 3.11      |
| 926842     | AC1-171 E O1 | 20.78     |
| 934051     | AD1-031 C O1 | 19.17     |
| 934052     | AD1-031 E O1 | 31.27     |
| 939631     | AE1-193 C O1 | 46.84     |
| 939632     | AE1-193 E O1 | 313.45    |
| 939681     | AE1-198 C O1 | 139.07    |
| 939682     | AE1-198 E O1 | 118.18    |
| 990901     | L-005 E      | 75.95     |
| BAYOU      | BAYOU        | 0.05      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.06      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.11      |
| CBM-N      | CBM-N        | 0.06      |
| CBM-S1     | CBM-S1       | 0.22      |
| CBM-S2     | CBM-S2       | 0.11      |
| CBM-W2     | CBM-W2       | 3.56      |
| CIN        | CIN          | 0.63      |
| COTTONWOOD | COTTONWOOD   | 0.25      |
| CPL        | CPL          | 0.05      |
| FARMERCITY | FARMERCITY   | 0.26      |
| G-007A     | G-007A       | 0.19      |
| IPL        | IPL          | 0.35      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.14      |
| NYISO      | NYISO        | 0.26      |
| O-066A     | O-066A       | 0.09      |
| TATANKA    | TATANKA      | 0.65      |
| UNIONPOWER | UNIONPOWER   | 0.03      |
| VFT        | VFT          | 0.51      |
| Z1-043     | Z1-043       | 16.96     |

## Index 12

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219494 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B | CE          | 1      | COMED_P7_138-L1206__R-S_+_345-L2311__R-S | tower | 498.0      | 111.01                | 118.46                 | DC    | 37.11     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274832  | U4-027       | 8.41      |
| 274847  | GR RIDGE ;BU | 4.04      |
| 274849  | CRESCENT ;1U | 0.2       |
| 274851  | PROVIDENC;RU | 0.31      |
| 274871  | GR RIDGE ;2U | 5.13      |
| 274877  | BISHOP HL;1U | 0.32      |
| 274878  | BISHOP HL;2U | 0.32      |
| 293061  | N-015 E      | 105.38    |
| 293771  | O-035 E      | 8.08      |
| 294392  | P-010 E      | 133.83    |
| 294401  | BSHIL;1U E   | 8.31      |
| 294410  | BSHIL;2U E   | 8.31      |
| 916211  | Z1-072 E     | 6.11      |
| 917451  | Z2-081       | 1.24      |
| 919621  | AA2-039 C    | 2.03      |
| 919622  | AA2-039 E    | 13.56     |
| 925581  | AC1-033 C    | 1.36      |
| 925582  | AC1-033 E    | 9.11      |
| 926821  | AC1-168 C O1 | 3.02      |
| 926822  | AC1-168 E O1 | 20.26     |
| 927201  | AC1-214 C O1 | 2.59      |
| 927202  | AC1-214 E O1 | 8.24      |
| 934051  | AD1-031 C O1 | 2.77      |
| 934052  | AD1-031 E O1 | 4.51      |
| 936511  | AD2-066 C O1 | 13.99     |
| 936512  | AD2-066 E O1 | 9.33      |
| 939631  | AE1-193 C O1 | 6.76      |
| 939632  | AE1-193 E O1 | 45.22     |
| 939681  | AE1-198 C O1 | 20.06     |
| 939682  | AE1-198 E O1 | 17.05     |
| 953201  | J715 C       | 3.06      |
| 953202  | J715 E       | 16.57     |
| 954201  | J887 C       | 1.16      |
| 954202  | J887 E       | 6.26      |
| 990901  | L-005 E      | 11.25     |
| AB2-013 | AB2-013      | 5.34      |
| CARR    | CARR         | 0.01      |
| CBM-S1  | CBM-S1       | 0.87      |
| CBM-S2  | CBM-S2       | 0.2       |
| CBM-W1  | CBM-W1       | 2.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-W2</b>     | CBM-W2     | 14.12            |
| <b>CIN</b>        | CIN        | 0.43             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>DEARBORN</b>   | DEARBORN   | 0.14             |
| <b>G-007</b>      | G-007      | 0.02             |
| <b>IPL</b>        | IPL        | 0.21             |
| <b>LGEE</b>       | LGEE       | 0.05             |
| <b>MEC</b>        | MEC        | 5.3              |
| <b>O-066</b>      | O-066      | 0.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>WEC</b>        | WEC        | 0.03             |
| <b>Z1-043</b>     | Z1-043     | 54.04            |

## Index 13

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219534 | 271908    | LASCO STA; B | CE            | 270802  | LASCO STA; B | CE          | 1      | COMED_P7_138-L1205__B-S_+_138-L1206__R-S-A | tower | 498.0      | 106.28                | 113.61                 | DC    | 36.51     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274832  | U4-027       | 8.28      |
| 274847  | GR RIDGE ;BU | 3.97      |
| 274849  | CRESCENT ;1U | 0.2       |
| 274851  | PROVIDENC;RU | 0.3       |
| 274871  | GR RIDGE ;2U | 5.04      |
| 274877  | BISHOP HL;1U | 0.31      |
| 274878  | BISHOP HL;2U | 0.31      |
| 293061  | N-015 E      | 103.47    |
| 293771  | O-035 E      | 7.94      |
| 294392  | P-010 E      | 131.41    |
| 294401  | BSHIL;1U E   | 8.18      |
| 294410  | BSHIL;2U E   | 8.18      |
| 916211  | Z1-072 E     | 6.01      |
| 917451  | Z2-081       | 1.22      |
| 919621  | AA2-039 C    | 1.99      |
| 919622  | AA2-039 E    | 13.34     |
| 925581  | AC1-033 C    | 1.34      |
| 925582  | AC1-033 E    | 8.96      |
| 926821  | AC1-168 C O1 | 2.97      |
| 926822  | AC1-168 E O1 | 19.9      |
| 927201  | AC1-214 C O1 | 2.55      |
| 927202  | AC1-214 E O1 | 8.1       |
| 934051  | AD1-031 C O1 | 2.72      |
| 934052  | AD1-031 E O1 | 4.44      |
| 936511  | AD2-066 C O1 | 13.75     |
| 936512  | AD2-066 E O1 | 9.17      |
| 939631  | AE1-193 C O1 | 6.65      |
| 939632  | AE1-193 E O1 | 44.49     |
| 939681  | AE1-198 C O1 | 19.74     |
| 939682  | AE1-198 E O1 | 16.77     |
| 953201  | J715 C       | 3.01      |
| 953202  | J715 E       | 16.27     |
| 954201  | J887 C       | 1.14      |
| 954202  | J887 E       | 6.16      |
| 990901  | L-005 E      | 11.07     |
| AB2-013 | AB2-013      | 5.3       |
| CARR    | CARR         | 0.01      |
| CBM-S1  | CBM-S1       | 0.87      |
| CBM-S2  | CBM-S2       | 0.2       |
| CBM-W1  | CBM-W1       | 2.05      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-W2</b>     | CBM-W2     | 14.08            |
| <b>CIN</b>        | CIN        | 0.43             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>DEARBORN</b>   | DEARBORN   | 0.14             |
| <b>G-007</b>      | G-007      | 0.02             |
| <b>IPL</b>        | IPL        | 0.22             |
| <b>LGEE</b>       | LGEE       | 0.05             |
| <b>MEC</b>        | MEC        | 5.28             |
| <b>O-066</b>      | O-066      | 0.05             |
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>WEC</b>        | WEC        | 0.04             |
| <b>Z1-043</b>     | Z1-043     | 53.11            |

## Index 14

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218457 | 272095    | NELSON   | CE            | 275203  | NELSON | CE          | 1      | COMED_P4_155-38-L15518_ | breaker | 520.0      | 88.15                 | 100.91                 | DC    | 66.35     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 272363 | ESS H440 ; R | 0.58      |
| 274832 | U4-027       | 27.73     |
| 274848 | CAMPGROVE;RU | 0.76      |
| 274849 | CRESCENT ;1U | 0.23      |
| 274850 | MENDOTA H;RU | 0.14      |
| 274851 | PROVIDENC;RU | 0.35      |
| 274855 | GSG-6 ;RU    | 0.59      |
| 274872 | LEE DEKAL;1U | 0.84      |
| 274877 | BISHOP HL;1U | 0.57      |
| 274878 | BISHOP HL;2U | 0.57      |
| 290051 | GSG-6; E     | 15.38     |
| 290108 | LEEDK;1U E   | 22.77     |
| 293513 | O-009 C1     | 1.5       |
| 293514 | O-009 C2     | 0.76      |
| 293515 | O-009 C3     | 0.84      |
| 293516 | O-009 E1     | 39.16     |
| 293517 | O-009 E2     | 19.89     |
| 293518 | O-009 E3     | 21.9      |
| 293712 | O-029 C      | 1.88      |
| 293713 | O-029 C      | 1.03      |
| 293714 | O-029 C      | 0.95      |
| 293715 | O-029 E      | 48.99     |
| 293716 | O-029 E      | 26.86     |
| 293717 | O-029 E      | 24.69     |
| 293771 | O-035 E      | 9.22      |
| 294401 | BSHIL;1U E   | 14.85     |
| 294410 | BSHIL;2U E   | 14.85     |
| 294763 | P-046 E      | 6.26      |
| 295108 | WESTBROOK C  | 0.21      |
| 295109 | WESTBROOK E  | 8.23      |
| 295110 | SUBLETTE C   | 0.18      |
| 295111 | SUBLETTE E   | 7.76      |
| 905471 | W4-084       | 0.19      |
| 907361 | X1-087       | 0.31      |
| 916211 | Z1-072 E     | 6.98      |
| 916221 | Z1-073 E     | 7.94      |
| 919621 | AA2-039 C    | 3.62      |
| 919622 | AA2-039 E    | 24.22     |
| 925301 | AB2-191 C    | 0.23      |
| 925302 | AB2-191 E    | 2.04      |
| 925581 | AC1-033 C    | 2.43      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 925582     | AC1-033 E    | 16.29     |
| 926821     | AC1-168 C O1 | 0.97      |
| 926822     | AC1-168 E O1 | 6.52      |
| 926841     | AC1-171 C O1 | 0.87      |
| 926842     | AC1-171 E O1 | 5.82      |
| 927201     | AC1-214 C O1 | 2.96      |
| 927202     | AC1-214 E O1 | 9.41      |
| 933341     | AC2-147 C    | 1.48      |
| 933342     | AC2-147 E    | 2.41      |
| 933911     | AD1-013 C    | 2.63      |
| 933912     | AD1-013 E    | 4.2       |
| 934051     | AD1-031 C O1 | 4.94      |
| 934052     | AD1-031 E O1 | 8.07      |
| 934431     | AD1-067 C    | 0.19      |
| 934432     | AD1-067 E    | 0.81      |
| 934651     | AD1-096 C    | 1.01      |
| 934652     | AD1-096 E    | 1.65      |
| 934701     | AD1-098 C O1 | 10.67     |
| 934702     | AD1-098 E O1 | 7.79      |
| 934881     | AD1-117 C    | 9.08      |
| 934882     | AD1-117 E    | 6.06      |
| 937001     | AD2-134 C    | 4.02      |
| 937002     | AD2-134 E    | 16.61     |
| 937311     | AD2-172 C    | 1.64      |
| 937312     | AD2-172 E    | 2.27      |
| 938861     | AE1-114 C O1 | 4.78      |
| 938862     | AE1-114 E O1 | 18.28     |
| 939631     | AE1-193 C O1 | 12.08     |
| 939632     | AE1-193 E O1 | 80.84     |
| 939681     | AE1-198 C O1 | 35.87     |
| 939682     | AE1-198 E O1 | 30.48     |
| 939691     | AE1-199      | 3.41      |
| 939921     | AE1-228 C O1 | 13.95     |
| 939922     | AE1-228 E O1 | 9.3       |
| 939961     | AE1-233 C O1 | 1.23      |
| 939962     | AE1-233 E O1 | 5.07      |
| 953201     | J715 C       | 1.58      |
| 953202     | J715 E       | 8.56      |
| 954201     | J887 C       | 2.24      |
| 954202     | J887 E       | 12.09     |
| 990901     | L-005 E      | 19.73     |
| BAYOU      | BAYOU        | 0.37      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.51      |
| BIG_CAJUN2 | BIG_CAJUN2   | 1.04      |
| CALDERWOOD | CALDERWOOD   | 0.03      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-N      | CBM-N        | 0.06      |
| CHEOAH     | CHEOAH       | 0.03      |
| CHILHOWEE  | CHILHOWEE    | 0.01      |
| CHOCTAW    | CHOCTAW      | 0.26      |
| CIN        | CIN          | 0.42      |
| COTTONWOOD | COTTONWOOD   | 1.56      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CPL</b>        | CPL        | 0.01             |
| <b>FARMERCITY</b> | FARMERCITY | 0.55             |
| <b>G-007A</b>     | G-007A     | 0.19             |
| <b>HAMLET</b>     | HAMLET     | 0.0              |
| <b>IPL</b>        | IPL        | 0.25             |
| <b>LGEE</b>       | LGEE       | 0.07             |
| <b>MECS</b>       | MECS       | 0.5              |
| <b>NYISO</b>      | NYISO      | 0.27             |
| <b>O-066A</b>     | O-066A     | 0.09             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.59             |
| <b>SANTEECLA</b>  | SANTEECLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 1.17             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.25             |
| <b>VFT</b>        | VFT        | 0.52             |
| <b>Z1-043</b>     | Z1-043     | 27.51            |

## Index 15

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217947 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138 | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 162.65                | 210.44                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>O-066A</b>     | O-066A     | 0.1              |
| <b>TATANKA</b>    | TATANKA    | 0.58             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.0              |
| <b>VFT</b>        | VFT        | 0.59             |
| <b>Z1-043</b>     | Z1-043     | 22.77            |

## Index 16

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|-------------|-------------|--------|------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219397 | 272189    | OGLESBY ;T | CE            | 936510  | AD2-066 TAP | CE          | 1      | COMED_P7_138-L93008_R-R_+_138-L18706_R-R | tower | 230.0      | 124.51                | 140.11                 | DC    | 35.88     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 10.06     |
| 274849   | CRESCENT ;1U | 0.2       |
| 274851   | PROVIDENC;RU | 0.31      |
| 274877   | BISHOP HL;1U | 0.31      |
| 274878   | BISHOP HL;2U | 0.31      |
| 293771   | O-035 E      | 8.05      |
| 294401   | BSHIL;1U E   | 8.04      |
| 294410   | BSHIL;2U E   | 8.04      |
| 916211   | Z1-072 E     | 6.09      |
| 919621   | AA2-039 C    | 1.96      |
| 919622   | AA2-039 E    | 13.11     |
| 925581   | AC1-033 C    | 1.32      |
| 925582   | AC1-033 E    | 8.81      |
| 926821   | AC1-168 C O1 | 1.32      |
| 926822   | AC1-168 E O1 | 8.85      |
| 926841   | AC1-171 C O1 | 0.54      |
| 926842   | AC1-171 E O1 | 3.58      |
| 927201   | AC1-214 C O1 | 2.58      |
| 927202   | AC1-214 E O1 | 8.21      |
| 934051   | AD1-031 C O1 | 2.67      |
| 934052   | AD1-031 E O1 | 4.36      |
| 939631   | AE1-193 C O1 | 6.53      |
| 939632   | AE1-193 E O1 | 43.72     |
| 939681   | AE1-198 C O1 | 19.4      |
| 939682   | AE1-198 E O1 | 16.48     |
| 953201   | J715 C       | 3.16      |
| 953202   | J715 E       | 17.07     |
| 954201   | J887 C       | 1.15      |
| 954202   | J887 E       | 6.2       |
| 990901   | L-005 E      | 10.83     |
| CBM-N    | CBM-N        | 0.03      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.21      |
| CBM-W1   | CBM-W1       | 0.45      |
| CBM-W2   | CBM-W2       | 10.61     |
| CIN      | CIN          | 0.49      |
| CPL      | CPL          | 0.07      |
| DEARBORN | DEARBORN     | 0.06      |
| G-007A   | G-007A       | 0.1       |
| IPL      | IPL          | 0.27      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>LGEE</b>   | LGEE       | 0.08             |
| <b>MEC</b>    | MEC        | 2.58             |
| <b>NYISO</b>  | NYISO      | 0.13             |
| <b>O-066A</b> | O-066A     | 0.05             |
| <b>VFT</b>    | VFT        | 0.26             |
| <b>Z1-043</b> | Z1-043     | 38.42            |

## Index 17

| ID     | FROM BUS# | FROM BUS        | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-----------------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218279 | 272285    | POWERTON<br>;RT | CE            | 349505  | 4HUFF  | AMIL        | 1      | COMED_P4_074-38-L7413__ | breaker | 268.0      | 104.63                | 125.4                  | DC    | 55.66     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 0.9       |
| 274877     | BISHOP HL;1U | 0.48      |
| 274878     | BISHOP HL;2U | 0.48      |
| 293516     | O-009 E1     | 4.96      |
| 293517     | O-009 E2     | 2.52      |
| 293518     | O-009 E3     | 2.78      |
| 294401     | BSHIL;1U E   | 12.49     |
| 294410     | BSHIL;2U E   | 12.49     |
| 919621     | AA2-039 C    | 3.04      |
| 919622     | AA2-039 E    | 20.37     |
| 926841     | AC1-171 C O1 | 3.57      |
| 926842     | AC1-171 E O1 | 23.85     |
| 934051     | AD1-031 C O1 | 4.15      |
| 934052     | AD1-031 E O1 | 6.77      |
| 939631     | AE1-193 C O1 | 10.13     |
| 939632     | AE1-193 E O1 | 67.83     |
| 939681     | AE1-198 C O1 | 30.09     |
| 939682     | AE1-198 E O1 | 25.57     |
| 990901     | L-005 E      | 23.55     |
| BLUEG      | BLUEG        | 0.51      |
| CANNELTON  | CANNELTON    | 0.03      |
| CARR       | CARR         | 0.02      |
| CATAWBA    | CATAWBA      | 0.01      |
| CBM-S1     | CBM-S1       | 0.06      |
| CBM-W1     | CBM-W1       | 2.04      |
| CBM-W2     | CBM-W2       | 2.81      |
| COFFEEN    | COFFEEN      | 0.06      |
| DEARBORN   | DEARBORN     | 0.05      |
| EDWARDS    | EDWARDS      | 1.76      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| G-007      | G-007        | 0.06      |
| GIBSON     | GIBSON       | 0.03      |
| HAMLET     | HAMLET       | 0.03      |
| MEC        | MEC          | 3.32      |
| NEWTON     | NEWTON       | 0.22      |
| O-066      | O-066        | 0.2       |
| RENSSELAER | RENSSELAER   | 0.02      |
| TILTON     | TILTON       | 0.45      |
| TRIMBLE    | TRIMBLE      | 0.06      |
| WEC        | WEC          | 0.28      |
| Z1-043     | Z1-043       | 9.52      |



## Index 18

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219605 | 272367    | ROCK FALL; R | CE            | 272366  | ROCK FALL; B | CE          | 1      | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | tower | 230.0      | 98.07                 | 104.91                 | DC    | 34.87     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 293513     | O-009 C1     | 2.02      |
| 293514     | O-009 C2     | 1.03      |
| 293515     | O-009 C3     | 1.13      |
| 293516     | O-009 E1     | 52.76     |
| 293517     | O-009 E2     | 26.8      |
| 293518     | O-009 E3     | 29.51     |
| 293771     | O-035 E      | 4.77      |
| 294401     | BSHIL;1U E   | 7.76      |
| 294410     | BSHIL;2U E   | 7.76      |
| 916211     | Z1-072 E     | 3.61      |
| 919621     | AA2-039 C    | 1.89      |
| 919622     | AA2-039 E    | 12.65     |
| 925581     | AC1-033 C    | 1.26      |
| 925582     | AC1-033 E    | 8.45      |
| 927201     | AC1-214 C O1 | 1.53      |
| 927202     | AC1-214 E O1 | 4.87      |
| 934051     | AD1-031 C O1 | 2.6       |
| 934052     | AD1-031 E O1 | 4.24      |
| 939631     | AE1-193 C O1 | 6.35      |
| 939632     | AE1-193 E O1 | 42.49     |
| 939681     | AE1-198 C O1 | 18.85     |
| 939682     | AE1-198 E O1 | 16.02     |
| 954201     | J887 C       | 1.15      |
| 954202     | J887 E       | 6.2       |
| 990901     | L-005 E      | 10.37     |
| CBM-N      | CBM-N        | 0.03      |
| CBM-S1     | CBM-S1       | 0.16      |
| CBM-S2     | CBM-S2       | 0.07      |
| CBM-W2     | CBM-W2       | 2.69      |
| CIN        | CIN          | 0.28      |
| CPL        | CPL          | 0.03      |
| FARMERCITY | FARMERCITY   | 0.1       |
| G-007A     | G-007A       | 0.11      |
| IPL        | IPL          | 0.16      |
| LGEE       | LGEE         | 0.05      |
| MECS       | MECS         | 0.09      |
| NYISO      | NYISO        | 0.15      |
| O-066A     | O-066A       | 0.05      |
| TATANKA    | TATANKA      | 0.32      |
| VFT        | VFT          | 0.29      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| Z1-043 | Z1-043 | 14.37     |

## Index 19

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218012 | 272607    | TOULON   | CE            | 272269  | POWERTON | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 274.0      | 135.45                | 177.48                 | DC    | 115.15    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.86      |
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.92      |
| 293517     | O-009 E2     | 5.04      |
| 293518     | O-009 E3     | 5.55      |
| 293771     | O-035 E      | 3.84      |
| 294401     | BSHIL;1U E   | 25.83     |
| 294410     | BSHIL;2U E   | 25.83     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.14     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.43      |
| 927201     | AC1-214 C O1 | 1.23      |
| 927202     | AC1-214 E O1 | 3.92      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.0      |
| 939631     | AE1-193 C O1 | 20.97     |
| 939632     | AE1-193 E O1 | 140.31    |
| 939681     | AE1-198 C O1 | 62.25     |
| 939682     | AE1-198 E O1 | 52.9      |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| 990901     | L-005 E      | 48.61     |
| BAYOU      | BAYOU        | 0.19      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.3       |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.61      |
| BLUEG      | BLUEG        | 0.9       |
| CALDERWOOD | CALDERWOOD   | 0.1       |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.04      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.78      |
| CHEOAH     | CHEOAH       | 0.09      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |
| CHOCTAW    | CHOCTAW      | 0.21      |
| COFFEEN    | COFFEEN      | 0.37      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>COTTONWOOD</b> | COTTONWOOD | 0.77             |
| <b>DEARBORN</b>   | DEARBORN   | 0.03             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.03             |
| <b>EDWARDS</b>    | EDWARDS    | 0.71             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.12             |
| <b>G-007</b>      | G-007      | 0.11             |
| <b>GIBSON</b>     | GIBSON     | 0.06             |
| <b>HAMLET</b>     | HAMLET     | 0.17             |
| <b>MEC</b>        | MEC        | 1.51             |
| <b>NEWTON</b>     | NEWTON     | 0.65             |
| <b>O-066</b>      | O-066      | 0.38             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.03             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.39             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.1              |
| <b>TVA</b>        | TVA        | 0.36             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>WEC</b>        | WEC        | 0.44             |
| <b>Z1-043</b>     | Z1-043     | 21.92            |

## Index 20

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218459 | 275203    | NELSON ;2M | CE            | 270828  | NELSON ; B | CE          | 1      | COMED_P4_155-38-L15518_ | breaker | 520.0      | 88.15                 | 100.91                 | DC    | 66.35     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 272363 | ESS H440 ; R | 0.58      |
| 274832 | U4-027       | 27.73     |
| 274848 | CAMPGROVE;RU | 0.76      |
| 274849 | CRESCENT ;1U | 0.23      |
| 274850 | MENDOTA H;RU | 0.14      |
| 274851 | PROVIDENC;RU | 0.35      |
| 274855 | GSG-6 ;RU    | 0.59      |
| 274872 | LEE DEKAL;1U | 0.84      |
| 274877 | BISHOP HL;1U | 0.57      |
| 274878 | BISHOP HL;2U | 0.57      |
| 290051 | GSG-6; E     | 15.38     |
| 290108 | LEEDK;1U E   | 22.77     |
| 293513 | O-009 C1     | 1.5       |
| 293514 | O-009 C2     | 0.76      |
| 293515 | O-009 C3     | 0.84      |
| 293516 | O-009 E1     | 39.16     |
| 293517 | O-009 E2     | 19.89     |
| 293518 | O-009 E3     | 21.9      |
| 293712 | O-029 C      | 1.88      |
| 293713 | O-029 C      | 1.03      |
| 293714 | O-029 C      | 0.95      |
| 293715 | O-029 E      | 48.99     |
| 293716 | O-029 E      | 26.86     |
| 293717 | O-029 E      | 24.69     |
| 293771 | O-035 E      | 9.22      |
| 294401 | BSHIL;1U E   | 14.85     |
| 294410 | BSHIL;2U E   | 14.85     |
| 294763 | P-046 E      | 6.26      |
| 295108 | WESTBROOK C  | 0.21      |
| 295109 | WESTBROOK E  | 8.23      |
| 295110 | SUBLETTE C   | 0.18      |
| 295111 | SUBLETTE E   | 7.76      |
| 905471 | W4-084       | 0.19      |
| 907361 | X1-087       | 0.31      |
| 916211 | Z1-072 E     | 6.98      |
| 916221 | Z1-073 E     | 7.94      |
| 919621 | AA2-039 C    | 3.62      |
| 919622 | AA2-039 E    | 24.22     |
| 925301 | AB2-191 C    | 0.23      |
| 925302 | AB2-191 E    | 2.04      |
| 925581 | AC1-033 C    | 2.43      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 925582     | AC1-033 E    | 16.29     |
| 926821     | AC1-168 C O1 | 0.97      |
| 926822     | AC1-168 E O1 | 6.52      |
| 926841     | AC1-171 C O1 | 0.87      |
| 926842     | AC1-171 E O1 | 5.82      |
| 927201     | AC1-214 C O1 | 2.96      |
| 927202     | AC1-214 E O1 | 9.41      |
| 933341     | AC2-147 C    | 1.48      |
| 933342     | AC2-147 E    | 2.41      |
| 933911     | AD1-013 C    | 2.63      |
| 933912     | AD1-013 E    | 4.2       |
| 934051     | AD1-031 C O1 | 4.94      |
| 934052     | AD1-031 E O1 | 8.07      |
| 934431     | AD1-067 C    | 0.19      |
| 934432     | AD1-067 E    | 0.81      |
| 934651     | AD1-096 C    | 1.01      |
| 934652     | AD1-096 E    | 1.65      |
| 934701     | AD1-098 C O1 | 10.67     |
| 934702     | AD1-098 E O1 | 7.79      |
| 934881     | AD1-117 C    | 9.08      |
| 934882     | AD1-117 E    | 6.06      |
| 937001     | AD2-134 C    | 4.02      |
| 937002     | AD2-134 E    | 16.61     |
| 937311     | AD2-172 C    | 1.64      |
| 937312     | AD2-172 E    | 2.27      |
| 938861     | AE1-114 C O1 | 4.78      |
| 938862     | AE1-114 E O1 | 18.28     |
| 939631     | AE1-193 C O1 | 12.08     |
| 939632     | AE1-193 E O1 | 80.84     |
| 939681     | AE1-198 C O1 | 35.87     |
| 939682     | AE1-198 E O1 | 30.48     |
| 939691     | AE1-199      | 3.41      |
| 939921     | AE1-228 C O1 | 13.95     |
| 939922     | AE1-228 E O1 | 9.3       |
| 939961     | AE1-233 C O1 | 1.23      |
| 939962     | AE1-233 E O1 | 5.07      |
| 953201     | J715 C       | 1.58      |
| 953202     | J715 E       | 8.56      |
| 954201     | J887 C       | 2.24      |
| 954202     | J887 E       | 12.09     |
| 990901     | L-005 E      | 19.73     |
| BAYOU      | BAYOU        | 0.37      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.51      |
| BIG_CAJUN2 | BIG_CAJUN2   | 1.04      |
| CALDERWOOD | CALDERWOOD   | 0.03      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-N      | CBM-N        | 0.06      |
| CHEOAH     | CHEOAH       | 0.03      |
| CHILHOWEE  | CHILHOWEE    | 0.01      |
| CHOCTAW    | CHOCTAW      | 0.26      |
| CIN        | CIN          | 0.42      |
| COTTONWOOD | COTTONWOOD   | 1.56      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CPL</b>        | CPL        | 0.01             |
| <b>FARMERCITY</b> | FARMERCITY | 0.55             |
| <b>G-007A</b>     | G-007A     | 0.19             |
| <b>HAMLET</b>     | HAMLET     | 0.0              |
| <b>IPL</b>        | IPL        | 0.25             |
| <b>LGEE</b>       | LGEE       | 0.07             |
| <b>MECS</b>       | MECS       | 0.5              |
| <b>NYISO</b>      | NYISO      | 0.27             |
| <b>O-066A</b>     | O-066A     | 0.09             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.59             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 1.17             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.25             |
| <b>VFT</b>        | VFT        | 0.52             |
| <b>Z1-043</b>     | Z1-043     | 27.51            |

## Index 21

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218341 | 293710    | O29      | CE            | 272366  | ROCK FALL; B | CE          | 1      | COMED_P4_155-38-L15508_ | breaker | 498.0      | 107.7                 | 120.1                  | DC    | 61.74     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 34.46     |
| 274848 | CAMPGROVE;RU | 0.71      |
| 274849 | CRESCENT ;1U | 0.22      |
| 274851 | PROVIDENC;RU | 0.33      |
| 274877 | BISHOP HL;1U | 0.53      |
| 274878 | BISHOP HL;2U | 0.53      |
| 293513 | O-009 C1     | 0.38      |
| 293514 | O-009 C2     | 0.19      |
| 293515 | O-009 C3     | 0.21      |
| 293516 | O-009 E1     | 9.97      |
| 293517 | O-009 E2     | 5.06      |
| 293518 | O-009 E3     | 5.57      |
| 293712 | O-029 C      | 2.92      |
| 293713 | O-029 C      | 1.6       |
| 293714 | O-029 C      | 1.48      |
| 293715 | O-029 E      | 76.19     |
| 293716 | O-029 E      | 41.77     |
| 293717 | O-029 E      | 38.39     |
| 293771 | O-035 E      | 8.63      |
| 294401 | BSHIL;1U E   | 13.86     |
| 294410 | BSHIL;2U E   | 13.86     |
| 916211 | Z1-072 E     | 6.53      |
| 919621 | AA2-039 C    | 3.38      |
| 919622 | AA2-039 E    | 22.61     |
| 925581 | AC1-033 C    | 2.28      |
| 925582 | AC1-033 E    | 15.24     |
| 926821 | AC1-168 C O1 | 0.9       |
| 926822 | AC1-168 E O1 | 6.07      |
| 926841 | AC1-171 C O1 | 0.83      |
| 926842 | AC1-171 E O1 | 5.55      |
| 927201 | AC1-214 C O1 | 2.77      |
| 927202 | AC1-214 E O1 | 8.8       |
| 934051 | AD1-031 C O1 | 4.6       |
| 934052 | AD1-031 E O1 | 7.51      |
| 939631 | AE1-193 C O1 | 11.24     |
| 939632 | AE1-193 E O1 | 75.23     |
| 939681 | AE1-198 C O1 | 33.38     |
| 939682 | AE1-198 E O1 | 28.36     |
| 953201 | J715 C       | 1.44      |
| 953202 | J715 E       | 7.81      |
| 954201 | J887 C       | 2.07      |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 954202       | J887 E     | 11.18            |
| 990901       | L-005 E    | 18.43            |
| BAYOU        | BAYOU      | 0.06             |
| BIG_CAJUN1   | BIG_CAJUN1 | 0.06             |
| BIG_CAJUN2   | BIG_CAJUN2 | 0.13             |
| CBM-N        | CBM-N      | 0.05             |
| CBM-S1       | CBM-S1     | 0.16             |
| CBM-S2       | CBM-S2     | 0.09             |
| CBM-W2       | CBM-W2     | 3.44             |
| CHOCTAW      | CHOCTAW    | 0.01             |
| CIN          | CIN        | 0.46             |
| COTTONWOOD   | COTTONWOOD | 0.27             |
| CPLE         | CPLE       | 0.04             |
| FARMERCITY   | FARMERCITY | 0.24             |
| G-007A       | G-007A     | 0.17             |
| IPL          | IPL        | 0.26             |
| LGEE         | LGEE       | 0.08             |
| MECS         | MECS       | 0.19             |
| NYISO        | NYISO      | 0.23             |
| O-066A       | O-066A     | 0.08             |
| TATANKA      | TATANKA    | 0.68             |
| UNIONPOWER   | UNIONPOWER | 0.03             |
| VFT          | VFT        | 0.46             |
| Z1-043       | Z1-043     | 25.69            |

## Index 22

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|--------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219548 | 918050    | AA1-018 TAP | CE            | 270769  | GOODINGS ;2R | CE          | 1      | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A | tower | 1494.0     | 94.52                 | 95.14                  | DC    | 20.47     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274677 | POWERTON ;5U | 24.82     |
| 274678 | POWERTON ;6U | 24.88     |
| 274879 | MINONK ;1U   | 1.29      |
| 290021 | O50 E        | 33.68     |
| 293644 | O22 E1       | 6.5       |
| 293645 | O22 E2       | 12.61     |
| 294401 | BSHIL;1U E   | 4.59      |
| 294410 | BSHIL;2U E   | 4.59      |
| 918051 | AA1-018 C    | 1.89      |
| 918052 | AA1-018 E    | 82.43     |
| 919621 | AA2-039 C    | 1.12      |
| 919622 | AA2-039 E    | 7.49      |
| 925581 | AC1-033 C    | 0.75      |
| 925582 | AC1-033 E    | 5.03      |
| 926841 | AC1-171 C O1 | 0.64      |
| 926842 | AC1-171 E O1 | 4.29      |
| 930741 | AB1-122 1O1  | 102.48    |
| 930751 | AB1-122 2O1  | 121.04    |
| 934051 | AD1-031 C O1 | 1.53      |
| 934052 | AD1-031 E O1 | 2.49      |
| 934101 | AD1-039 1    | 10.04     |
| 934111 | AD1-039 2    | 11.86     |
| 934871 | AD1-116 C    | 4.8       |
| 934872 | AD1-116 E    | 7.83      |
| 936291 | AD2-038 C O1 | 8.22      |
| 936292 | AD2-038 E O1 | 54.98     |
| 938851 | AE1-113 C O1 | 15.24     |
| 938852 | AE1-113 E O1 | 47.91     |
| 939321 | AE1-163 C O1 | 20.65     |
| 939322 | AE1-163 E O1 | 126.82    |
| 939631 | AE1-193 C O1 | 3.73      |
| 939632 | AE1-193 E O1 | 24.94     |
| 939681 | AE1-198 C O1 | 11.07     |
| 939682 | AE1-198 E O1 | 9.4       |
| 939861 | AE1-222 1    | 113.17    |
| 939871 | AE1-222 2    | 133.67    |
| 951631 | J456 C       | 1.31      |
| 951632 | J456 E       | 7.1       |
| 954702 | J844 E       | 20.17     |
| 990901 | L-005 E      | 7.01      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AB2-013</b>    | AB2-013    | 21.27            |
| <b>CARR</b>       | CARR       | 0.05             |
| <b>CBM-S1</b>     | CBM-S1     | 2.46             |
| <b>CBM-S2</b>     | CBM-S2     | 0.52             |
| <b>CBM-W1</b>     | CBM-W1     | 4.37             |
| <b>CBM-W2</b>     | CBM-W2     | 37.42            |
| <b>CIN</b>        | CIN        | 0.84             |
| <b>CPLE</b>       | CPLE       | 0.14             |
| <b>DEARBORN</b>   | DEARBORN   | 0.49             |
| <b>G-007</b>      | G-007      | 0.12             |
| <b>IPL</b>        | IPL        | 0.4              |
| <b>LGEE</b>       | LGEE       | 0.09             |
| <b>MEC</b>        | MEC        | 14.95            |
| <b>O-066</b>      | O-066      | 0.42             |
| <b>RENSSELAER</b> | RENSSELAER | 0.04             |
| <b>Z1-043</b>     | Z1-043     | 13.46            |

## Index 23

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219524 | 926820    | AC1-168 TAP | CE            | 272521  | STREATOR ; | CE          | 1      | COMED_P7_138-L0903__R-S+_138-L1206__R-S-A | tower | 192.0      | 107.83                | 114.17                 | DC    | 27.02     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 6.13      |
| 293771   | O-035 E      | 5.44      |
| 294401   | BSHIL;1U E   | 6.05      |
| 294410   | BSHIL;2U E   | 6.05      |
| 916211   | Z1-072 E     | 4.11      |
| 919621   | AA2-039 C    | 1.47      |
| 919622   | AA2-039 E    | 9.87      |
| 925581   | AC1-033 C    | 0.99      |
| 925582   | AC1-033 E    | 6.63      |
| 926821   | AC1-168 C O1 | 2.68      |
| 926822   | AC1-168 E O1 | 17.96     |
| 927201   | AC1-214 C O1 | 1.75      |
| 927202   | AC1-214 E O1 | 5.55      |
| 934051   | AD1-031 C O1 | 2.01      |
| 934052   | AD1-031 E O1 | 3.28      |
| 936511   | AD2-066 C O1 | 8.64      |
| 936512   | AD2-066 E O1 | 5.76      |
| 939631   | AE1-193 C O1 | 4.92      |
| 939632   | AE1-193 E O1 | 32.93     |
| 939681   | AE1-198 C O1 | 14.61     |
| 939682   | AE1-198 E O1 | 12.41     |
| 953201   | J715 C       | 1.88      |
| 953202   | J715 E       | 10.15     |
| 954201   | J887 C       | 0.84      |
| 954202   | J887 E       | 4.54      |
| 990901   | L-005 E      | 8.19      |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.19      |
| CBM-W1   | CBM-W1       | 1.69      |
| CBM-W2   | CBM-W2       | 10.8      |
| CIN      | CIN          | 0.36      |
| CPL      | CPL          | 0.06      |
| DEARBORN | DEARBORN     | 0.08      |
| G-007A   | G-007A       | 0.04      |
| IPL      | IPL          | 0.19      |
| LGEE     | LGEE         | 0.06      |
| MEC      | MEC          | 4.0       |
| NYISO    | NYISO        | 0.05      |
| O-066A   | O-066A       | 0.02      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.12      |
| WEC    | WEC    | 0.05      |
| Z1-043 | Z1-043 | 40.82     |

## Index 24

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219604 | 936290    | AD2-038 TAP | CE            | 918050  | AA1-018 TAP | CE          | 1      | COMED_P7_345-L1202__B-S_+_345-L1227__R-S-A | tower | 1494.0     | 88.17                 | 88.79                  | DC    | 20.51     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274677 | POWERTON ;5U | 24.83     |
| 274678 | POWERTON ;6U | 24.89     |
| 274879 | MINONK ;1U   | 1.29      |
| 290021 | O50 E        | 33.7      |
| 293644 | O22 E1       | 6.5       |
| 293645 | O22 E2       | 12.63     |
| 293771 | O-035 E      | 3.1       |
| 294401 | BSHIL;1U E   | 4.6       |
| 294410 | BSHIL;2U E   | 4.6       |
| 916211 | Z1-072 E     | 2.34      |
| 919621 | AA2-039 C    | 1.12      |
| 919622 | AA2-039 E    | 7.5       |
| 925581 | AC1-033 C    | 0.75      |
| 925582 | AC1-033 E    | 5.04      |
| 926841 | AC1-171 C O1 | 0.64      |
| 926842 | AC1-171 E O1 | 4.29      |
| 927201 | AC1-214 C O1 | 0.99      |
| 927202 | AC1-214 E O1 | 3.16      |
| 930741 | AB1-122 1O1  | 102.53    |
| 930751 | AB1-122 2O1  | 121.11    |
| 934051 | AD1-031 C O1 | 1.53      |
| 934052 | AD1-031 E O1 | 2.49      |
| 934101 | AD1-039 1    | 10.05     |
| 934111 | AD1-039 2    | 11.87     |
| 936291 | AD2-038 C O1 | 8.22      |
| 936292 | AD2-038 E O1 | 55.0      |
| 938851 | AE1-113 C O1 | 15.25     |
| 938852 | AE1-113 E O1 | 47.93     |
| 939321 | AE1-163 C O1 | 20.65     |
| 939322 | AE1-163 E O1 | 126.85    |
| 939631 | AE1-193 C O1 | 3.73      |
| 939632 | AE1-193 E O1 | 24.99     |
| 939681 | AE1-198 C O1 | 11.09     |
| 939682 | AE1-198 E O1 | 9.42      |
| 939861 | AE1-222 1    | 113.23    |
| 939871 | AE1-222 2    | 133.74    |
| 951631 | J456 C       | 1.31      |
| 951632 | J456 E       | 7.1       |
| 953951 | J859         | 8.13      |
| 954702 | J844 E       | 20.17     |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 990901       | L-005 E    | 7.02             |
| AB2-013      | AB2-013    | 21.29            |
| CARR         | CARR       | 0.04             |
| CBM-S1       | CBM-S1     | 2.49             |
| CBM-S2       | CBM-S2     | 0.53             |
| CBM-W1       | CBM-W1     | 4.43             |
| CBM-W2       | CBM-W2     | 37.66            |
| CIN          | CIN        | 0.86             |
| CPL          | CPL        | 0.15             |
| DEARBORN     | DEARBORN   | 0.48             |
| G-007        | G-007      | 0.11             |
| IPL          | IPL        | 0.42             |
| LGEE         | LGEE       | 0.09             |
| MEC          | MEC        | 15.0             |
| O-066        | O-066      | 0.38             |
| RENSSELAER   | RENSSELAER | 0.04             |
| Z1-043       | Z1-043     | 13.48            |

## Index 25

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218187 | 255112    | 17STJOHN | NIPS          | 270886  | ST JOHN ;T | CE          | 1      | AEP_P4_#2978_05DUMONT 765_B | breaker | 1091.0     | 132.01                | 132.23                 | DC    | 27.79     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 8.96      |
| 274654 | BRAIDWOOD;1U | 18.89     |
| 274655 | BRAIDWOOD;2U | 18.08     |
| 274687 | WILL CNTY;4U | 7.96      |
| 274722 | S-055 E      | 8.37      |
| 274751 | CRETE EC ;1U | 3.35      |
| 274752 | CRETE EC ;2U | 3.35      |
| 274753 | CRETE EC ;3U | 3.35      |
| 274754 | CRETE EC ;4U | 3.35      |
| 274832 | U4-027       | 7.88      |
| 274859 | EASYR;U1 E   | 8.1       |
| 274860 | EASYR;U2 E   | 8.1       |
| 274861 | TOP CROP ;1U | 0.32      |
| 274862 | TOP CROP ;2U | 0.63      |
| 274888 | PILOT HIL;1E | 12.69     |
| 274890 | CAYUG;1U E   | 9.71      |
| 274891 | CAYUG;2U E   | 9.71      |
| 275149 | KEMPTON ;1E  | 12.69     |
| 290021 | O50 E        | 14.55     |
| 290051 | GSG-6; E     | 7.7       |
| 290108 | LEEDK;1U E   | 17.91     |
| 293061 | N-015 E      | 11.5      |
| 293516 | O-009 E1     | 6.65      |
| 293517 | O-009 E2     | 3.38      |
| 293518 | O-009 E3     | 3.72      |
| 293644 | O22 E1       | 8.45      |
| 293645 | O22 E2       | 16.4      |
| 293715 | O-029 E      | 7.18      |
| 293716 | O-029 E      | 3.94      |
| 293717 | O-029 E      | 3.62      |
| 293771 | O-035 E      | 4.65      |
| 294392 | P-010 E      | 14.6      |
| 294763 | P-046 E      | 6.92      |
| 295109 | WESTBROOK E  | 4.12      |
| 295111 | SUBLETTE E   | 1.91      |
| 910542 | X3-005 E     | 0.44      |
| 914641 | Y2-103       | 33.49     |
| 915011 | Y3-013 1     | 2.79      |
| 915021 | Y3-013 2     | 2.79      |
| 915031 | Y3-013 3     | 2.79      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916211 | Z1-072 E     | 3.52      |
| 916221 | Z1-073 E     | 3.97      |
| 916502 | Z1-106 E1    | 0.93      |
| 916504 | Z1-106 E2    | 0.93      |
| 916512 | Z1-107 E     | 1.84      |
| 916522 | Z1-108 E     | 1.84      |
| 918052 | AA1-018 E    | 11.55     |
| 919221 | AA1-146      | 12.94     |
| 919581 | AA2-030      | 12.94     |
| 920272 | AA2-123 E    | 1.81      |
| 924471 | AB2-096      | 31.34     |
| 925161 | AB2-173      | 2.31      |
| 925302 | AB2-191 E    | 1.02      |
| 925581 | AC1-033 C    | 1.02      |
| 925582 | AC1-033 E    | 6.83      |
| 926311 | AC1-109 1    | 1.41      |
| 926321 | AC1-109 2    | 1.41      |
| 926331 | AC1-110 1    | 1.41      |
| 926341 | AC1-110 2    | 1.41      |
| 926351 | AC1-111 1    | 0.56      |
| 926361 | AC1-111 2    | 0.56      |
| 926371 | AC1-111 3    | 0.56      |
| 926381 | AC1-111 4    | 0.56      |
| 926391 | AC1-111 5    | 0.56      |
| 926401 | AC1-111 6    | 0.56      |
| 926431 | AC1-114      | 1.76      |
| 926821 | AC1-168 C O1 | 0.84      |
| 926822 | AC1-168 E O1 | 5.64      |
| 927091 | AC1-204 1    | 54.79     |
| 927101 | AC1-204 2    | 54.72     |
| 927201 | AC1-214 C O1 | 1.49      |
| 927202 | AC1-214 E O1 | 4.75      |
| 927451 | AC1-142A 1   | 3.17      |
| 927461 | AC1-142A 2   | 3.18      |
| 927511 | AC1-113 1    | 0.88      |
| 927521 | AC1-113 2    | 0.88      |
| 927531 | AC1-185 1    | 0.51      |
| 927541 | AC1-185 2    | 0.51      |
| 927551 | AC1-185 3    | 0.51      |
| 927561 | AC1-185 4    | 0.51      |
| 927571 | AC1-185 5    | 0.51      |
| 927581 | AC1-185 6    | 0.51      |
| 927591 | AC1-185 7    | 0.51      |
| 927601 | AC1-185 8    | 0.51      |
| 930481 | AB1-089      | 48.61     |
| 930501 | AB1-091 O1   | 50.14     |
| 930741 | AB1-122 1O1  | 52.67     |
| 930751 | AB1-122 2O1  | 55.87     |
| 932881 | AC2-115 1    | 1.76      |
| 932891 | AC2-115 2    | 1.76      |
| 932921 | AC2-116      | 0.62      |
| 933341 | AC2-147 C    | 0.64      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933342 | AC2-147 E    | 1.05      |
| 933411 | AC2-154 C    | 1.72      |
| 933412 | AC2-154 E    | 2.81      |
| 933431 | AC2-156 C O1 | 0.7       |
| 933432 | AC2-156 E O1 | 1.15      |
| 933911 | AD1-013 C    | 1.36      |
| 933912 | AD1-013 E    | 2.17      |
| 933931 | AD1-016 C    | 0.69      |
| 933932 | AD1-016 E    | 1.12      |
| 934101 | AD1-039 1    | 5.16      |
| 934111 | AD1-039 2    | 5.48      |
| 934401 | AD1-064 C O1 | 2.37      |
| 934402 | AD1-064 E O1 | 11.1      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.41      |
| 934651 | AD1-096 C    | 0.66      |
| 934652 | AD1-096 E    | 1.07      |
| 934701 | AD1-098 C O1 | 5.07      |
| 934702 | AD1-098 E O1 | 3.7       |
| 934721 | AD1-100 C    | 14.17     |
| 934722 | AD1-100 E    | 66.14     |
| 934871 | AD1-116 C    | 0.67      |
| 934872 | AD1-116 E    | 1.1       |
| 934881 | AD1-117 C    | 3.96      |
| 934882 | AD1-117 E    | 2.64      |
| 934971 | AD1-129 C    | 0.67      |
| 934972 | AD1-129 E    | 0.45      |
| 935001 | AD1-133 C O1 | 15.09     |
| 935002 | AD1-133 E O1 | 10.06     |
| 936291 | AD2-038 C O1 | 1.7       |
| 936292 | AD2-038 E O1 | 11.38     |
| 936371 | AD2-047 C O1 | 1.54      |
| 936372 | AD2-047 E O1 | 16.59     |
| 936461 | AD2-060      | 1.81      |
| 936511 | AD2-066 C O1 | 6.15      |
| 936512 | AD2-066 E O1 | 4.1       |
| 936781 | AD2-101 C    | 3.06      |
| 936782 | AD2-101 E    | 14.32     |
| 936791 | AD2-102 C    | 8.89      |
| 936792 | AD2-102 E    | 8.54      |
| 936961 | AD2-130      | 0.42      |
| 937001 | AD2-134 C    | 2.01      |
| 937002 | AD2-134 E    | 8.32      |
| 937031 | AD2-137 C O1 | 2.43      |
| 937032 | AD2-137 E O1 | 11.38     |
| 937051 | AD2-140 C O1 | 2.43      |
| 937052 | AD2-140 E O1 | 11.38     |
| 937061 | AD2-141 C O1 | 2.42      |
| 937062 | AD2-141 E O1 | 11.39     |
| 937071 | AD2-142 C O1 | 4.86      |
| 937072 | AD2-142 E O1 | 22.76     |
| 937121 | AD2-148 C O1 | 2.41      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 937122  | AD2-148 E O1 | 11.27     |
| 937131  | AD2-149 C O1 | 2.41      |
| 937132  | AD2-149 E O1 | 11.27     |
| 937141  | AD2-150 C O1 | 2.41      |
| 937142  | AD2-150 E O1 | 11.27     |
| 937181  | AD2-155 C O1 | 2.41      |
| 937182  | AD2-155 E O1 | 11.27     |
| 937311  | AD2-172 C    | 1.82      |
| 937312  | AD2-172 E    | 2.51      |
| 937321  | AD2-175 C    | 11.21     |
| 937322  | AD2-175 E    | 7.48      |
| 937331  | AD2-176 C O1 | 5.43      |
| 937332  | AD2-176 E O1 | 3.62      |
| 937401  | AD2-194 1    | 5.89      |
| 937411  | AD2-194 2    | 5.88      |
| 937531  | AD2-214 C    | 3.24      |
| 937532  | AD2-214 E    | 1.52      |
| 938012  | AE1-002 E O1 | 4.88      |
| 938511  | AE1-070 1    | 6.92      |
| 938521  | AE1-070 2    | 6.33      |
| 938851  | AE1-113 C O1 | 6.58      |
| 938852  | AE1-113 E O1 | 20.7      |
| 938861  | AE1-114 C O1 | 2.65      |
| 938862  | AE1-114 E O1 | 10.13     |
| 939051  | AE1-134 1    | 1.01      |
| 939061  | AE1-134 2    | 1.01      |
| 939321  | AE1-163 C O1 | 4.27      |
| 939322  | AE1-163 E O1 | 26.24     |
| 939351  | AE1-166 C O1 | 7.54      |
| 939352  | AE1-166 E O1 | 6.96      |
| 939401  | AE1-172 C O1 | 4.45      |
| 939402  | AE1-172 E O1 | 20.86     |
| 939641  | AE1-194 C    | 18.89     |
| 939642  | AE1-194 E    | 126.42    |
| 939651  | AE1-195 C    | 18.89     |
| 939652  | AE1-195 E    | 126.42    |
| 939681  | AE1-198 C O1 | 3.53      |
| 939682  | AE1-198 E O1 | 3.0       |
| 939691  | AE1-199      | 1.76      |
| 939701  | AE1-201 C    | 1.48      |
| 939702  | AE1-201 E    | 0.33      |
| 939732  | AE1-204 E    | 0.22      |
| 939861  | AE1-222 1    | 58.17     |
| 939871  | AE1-222 2    | 61.7      |
| 939921  | AE1-228 C O1 | 7.41      |
| 939922  | AE1-228 E O1 | 4.94      |
| 939961  | AE1-233 C O1 | 1.72      |
| 939962  | AE1-233 E O1 | 7.09      |
| 940101  | AE1-252 C O1 | 7.59      |
| 940102  | AE1-252 E O1 | 5.06      |
| AB2-013 | AB2-013      | 11.82     |
| AE1-033 | AE1-033      | 13.36     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>BLUEG</b>      | BLUEG      | 4.19             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.05             |
| <b>CANNELTON</b>  | CANNELTON  | 0.07             |
| <b>CARR</b>       | CARR       | 0.56             |
| <b>CATAWBA</b>    | CATAWBA    | 0.21             |
| <b>CBM-S1</b>     | CBM-S1     | 1.06             |
| <b>CBM-W1</b>     | CBM-W1     | 19.6             |
| <b>CBM-W2</b>     | CBM-W2     | 39.02            |
| <b>CHEOAH</b>     | CHEOAH     | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.01             |
| <b>DEARBORN</b>   | DEARBORN   | 2.36             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>G-007</b>      | G-007      | 1.57             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.82             |
| <b>MEC</b>        | MEC        | 27.54            |
| <b>O-066</b>      | O-066      | 5.27             |
| <b>RENSSELAER</b> | RENSSELAER | 0.44             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.49             |
| <b>WEC</b>        | WEC        | 5.92             |
| <b>Z1-043</b>     | Z1-043     | 20.86            |

## Index 26

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CK T ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPACT |
|--------|-----------|------------|---------------|---------|----------|-------------|---------|-----------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 828425 | 255113    | 17STILLWEL | NIPS          | 243219  | 05DUMONT | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B | breaker | 1409.0     | 177.96                 | 178.75                  | DC     | 43.98     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 13.92     |
| 274722 | S-055 E      | 12.95     |
| 274724 | RIVER EC ;11 | 4.75      |
| 274788 | SE CHICAG;5U | 1.14      |
| 274789 | SE CHICAG;6U | 1.14      |
| 274790 | SE CHICAG;7U | 1.14      |
| 274791 | SE CHICAG;8U | 1.14      |
| 274795 | SE CHICAG;2U | 1.12      |
| 274832 | U4-027       | 12.45     |
| 274859 | EASYR;U1 E   | 12.67     |
| 274860 | EASYR;U2 E   | 12.67     |
| 274888 | PILOT HIL;1E | 22.3      |
| 274890 | CAYUG;1U E   | 15.76     |
| 274891 | CAYUG;2U E   | 15.76     |
| 275149 | KEMPTON ;1E  | 22.3      |
| 290021 | O50 E        | 22.31     |
| 290051 | GSG-6; E     | 12.02     |
| 290108 | LEEDK;1U E   | 27.92     |
| 293061 | N-015 E      | 17.54     |
| 293516 | O-009 E1     | 10.45     |
| 293517 | O-009 E2     | 5.31      |
| 293518 | O-009 E3     | 5.85      |
| 293644 | O22 E1       | 11.95     |
| 293645 | O22 E2       | 23.2      |
| 293715 | O-029 E      | 11.27     |
| 293716 | O-029 E      | 6.18      |
| 293717 | O-029 E      | 5.68      |
| 293771 | O-035 E      | 7.36      |
| 294392 | P-010 E      | 22.27     |
| 294763 | P-046 E      | 10.8      |
| 295109 | WESTBROOK E  | 6.44      |
| 295111 | SUBLETTE E   | 2.99      |
| 910542 | X3-005 E     | 1.0       |
| 914641 | Y2-103       | 51.8      |
| 915011 | Y3-013 1     | 4.32      |
| 915021 | Y3-013 2     | 4.32      |
| 915031 | Y3-013 3     | 4.32      |
| 916211 | Z1-072 E     | 5.57      |
| 916221 | Z1-073 E     | 6.2       |
| 916502 | Z1-106 E1    | 1.45      |
| 916504 | Z1-106 E2    | 1.45      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916512 | Z1-107 E     | 3.03      |
| 916522 | Z1-108 E     | 2.86      |
| 918052 | AA1-018 E    | 18.74     |
| 919221 | AA1-146      | 20.28     |
| 919581 | AA2-030      | 20.28     |
| 920272 | AA2-123 E    | 2.81      |
| 924471 | AB2-096      | 48.73     |
| 925161 | AB2-173      | 3.62      |
| 925302 | AB2-191 E    | 1.59      |
| 925581 | AC1-033 C    | 1.61      |
| 925582 | AC1-033 E    | 10.81     |
| 925881 | AC1-067 O1   | 198.49    |
| 926311 | AC1-109 1    | 2.19      |
| 926321 | AC1-109 2    | 2.19      |
| 926331 | AC1-110 1    | 2.18      |
| 926341 | AC1-110 2    | 2.18      |
| 926351 | AC1-111 1    | 0.88      |
| 926361 | AC1-111 2    | 0.88      |
| 926371 | AC1-111 3    | 0.88      |
| 926381 | AC1-111 4    | 0.88      |
| 926391 | AC1-111 5    | 0.88      |
| 926401 | AC1-111 6    | 0.88      |
| 926431 | AC1-114      | 2.74      |
| 926821 | AC1-168 C O1 | 1.32      |
| 926822 | AC1-168 E O1 | 8.85      |
| 927091 | AC1-204 1    | 83.26     |
| 927101 | AC1-204 2    | 83.23     |
| 927201 | AC1-214 C O1 | 2.36      |
| 927202 | AC1-214 E O1 | 7.51      |
| 927451 | AC1-142A 1   | 4.83      |
| 927461 | AC1-142A 2   | 4.84      |
| 927511 | AC1-113 1    | 1.37      |
| 927521 | AC1-113 2    | 1.37      |
| 927531 | AC1-185 1    | 0.79      |
| 927541 | AC1-185 2    | 0.79      |
| 927551 | AC1-185 3    | 0.79      |
| 927561 | AC1-185 4    | 0.79      |
| 927571 | AC1-185 5    | 0.79      |
| 927581 | AC1-185 6    | 0.79      |
| 927591 | AC1-185 7    | 0.79      |
| 927601 | AC1-185 8    | 0.79      |
| 930481 | AB1-089      | 75.67     |
| 930501 | AB1-091 O1   | 88.22     |
| 930741 | AB1-122 1O1  | 82.42     |
| 930751 | AB1-122 2O1  | 84.95     |
| 932881 | AC2-115 1    | 2.74      |
| 932891 | AC2-115 2    | 2.74      |
| 932921 | AC2-116      | 0.96      |
| 932931 | AC2-117      | 5.81      |
| 933341 | AC2-147 C    | 1.0       |
| 933342 | AC2-147 E    | 1.64      |
| 933411 | AC2-154 C    | 3.03      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933412 | AC2-154 E    | 4.94      |
| 933431 | AC2-156 C O1 | 1.1       |
| 933432 | AC2-156 E O1 | 1.79      |
| 933911 | AD1-013 C    | 2.12      |
| 933912 | AD1-013 E    | 3.38      |
| 933931 | AD1-016 C    | 1.07      |
| 933932 | AD1-016 E    | 1.74      |
| 934101 | AD1-039 1    | 8.08      |
| 934111 | AD1-039 2    | 8.33      |
| 934401 | AD1-064 C O1 | 3.69      |
| 934402 | AD1-064 E O1 | 17.25     |
| 934431 | AD1-067 C    | 0.15      |
| 934432 | AD1-067 E    | 0.63      |
| 934651 | AD1-096 C    | 1.03      |
| 934652 | AD1-096 E    | 1.67      |
| 934701 | AD1-098 C O1 | 7.91      |
| 934702 | AD1-098 E O1 | 5.78      |
| 934721 | AD1-100 C    | 22.45     |
| 934722 | AD1-100 E    | 104.76    |
| 934871 | AD1-116 C    | 1.09      |
| 934872 | AD1-116 E    | 1.78      |
| 934881 | AD1-117 C    | 6.19      |
| 934882 | AD1-117 E    | 4.13      |
| 934971 | AD1-129 C    | 1.04      |
| 934972 | AD1-129 E    | 0.69      |
| 935001 | AD1-133 C O1 | 24.06     |
| 935002 | AD1-133 E O1 | 16.04     |
| 936291 | AD2-038 C O1 | 2.69      |
| 936292 | AD2-038 E O1 | 18.02     |
| 936371 | AD2-047 C O1 | 2.71      |
| 936372 | AD2-047 E O1 | 29.15     |
| 936461 | AD2-060      | 3.19      |
| 936511 | AD2-066 C O1 | 9.67      |
| 936512 | AD2-066 E O1 | 6.45      |
| 936781 | AD2-101 C    | 5.9       |
| 936782 | AD2-101 E    | 27.62     |
| 936791 | AD2-102 C    | 13.85     |
| 936792 | AD2-102 E    | 13.3      |
| 936961 | AD2-130      | 0.66      |
| 937001 | AD2-134 C    | 3.14      |
| 937002 | AD2-134 E    | 12.98     |
| 937031 | AD2-137 C O1 | 4.08      |
| 937032 | AD2-137 E O1 | 19.09     |
| 937051 | AD2-140 C O1 | 4.11      |
| 937052 | AD2-140 E O1 | 19.25     |
| 937061 | AD2-141 C O1 | 4.09      |
| 937062 | AD2-141 E O1 | 19.27     |
| 937071 | AD2-142 C O1 | 8.22      |
| 937072 | AD2-142 E O1 | 38.5      |
| 937121 | AD2-148 C O1 | 4.23      |
| 937122 | AD2-148 E O1 | 19.82     |
| 937131 | AD2-149 C O1 | 4.23      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937132 | AD2-149 E O1 | 19.82     |
| 937141 | AD2-150 C O1 | 4.23      |
| 937142 | AD2-150 E O1 | 19.82     |
| 937181 | AD2-155 C O1 | 4.23      |
| 937182 | AD2-155 E O1 | 19.82     |
| 937311 | AD2-172 C    | 2.83      |
| 937312 | AD2-172 E    | 3.91      |
| 937321 | AD2-175 C    | 19.73     |
| 937322 | AD2-175 E    | 13.15     |
| 937331 | AD2-176 C O1 | 8.43      |
| 937332 | AD2-176 E O1 | 5.62      |
| 937401 | AD2-194 1    | 8.95      |
| 937411 | AD2-194 2    | 8.95      |
| 937531 | AD2-214 C    | 5.1       |
| 937532 | AD2-214 E    | 2.4       |
| 938012 | AE1-002 E O1 | 8.18      |
| 938511 | AE1-070 1    | 10.52     |
| 938521 | AE1-070 2    | 9.62      |
| 938851 | AE1-113 C O1 | 10.1      |
| 938852 | AE1-113 E O1 | 31.74     |
| 938861 | AE1-114 C O1 | 4.14      |
| 938862 | AE1-114 E O1 | 15.83     |
| 939051 | AE1-134 1    | 1.58      |
| 939061 | AE1-134 2    | 1.58      |
| 939321 | AE1-163 C O1 | 6.77      |
| 939322 | AE1-163 E O1 | 41.57     |
| 939351 | AE1-166 C O1 | 11.8      |
| 939352 | AE1-166 E O1 | 10.89     |
| 939401 | AE1-172 C O1 | 7.21      |
| 939402 | AE1-172 E O1 | 33.74     |
| 939631 | AE1-193 C O1 | 4.73      |
| 939632 | AE1-193 E O1 | 31.63     |
| 939641 | AE1-194 C    | 10.24     |
| 939642 | AE1-194 E    | 68.55     |
| 939651 | AE1-195 C    | 10.24     |
| 939652 | AE1-195 E    | 68.55     |
| 939681 | AE1-198 C O1 | 23.78     |
| 939682 | AE1-198 E O1 | 20.2      |
| 939691 | AE1-199      | 2.75      |
| 939701 | AE1-201 C    | 2.31      |
| 939702 | AE1-201 E    | 0.51      |
| 939732 | AE1-204 E    | 0.34      |
| 939861 | AE1-222 1    | 91.02     |
| 939871 | AE1-222 2    | 93.81     |
| 939921 | AE1-228 C O1 | 11.56     |
| 939922 | AE1-228 E O1 | 7.71      |
| 939961 | AE1-233 C O1 | 2.67      |
| 939962 | AE1-233 E O1 | 11.05     |
| 940101 | AE1-252 C O1 | 12.28     |
| 940102 | AE1-252 E O1 | 8.19      |
| 951721 | J643         | 25.73     |
| 952581 | J740 C       | 4.3       |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 952582       | J740 E     | 23.28            |
| 953871       | J847       | 13.1             |
| 954751       | J351       | 434.54           |
| AB2-013      | AB2-013    | 18.6             |
| AE1-033      | AE1-033    | 20.85            |
| BLUEG        | BLUEG      | 1.07             |
| CARR         | CARR       | 0.9              |
| CATAWBA      | CATAWBA    | 0.22             |
| CBM-S1       | CBM-S1     | 3.95             |
| CBM-W1       | CBM-W1     | 35.83            |
| CBM-W2       | CBM-W2     | 81.92            |
| CIN          | CIN        | 3.3              |
| DEARBORN     | DEARBORN   | 4.0              |
| G-007        | G-007      | 2.51             |
| HAMLET       | HAMLET     | 0.96             |
| IPL          | IPL        | 1.12             |
| MEC          | MEC        | 44.69            |
| O-066        | O-066      | 8.44             |
| RENSSELAER   | RENSSELAER | 0.71             |
| TRIMBLE      | TRIMBLE    | 0.16             |
| WEC          | WEC        | 9.2              |
| Z1-043       | Z1-043     | 32.93            |

## Index 27

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218346 | 270728    | E FRANKFO; B | CE            | 274750  | CRETE EC ;BP | CE          | 1      | AEP_P4_#2978_05DUMONT 765_B | breaker | 1399.0     | 112.31                | 113.36                 | DC    | 39.51     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 12.73     |
| 274654 | BRAIDWOOD;1U | 27.26     |
| 274655 | BRAIDWOOD;2U | 26.09     |
| 274660 | LASCO STA;1U | 24.9      |
| 274661 | LASCO STA;2U | 24.94     |
| 274675 | JOLIET 29;7U | 11.25     |
| 274676 | JOLIET 29;8U | 11.26     |
| 274687 | WILL CNTY;4U | 11.37     |
| 274704 | KENDALL ;1C  | 4.0       |
| 274705 | KENDALL ;1S  | 2.67      |
| 274706 | KENDALL ;2C  | 4.0       |
| 274707 | KENDALL ;2S  | 2.67      |
| 274722 | S-055 E      | 11.91     |
| 274736 | ELWOOD EC;9P | 3.23      |
| 274832 | U4-027       | 11.21     |
| 274859 | EASYR;U1 E   | 11.52     |
| 274860 | EASYR;U2 E   | 11.52     |
| 274861 | TOP CROP ;1U | 0.47      |
| 274862 | TOP CROP ;2U | 0.92      |
| 274888 | PILOT HIL;1E | 17.1      |
| 274890 | CAYUG;1U E   | 13.64     |
| 274891 | CAYUG;2U E   | 13.64     |
| 275149 | KEMPTON ;1E  | 17.1      |
| 290021 | O50 E        | 20.79     |
| 290051 | GSG-6; E     | 10.94     |
| 290108 | LEEDK;1U E   | 25.43     |
| 293061 | N-015 E      | 16.43     |
| 293516 | O-009 E1     | 9.45      |
| 293517 | O-009 E2     | 4.8       |
| 293518 | O-009 E3     | 5.29      |
| 293644 | O22 E1       | 12.34     |
| 293645 | O22 E2       | 23.96     |
| 293715 | O-029 E      | 10.21     |
| 293716 | O-029 E      | 5.6       |
| 293717 | O-029 E      | 5.15      |
| 293771 | O-035 E      | 6.61      |
| 294392 | P-010 E      | 20.87     |
| 294763 | P-046 E      | 9.84      |
| 295109 | WESTBROOK E  | 5.86      |
| 295111 | SUBLETTE E   | 2.71      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 914641 | Y2-103       | 47.64     |
| 915011 | Y3-013 1     | 3.97      |
| 915021 | Y3-013 2     | 3.97      |
| 915031 | Y3-013 3     | 3.97      |
| 916211 | Z1-072 E     | 5.0       |
| 916221 | Z1-073 E     | 5.65      |
| 916502 | Z1-106 E1    | 1.33      |
| 916504 | Z1-106 E2    | 1.33      |
| 916512 | Z1-107 E     | 2.55      |
| 916522 | Z1-108 E     | 2.62      |
| 918052 | AA1-018 E    | 16.2      |
| 919221 | AA1-146      | 18.41     |
| 919581 | AA2-030      | 18.41     |
| 920272 | AA2-123 E    | 2.57      |
| 924471 | AB2-096      | 44.55     |
| 925161 | AB2-173      | 3.28      |
| 925302 | AB2-191 E    | 1.45      |
| 925581 | AC1-033 C    | 1.45      |
| 925582 | AC1-033 E    | 9.71      |
| 926311 | AC1-109 1    | 2.0       |
| 926321 | AC1-109 2    | 2.0       |
| 926331 | AC1-110 1    | 2.0       |
| 926341 | AC1-110 2    | 2.0       |
| 926351 | AC1-111 1    | 0.8       |
| 926361 | AC1-111 2    | 0.8       |
| 926371 | AC1-111 3    | 0.8       |
| 926381 | AC1-111 4    | 0.8       |
| 926391 | AC1-111 5    | 0.8       |
| 926401 | AC1-111 6    | 0.8       |
| 926431 | AC1-114      | 2.5       |
| 926821 | AC1-168 C O1 | 1.2       |
| 926822 | AC1-168 E O1 | 8.03      |
| 927091 | AC1-204 1    | 78.31     |
| 927101 | AC1-204 2    | 78.18     |
| 927201 | AC1-214 C O1 | 2.12      |
| 927202 | AC1-214 E O1 | 6.75      |
| 927451 | AC1-142A 1   | 4.53      |
| 927461 | AC1-142A 2   | 4.53      |
| 927511 | AC1-113 1    | 1.25      |
| 927521 | AC1-113 2    | 1.25      |
| 927531 | AC1-185 1    | 0.72      |
| 927541 | AC1-185 2    | 0.72      |
| 927551 | AC1-185 3    | 0.72      |
| 927561 | AC1-185 4    | 0.72      |
| 927571 | AC1-185 5    | 0.72      |
| 927581 | AC1-185 6    | 0.72      |
| 927591 | AC1-185 7    | 0.72      |
| 927601 | AC1-185 8    | 0.72      |
| 930481 | AB1-089      | 69.1      |
| 930501 | AB1-091 O1   | 67.39     |
| 930741 | AB1-122 1O1  | 74.68     |
| 930751 | AB1-122 2O1  | 79.86     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932881 | AC2-115 1    | 2.5       |
| 932891 | AC2-115 2    | 2.5       |
| 932921 | AC2-116      | 0.88      |
| 933341 | AC2-147 C    | 0.91      |
| 933342 | AC2-147 E    | 1.49      |
| 933411 | AC2-154 C    | 2.32      |
| 933412 | AC2-154 E    | 3.79      |
| 933431 | AC2-156 C O1 | 1.0       |
| 933432 | AC2-156 E O1 | 1.63      |
| 933911 | AD1-013 C    | 1.93      |
| 933912 | AD1-013 E    | 3.08      |
| 933931 | AD1-016 C    | 0.98      |
| 933932 | AD1-016 E    | 1.6       |
| 934101 | AD1-039 1    | 7.32      |
| 934111 | AD1-039 2    | 7.83      |
| 934401 | AD1-064 C O1 | 3.37      |
| 934402 | AD1-064 E O1 | 15.78     |
| 934431 | AD1-067 C    | 0.14      |
| 934432 | AD1-067 E    | 0.58      |
| 934651 | AD1-096 C    | 0.94      |
| 934652 | AD1-096 E    | 1.53      |
| 934701 | AD1-098 C O1 | 7.2       |
| 934702 | AD1-098 E O1 | 5.26      |
| 934721 | AD1-100 C    | 19.95     |
| 934722 | AD1-100 E    | 93.11     |
| 934871 | AD1-116 C    | 0.94      |
| 934872 | AD1-116 E    | 1.54      |
| 934881 | AD1-117 C    | 5.63      |
| 934882 | AD1-117 E    | 3.75      |
| 934971 | AD1-129 C    | 0.95      |
| 934972 | AD1-129 E    | 0.63      |
| 935001 | AD1-133 C O1 | 21.34     |
| 935002 | AD1-133 E O1 | 14.23     |
| 936291 | AD2-038 C O1 | 2.41      |
| 936292 | AD2-038 E O1 | 16.1      |
| 936371 | AD2-047 C O1 | 2.08      |
| 936372 | AD2-047 E O1 | 22.36     |
| 936461 | AD2-060      | 2.44      |
| 936511 | AD2-066 C O1 | 8.72      |
| 936512 | AD2-066 E O1 | 5.81      |
| 936781 | AD2-101 C    | 3.97      |
| 936782 | AD2-101 E    | 18.57     |
| 936791 | AD2-102 C    | 12.63     |
| 936792 | AD2-102 E    | 12.14     |
| 936961 | AD2-130      | 0.59      |
| 937001 | AD2-134 C    | 2.86      |
| 937002 | AD2-134 E    | 11.82     |
| 937031 | AD2-137 C O1 | 3.34      |
| 937032 | AD2-137 E O1 | 15.64     |
| 937051 | AD2-140 C O1 | 3.33      |
| 937052 | AD2-140 E O1 | 15.57     |
| 937061 | AD2-141 C O1 | 3.31      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937062 | AD2-141 E O1 | 15.59     |
| 937071 | AD2-142 C O1 | 6.65      |
| 937072 | AD2-142 E O1 | 31.14     |
| 937121 | AD2-148 C O1 | 3.24      |
| 937122 | AD2-148 E O1 | 15.15     |
| 937131 | AD2-149 C O1 | 3.24      |
| 937132 | AD2-149 E O1 | 15.15     |
| 937141 | AD2-150 C O1 | 3.24      |
| 937142 | AD2-150 E O1 | 15.15     |
| 937181 | AD2-155 C O1 | 3.24      |
| 937182 | AD2-155 E O1 | 15.15     |
| 937311 | AD2-172 C    | 2.58      |
| 937312 | AD2-172 E    | 3.57      |
| 937321 | AD2-175 C    | 15.07     |
| 937322 | AD2-175 E    | 10.05     |
| 937331 | AD2-176 C O1 | 7.72      |
| 937332 | AD2-176 E O1 | 5.15      |
| 937401 | AD2-194 1    | 8.42      |
| 937411 | AD2-194 2    | 8.41      |
| 937531 | AD2-214 C    | 4.61      |
| 937532 | AD2-214 E    | 2.17      |
| 938012 | AE1-002 E O1 | 6.71      |
| 938511 | AE1-070 1    | 9.9       |
| 938521 | AE1-070 2    | 9.04      |
| 938851 | AE1-113 C O1 | 9.41      |
| 938852 | AE1-113 E O1 | 29.58     |
| 938861 | AE1-114 C O1 | 3.77      |
| 938862 | AE1-114 E O1 | 14.41     |
| 939051 | AE1-134 1    | 1.43      |
| 939061 | AE1-134 2    | 1.43      |
| 939321 | AE1-163 C O1 | 6.04      |
| 939322 | AE1-163 E O1 | 37.13     |
| 939351 | AE1-166 C O1 | 10.67     |
| 939352 | AE1-166 E O1 | 9.85      |
| 939401 | AE1-172 C O1 | 6.26      |
| 939402 | AE1-172 E O1 | 29.29     |
| 939631 | AE1-193 C O1 | 1.03      |
| 939632 | AE1-193 E O1 | 6.9       |
| 939681 | AE1-198 C O1 | 21.36     |
| 939682 | AE1-198 E O1 | 18.15     |
| 939691 | AE1-199      | 2.5       |
| 939701 | AE1-201 C    | 2.11      |
| 939702 | AE1-201 E    | 0.46      |
| 939732 | AE1-204 E    | 0.31      |
| 939861 | AE1-222 1    | 82.47     |
| 939871 | AE1-222 2    | 88.2      |
| 939921 | AE1-228 C O1 | 10.52     |
| 939922 | AE1-228 E O1 | 7.01      |
| 939961 | AE1-233 C O1 | 2.44      |
| 939962 | AE1-233 E O1 | 10.07     |
| 940101 | AE1-252 C O1 | 10.66     |
| 940102 | AE1-252 E O1 | 7.11      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AB2-013</b>    | AB2-013    | 16.84            |
| <b>AE1-033</b>    | AE1-033    | 19.0             |
| <b>BLUEG</b>      | BLUEG      | 5.85             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.03             |
| <b>CANNELTON</b>  | CANNELTON  | 0.09             |
| <b>CARR</b>       | CARR       | 0.74             |
| <b>CATAWBA</b>    | CATAWBA    | 0.27             |
| <b>CBM-S1</b>     | CBM-S1     | 1.66             |
| <b>CBM-W1</b>     | CBM-W1     | 26.48            |
| <b>CBM-W2</b>     | CBM-W2     | 55.79            |
| <b>CHEOAH</b>     | CHEOAH     | 0.04             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.01             |
| <b>DEARBORN</b>   | DEARBORN   | 3.02             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.09             |
| <b>G-007</b>      | G-007      | 2.06             |
| <b>GIBSON</b>     | GIBSON     | 0.05             |
| <b>HAMLET</b>     | HAMLET     | 1.03             |
| <b>MEC</b>        | MEC        | 39.2             |
| <b>O-066</b>      | O-066      | 6.93             |
| <b>RENSSELAER</b> | RENSSELAER | 0.58             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.69             |
| <b>WEC</b>        | WEC        | 8.42             |
| <b>Z1-043</b>     | Z1-043     | 29.68            |

## Index 28

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218202 | 270828    | NELSON ; B | CE            | 270730  | ELECT JCT; B | CE          | 1      | COMED_P4_155-45-BT6-7__ | breaker | 1656.0     | 135.14                | 136.36                 | DC    | 43.25     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274662 | QUAD CITI;1U | 35.3      |
| 274663 | QUAD CITI;2U | 36.21     |
| 274699 | CORDOVA ;1C  | 6.18      |
| 274700 | CORDOVA ;2C  | 6.18      |
| 274701 | CORDOVA ;1S  | 6.96      |
| 274715 | NELSON EC;1C | 6.74      |
| 274716 | NELSON EC;1S | 9.31      |
| 274717 | NELSON EC;2C | 6.74      |
| 274718 | NELSON EC;2S | 9.31      |
| 274832 | U4-027       | 15.61     |
| 290051 | GSG-6; E     | 8.32      |
| 293513 | O-009 C1     | 0.76      |
| 293514 | O-009 C2     | 0.39      |
| 293515 | O-009 C3     | 0.43      |
| 293516 | O-009 E1     | 19.89     |
| 293517 | O-009 E2     | 10.1      |
| 293518 | O-009 E3     | 11.13     |
| 293712 | O-029 C      | 0.89      |
| 293713 | O-029 C      | 0.48      |
| 293714 | O-029 C      | 0.45      |
| 293715 | O-029 E      | 23.12     |
| 293716 | O-029 E      | 12.68     |
| 293717 | O-029 E      | 11.65     |
| 293771 | O-035 E      | 5.91      |
| 294401 | BSHIL;1U E   | 9.69      |
| 294410 | BSHIL;2U E   | 9.69      |
| 294763 | P-046 E      | 5.6       |
| 295109 | WESTBROOK E  | 4.46      |
| 295110 | SUBLETTE C   | 0.12      |
| 295111 | SUBLETTE E   | 5.2       |
| 905471 | W4-084       | 0.13      |
| 916211 | Z1-072 E     | 4.47      |
| 916221 | Z1-073 E     | 4.3       |
| 919221 | AA1-146      | 54.78     |
| 919581 | AA2-030      | 54.78     |
| 919621 | AA2-039 C    | 2.36      |
| 919622 | AA2-039 E    | 15.8      |
| 925161 | AB2-173      | 9.77      |
| 925302 | AB2-191 E    | 1.1       |
| 925581 | AC1-033 C    | 1.59      |
| 925582 | AC1-033 E    | 10.62     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926841 | AC1-171 C O1 | 0.77      |
| 926842 | AC1-171 E O1 | 5.14      |
| 927201 | AC1-214 C O1 | 1.9       |
| 927202 | AC1-214 E O1 | 6.03      |
| 933341 | AC2-147 C    | 1.33      |
| 933342 | AC2-147 E    | 2.18      |
| 933911 | AD1-013 C    | 1.4       |
| 933912 | AD1-013 E    | 2.24      |
| 934051 | AD1-031 C O1 | 3.22      |
| 934052 | AD1-031 E O1 | 5.26      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.44      |
| 934651 | AD1-096 C    | 0.65      |
| 934652 | AD1-096 E    | 1.05      |
| 934701 | AD1-098 C O1 | 5.92      |
| 934702 | AD1-098 E O1 | 4.32      |
| 934881 | AD1-117 C    | 8.21      |
| 934882 | AD1-117 E    | 5.48      |
| 937001 | AD2-134 C    | 2.18      |
| 937002 | AD2-134 E    | 8.99      |
| 937311 | AD2-172 C    | 1.47      |
| 937312 | AD2-172 E    | 2.03      |
| 937531 | AD2-214 C    | 10.2      |
| 937532 | AD2-214 E    | 4.8       |
| 938861 | AE1-114 C O1 | 4.32      |
| 938862 | AE1-114 E O1 | 16.5      |
| 939051 | AE1-134 1    | 4.26      |
| 939061 | AE1-134 2    | 4.26      |
| 939631 | AE1-193 C O1 | 7.87      |
| 939632 | AE1-193 E O1 | 52.7      |
| 939681 | AE1-198 C O1 | 23.38     |
| 939682 | AE1-198 E O1 | 19.87     |
| 939691 | AE1-199      | 1.82      |
| 939921 | AE1-228 C O1 | 7.34      |
| 939922 | AE1-228 E O1 | 4.9       |
| 950181 | J407 C       | 3.1       |
| 950182 | J407 E       | 12.38     |
| 950211 | J411 C       | 4.17      |
| 950212 | J411 E       | 16.68     |
| 950221 | J416 C       | 3.95      |
| 950222 | J416 E       | 15.8      |
| 950401 | J041 C       | 1.68      |
| 950402 | J041 E       | 6.72      |
| 950471 | J438 C       | 3.45      |
| 950472 | J438 E       | 13.85     |
| 950491 | J443 C       | 0.98      |
| 950492 | J443 E       | 3.91      |
| 950501 | J449 C       | 3.29      |
| 950502 | J449 E       | 13.15     |
| 950522 | J455 E       | 22.35     |
| 950541 | G798 C       | 2.65      |
| 950542 | G798 E       | 10.6      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| 950571 | G870 C | 2.88      |
| 950572 | G870 E | 11.51     |
| 950581 | G947 C | 1.79      |
| 950582 | G947 E | 7.14      |
| 950591 | H008 C | 0.73      |
| 950592 | H008 E | 2.93      |
| 950601 | H009 C | 2.88      |
| 950602 | H009 E | 11.53     |
| 950611 | H021 C | 2.59      |
| 950612 | H021 E | 10.34     |
| 950631 | H096 C | 0.77      |
| 950632 | H096 E | 3.06      |
| 950641 | J026 C | 0.75      |
| 950642 | J026 E | 2.99      |
| 950661 | J097 C | 3.88      |
| 950662 | J097 E | 15.5      |
| 950721 | R420 C | 3.71      |
| 950722 | R420 E | 14.86     |
| 950731 | R490 C | 0.18      |
| 950732 | R490 E | 0.71      |
| 950821 | J274 C | 1.46      |
| 950822 | J274 E | 5.84      |
| 950911 | J289 C | 0.29      |
| 950912 | J289 E | 0.88      |
| 950961 | J329   | 4.75      |
| 951031 | J344 C | 3.12      |
| 951032 | J344 E | 9.36      |
| 951221 | J475 C | 3.81      |
| 951222 | J475 E | 15.25     |
| 951301 | J495 C | 3.62      |
| 951302 | J495 E | 10.86     |
| 951331 | J498 C | 5.12      |
| 951332 | J498 E | 20.48     |
| 951341 | J499 C | 5.0       |
| 951342 | J499 E | 20.01     |
| 951351 | J500 C | 6.94      |
| 951352 | J500 E | 27.77     |
| 951381 | J504   | 5.89      |
| 951421 | J514   | 3.52      |
| 951441 | J523 C | 2.25      |
| 951442 | J523 E | 1.5       |
| 951451 | J524 C | 4.63      |
| 951452 | J524 E | 3.09      |
| 951501 | J529 C | 3.56      |
| 951502 | J529 E | 14.26     |
| 951511 | J530 C | 5.62      |
| 951512 | J530 E | 22.48     |
| 951541 | J534 C | 3.71      |
| 951542 | J534 E | 14.82     |
| 951551 | J535 C | 3.12      |
| 951552 | J535 E | 12.48     |
| 951821 | J541 C | 4.58      |

| Bus #   | Bus     | MW Impact |
|---------|---------|-----------|
| 951822  | J541 E  | 24.78     |
| 951841  | J555 C  | 2.08      |
| 951842  | J555 E  | 11.26     |
| 952021  | J614 C  | 0.76      |
| 952022  | J614 E  | 4.13      |
| 952191  | J583 C  | 2.21      |
| 952192  | J583 E  | 11.96     |
| 952211  | J590 C  | 1.05      |
| 952212  | J590 E  | 5.66      |
| 952231  | J598 C  | 3.44      |
| 952232  | J598 E  | 18.59     |
| 952441  | J776 C  | 1.68      |
| 952442  | J776 E  | 9.1       |
| 952451  | J777 C  | 1.41      |
| 952452  | J777 E  | 7.61      |
| 952461  | J522    | 1.49      |
| 952491  | J761 C  | 2.34      |
| 952492  | J761 E  | 12.68     |
| 952561  | J731 C  | 2.31      |
| 952562  | J731 E  | 12.51     |
| 952571  | J733 C  | 2.74      |
| 952572  | J733 E  | 14.8      |
| 952671  | J767 C  | 0.15      |
| 952672  | J767 E  | 0.84      |
| 952681  | J768 C  | 0.17      |
| 952682  | J768 E  | 0.89      |
| 953001  | J785 C  | 1.14      |
| 953002  | J785 E  | 6.18      |
| 953011  | J885 C  | 0.77      |
| 953012  | J885 E  | 4.18      |
| 953082  | J836 E  | 15.02     |
| 953231  | J447 C  | 2.0       |
| 953232  | J447 E  | 10.84     |
| 953391  | J810    | 9.76      |
| 953821  | J840 C  | 1.67      |
| 953822  | J840 E  | 9.03      |
| 954091  | J873 C  | 3.36      |
| 954092  | J873 E  | 18.19     |
| 954121  | J876 C  | 2.26      |
| 954122  | J876 E  | 12.24     |
| 954131  | J877    | 18.63     |
| 954201  | J887 C  | 1.04      |
| 954202  | J887 E  | 5.6       |
| 954301  | J898 C  | 1.15      |
| 954302  | J898 E  | 6.2       |
| 954521  | J927 C  | 1.15      |
| 954522  | J927 E  | 6.24      |
| 954702  | J844 E  | 29.56     |
| 990901  | L-005 E | 13.36     |
| AB2-013 | AB2-013 | 7.86      |
| CARR    | CARR    | 0.06      |
| CBM-S1  | CBM-S1  | 5.15      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S2</b>     | CBM-S2     | 1.19             |
| <b>CBM-W1</b>     | CBM-W1     | 20.85            |
| <b>CBM-W2</b>     | CBM-W2     | 65.48            |
| <b>CIN</b>        | CIN        | 0.73             |
| <b>CPL</b>        | CPL        | 0.35             |
| <b>DEARBORN</b>   | DEARBORN   | 0.8              |
| <b>G-007</b>      | G-007      | 0.15             |
| <b>IPL</b>        | IPL        | 0.3              |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MEC</b>        | MEC        | 53.98            |
| <b>O-066</b>      | O-066      | 0.52             |
| <b>RENSSELAER</b> | RENSSELAER | 0.05             |
| <b>Z1-043</b>     | Z1-043     | 17.62            |

## Index 29

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS        | TO BUS AREA | CK T ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPACT |
|--------|-----------|------------|---------------|---------|---------------|-------------|---------|-----------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 218192 | 270886    | ST JOHN ;T | CE            | 255104  | 17GREEN_ACR E | NIPS        | 1       | AEP_P4_#2978_05DUMONT 765_B | breaker | 1091.0     | 132.01                 | 132.23                  | DC     | 27.79     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 8.96      |
| 274654 | BRAIDWOOD;1U | 18.89     |
| 274655 | BRAIDWOOD;2U | 18.08     |
| 274687 | WILL CNTY;4U | 7.96      |
| 274722 | S-055 E      | 8.37      |
| 274751 | CRETE EC ;1U | 3.35      |
| 274752 | CRETE EC ;2U | 3.35      |
| 274753 | CRETE EC ;3U | 3.35      |
| 274754 | CRETE EC ;4U | 3.35      |
| 274832 | U4-027       | 7.88      |
| 274859 | EASYR;U1 E   | 8.1       |
| 274860 | EASYR;U2 E   | 8.1       |
| 274861 | TOP CROP ;1U | 0.32      |
| 274862 | TOP CROP ;2U | 0.63      |
| 274888 | PILOT HIL;1E | 12.69     |
| 274890 | CAYUG;1U E   | 9.71      |
| 274891 | CAYUG;2U E   | 9.71      |
| 275149 | KEMPTON ;1E  | 12.69     |
| 290021 | O50 E        | 14.55     |
| 290051 | GSG-6; E     | 7.7       |
| 290108 | LEEDK;1U E   | 17.91     |
| 293061 | N-015 E      | 11.5      |
| 293516 | O-009 E1     | 6.65      |
| 293517 | O-009 E2     | 3.38      |
| 293518 | O-009 E3     | 3.72      |
| 293644 | O22 E1       | 8.45      |
| 293645 | O22 E2       | 16.4      |
| 293715 | O-029 E      | 7.18      |
| 293716 | O-029 E      | 3.94      |
| 293717 | O-029 E      | 3.62      |
| 293771 | O-035 E      | 4.65      |
| 294392 | P-010 E      | 14.6      |
| 294763 | P-046 E      | 6.92      |
| 295109 | WESTBROOK E  | 4.12      |
| 295111 | SUBLETTE E   | 1.91      |
| 910542 | X3-005 E     | 0.44      |
| 914641 | Y2-103       | 33.49     |
| 915011 | Y3-013 1     | 2.79      |
| 915021 | Y3-013 2     | 2.79      |
| 915031 | Y3-013 3     | 2.79      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916211 | Z1-072 E     | 3.52      |
| 916221 | Z1-073 E     | 3.97      |
| 916502 | Z1-106 E1    | 0.93      |
| 916504 | Z1-106 E2    | 0.93      |
| 916512 | Z1-107 E     | 1.84      |
| 916522 | Z1-108 E     | 1.84      |
| 918052 | AA1-018 E    | 11.55     |
| 919221 | AA1-146      | 12.94     |
| 919581 | AA2-030      | 12.94     |
| 920272 | AA2-123 E    | 1.81      |
| 924471 | AB2-096      | 31.34     |
| 925161 | AB2-173      | 2.31      |
| 925302 | AB2-191 E    | 1.02      |
| 925581 | AC1-033 C    | 1.02      |
| 925582 | AC1-033 E    | 6.83      |
| 926311 | AC1-109 1    | 1.41      |
| 926321 | AC1-109 2    | 1.41      |
| 926331 | AC1-110 1    | 1.41      |
| 926341 | AC1-110 2    | 1.41      |
| 926351 | AC1-111 1    | 0.56      |
| 926361 | AC1-111 2    | 0.56      |
| 926371 | AC1-111 3    | 0.56      |
| 926381 | AC1-111 4    | 0.56      |
| 926391 | AC1-111 5    | 0.56      |
| 926401 | AC1-111 6    | 0.56      |
| 926431 | AC1-114      | 1.76      |
| 926821 | AC1-168 C O1 | 0.84      |
| 926822 | AC1-168 E O1 | 5.64      |
| 927091 | AC1-204 1    | 54.79     |
| 927101 | AC1-204 2    | 54.72     |
| 927201 | AC1-214 C O1 | 1.49      |
| 927202 | AC1-214 E O1 | 4.75      |
| 927451 | AC1-142A 1   | 3.17      |
| 927461 | AC1-142A 2   | 3.18      |
| 927511 | AC1-113 1    | 0.88      |
| 927521 | AC1-113 2    | 0.88      |
| 927531 | AC1-185 1    | 0.51      |
| 927541 | AC1-185 2    | 0.51      |
| 927551 | AC1-185 3    | 0.51      |
| 927561 | AC1-185 4    | 0.51      |
| 927571 | AC1-185 5    | 0.51      |
| 927581 | AC1-185 6    | 0.51      |
| 927591 | AC1-185 7    | 0.51      |
| 927601 | AC1-185 8    | 0.51      |
| 930481 | AB1-089      | 48.61     |
| 930501 | AB1-091 O1   | 50.14     |
| 930741 | AB1-122 1O1  | 52.67     |
| 930751 | AB1-122 2O1  | 55.87     |
| 932881 | AC2-115 1    | 1.76      |
| 932891 | AC2-115 2    | 1.76      |
| 932921 | AC2-116      | 0.62      |
| 933341 | AC2-147 C    | 0.64      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933342 | AC2-147 E    | 1.05      |
| 933411 | AC2-154 C    | 1.72      |
| 933412 | AC2-154 E    | 2.81      |
| 933431 | AC2-156 C O1 | 0.7       |
| 933432 | AC2-156 E O1 | 1.15      |
| 933911 | AD1-013 C    | 1.36      |
| 933912 | AD1-013 E    | 2.17      |
| 933931 | AD1-016 C    | 0.69      |
| 933932 | AD1-016 E    | 1.12      |
| 934101 | AD1-039 1    | 5.16      |
| 934111 | AD1-039 2    | 5.48      |
| 934401 | AD1-064 C O1 | 2.37      |
| 934402 | AD1-064 E O1 | 11.1      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.41      |
| 934651 | AD1-096 C    | 0.66      |
| 934652 | AD1-096 E    | 1.07      |
| 934701 | AD1-098 C O1 | 5.07      |
| 934702 | AD1-098 E O1 | 3.7       |
| 934721 | AD1-100 C    | 14.17     |
| 934722 | AD1-100 E    | 66.14     |
| 934871 | AD1-116 C    | 0.67      |
| 934872 | AD1-116 E    | 1.1       |
| 934881 | AD1-117 C    | 3.96      |
| 934882 | AD1-117 E    | 2.64      |
| 934971 | AD1-129 C    | 0.67      |
| 934972 | AD1-129 E    | 0.45      |
| 935001 | AD1-133 C O1 | 15.09     |
| 935002 | AD1-133 E O1 | 10.06     |
| 936291 | AD2-038 C O1 | 1.7       |
| 936292 | AD2-038 E O1 | 11.38     |
| 936371 | AD2-047 C O1 | 1.54      |
| 936372 | AD2-047 E O1 | 16.59     |
| 936461 | AD2-060      | 1.81      |
| 936511 | AD2-066 C O1 | 6.15      |
| 936512 | AD2-066 E O1 | 4.1       |
| 936781 | AD2-101 C    | 3.06      |
| 936782 | AD2-101 E    | 14.32     |
| 936791 | AD2-102 C    | 8.89      |
| 936792 | AD2-102 E    | 8.54      |
| 936961 | AD2-130      | 0.42      |
| 937001 | AD2-134 C    | 2.01      |
| 937002 | AD2-134 E    | 8.32      |
| 937031 | AD2-137 C O1 | 2.43      |
| 937032 | AD2-137 E O1 | 11.38     |
| 937051 | AD2-140 C O1 | 2.43      |
| 937052 | AD2-140 E O1 | 11.38     |
| 937061 | AD2-141 C O1 | 2.42      |
| 937062 | AD2-141 E O1 | 11.39     |
| 937071 | AD2-142 C O1 | 4.86      |
| 937072 | AD2-142 E O1 | 22.76     |
| 937121 | AD2-148 C O1 | 2.41      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 937122  | AD2-148 E O1 | 11.27     |
| 937131  | AD2-149 C O1 | 2.41      |
| 937132  | AD2-149 E O1 | 11.27     |
| 937141  | AD2-150 C O1 | 2.41      |
| 937142  | AD2-150 E O1 | 11.27     |
| 937181  | AD2-155 C O1 | 2.41      |
| 937182  | AD2-155 E O1 | 11.27     |
| 937311  | AD2-172 C    | 1.82      |
| 937312  | AD2-172 E    | 2.51      |
| 937321  | AD2-175 C    | 11.21     |
| 937322  | AD2-175 E    | 7.48      |
| 937331  | AD2-176 C O1 | 5.43      |
| 937332  | AD2-176 E O1 | 3.62      |
| 937401  | AD2-194 1    | 5.89      |
| 937411  | AD2-194 2    | 5.88      |
| 937531  | AD2-214 C    | 3.24      |
| 937532  | AD2-214 E    | 1.52      |
| 938012  | AE1-002 E O1 | 4.88      |
| 938511  | AE1-070 1    | 6.92      |
| 938521  | AE1-070 2    | 6.33      |
| 938851  | AE1-113 C O1 | 6.58      |
| 938852  | AE1-113 E O1 | 20.7      |
| 938861  | AE1-114 C O1 | 2.65      |
| 938862  | AE1-114 E O1 | 10.13     |
| 939051  | AE1-134 1    | 1.01      |
| 939061  | AE1-134 2    | 1.01      |
| 939321  | AE1-163 C O1 | 4.27      |
| 939322  | AE1-163 E O1 | 26.24     |
| 939351  | AE1-166 C O1 | 7.54      |
| 939352  | AE1-166 E O1 | 6.96      |
| 939401  | AE1-172 C O1 | 4.45      |
| 939402  | AE1-172 E O1 | 20.86     |
| 939641  | AE1-194 C    | 18.89     |
| 939642  | AE1-194 E    | 126.42    |
| 939651  | AE1-195 C    | 18.89     |
| 939652  | AE1-195 E    | 126.42    |
| 939681  | AE1-198 C O1 | 3.53      |
| 939682  | AE1-198 E O1 | 3.0       |
| 939691  | AE1-199      | 1.76      |
| 939701  | AE1-201 C    | 1.48      |
| 939702  | AE1-201 E    | 0.33      |
| 939732  | AE1-204 E    | 0.22      |
| 939861  | AE1-222 1    | 58.17     |
| 939871  | AE1-222 2    | 61.7      |
| 939921  | AE1-228 C O1 | 7.41      |
| 939922  | AE1-228 E O1 | 4.94      |
| 939961  | AE1-233 C O1 | 1.72      |
| 939962  | AE1-233 E O1 | 7.09      |
| 940101  | AE1-252 C O1 | 7.59      |
| 940102  | AE1-252 E O1 | 5.06      |
| AB2-013 | AB2-013      | 11.82     |
| AE1-033 | AE1-033      | 13.36     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>BLUEG</b>      | BLUEG      | 4.19             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.05             |
| <b>CANNELTON</b>  | CANNELTON  | 0.07             |
| <b>CARR</b>       | CARR       | 0.56             |
| <b>CATAWBA</b>    | CATAWBA    | 0.21             |
| <b>CBM-S1</b>     | CBM-S1     | 1.06             |
| <b>CBM-W1</b>     | CBM-W1     | 19.6             |
| <b>CBM-W2</b>     | CBM-W2     | 39.02            |
| <b>CHEOAH</b>     | CHEOAH     | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.01             |
| <b>DEARBORN</b>   | DEARBORN   | 2.36             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>G-007</b>      | G-007      | 1.57             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.82             |
| <b>MEC</b>        | MEC        | 27.54            |
| <b>O-066</b>      | O-066      | 5.27             |
| <b>RENSSELAER</b> | RENSSELAER | 0.44             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.49             |
| <b>WEC</b>        | WEC        | 5.92             |
| <b>Z1-043</b>     | Z1-043     | 20.86            |

## Index 30

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218058 | 271018    | ANNAWAN; R | CE            | 272110  | NORMANDY ; B | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 275.0      | 144.26                | 168.74                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 35.97     |
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-N</b>      | CBM-N      | 0.08             |
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 31

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219330 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T | CE          | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R | tower | 185.0      | 145.46                | 167.69                 | DC    | 41.13     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 11.65     |
| 274848     | CAMPGROVE;RU | 0.47      |
| 274849     | CRESCENT ;1U | 0.55      |
| 274851     | PROVIDENC;RU | 0.84      |
| 274877     | BISHOP HL;1U | 0.35      |
| 274878     | BISHOP HL;2U | 0.35      |
| 293771     | O-035 E      | 21.85     |
| 294401     | BSHIL;1U E   | 9.24      |
| 294410     | BSHIL;2U E   | 9.24      |
| 916211     | Z1-072 E     | 16.53     |
| 919621     | AA2-039 C    | 2.25      |
| 919622     | AA2-039 E    | 15.08     |
| 925581     | AC1-033 C    | 1.52      |
| 925582     | AC1-033 E    | 10.18     |
| 927201     | AC1-214 C O1 | 7.01      |
| 927202     | AC1-214 E O1 | 22.29     |
| 934051     | AD1-031 C O1 | 3.06      |
| 934052     | AD1-031 E O1 | 5.0       |
| 939631     | AE1-193 C O1 | 7.49      |
| 939632     | AE1-193 E O1 | 50.12     |
| 939681     | AE1-198 C O1 | 22.24     |
| 939682     | AE1-198 E O1 | 18.89     |
| 954201     | J887 C       | 1.33      |
| 954202     | J887 E       | 7.22      |
| 990901     | L-005 E      | 12.19     |
| CARR       | CARR         | 0.0       |
| CBM-S1     | CBM-S1       | 0.24      |
| CBM-S2     | CBM-S2       | 0.06      |
| CBM-W1     | CBM-W1       | 0.87      |
| CBM-W2     | CBM-W2       | 3.18      |
| CIN        | CIN          | 0.02      |
| CPL        | CPL          | 0.02      |
| DEARBORN   | DEARBORN     | 0.04      |
| G-007      | G-007        | 0.01      |
| IPL        | IPL          | 0.01      |
| LGEE       | LGEE         | 0.0       |
| MEC        | MEC          | 2.13      |
| O-066      | O-066        | 0.03      |
| RENSSELAER | RENSSELAER   | 0.0       |
| TILTON     | TILTON       | 0.02      |

| Bus #   | Bus     | MW Impact |
|---------|---------|-----------|
| TRIMBLE | TRIMBLE | 0.0       |
| WEC     | WEC     | 0.02      |

## Index 32

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|---------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217917 | 271835    | KEWANEE ;23 | CE            | 348962  | 4KEEMIN | AMIL        | 1      | COMED_P4_074-38-L7413__ | breaker | 214.0      | 196.26                | 247.63                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |
| O-066A     | O-066A       | 0.1       |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| TATANKA    | TATANKA    | 0.58      |
| UNIONPOWER | UNIONPOWER | 0.0       |
| VFT        | VFT        | 0.59      |
| Z1-043     | Z1-043     | 22.77     |

## Index 33

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217982 | 271836    | KEWANEE ;11 | CE            | 271018  | ANNAWAN; R | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 229.0      | 157.53                | 186.93                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |
| CBM-N      | CBM-N        | 0.08      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPLE</b>       | CPLE       | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 34

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217932 | 271837    | KEWANEE ;12 | CE            | 271836  | KEWANEE ;11 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 256.0      | 180.26                | 219.66                 | DC    | 100.86    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.15      |
| 274877     | BISHOP HL;1U | 0.87      |
| 274878     | BISHOP HL;2U | 0.87      |
| 293513     | O-009 C1     | 0.89      |
| 293514     | O-009 C2     | 0.45      |
| 293515     | O-009 C3     | 0.5       |
| 293516     | O-009 E1     | 23.17     |
| 293517     | O-009 E2     | 11.77     |
| 293518     | O-009 E3     | 12.96     |
| 294401     | BSHIL;1U E   | 22.64     |
| 294410     | BSHIL;2U E   | 22.64     |
| 919621     | AA2-039 C    | 5.52      |
| 919622     | AA2-039 E    | 36.94     |
| 925581     | AC1-033 C    | 3.72      |
| 925582     | AC1-033 E    | 24.91     |
| 926841     | AC1-171 C O1 | 1.32      |
| 926842     | AC1-171 E O1 | 8.81      |
| 934051     | AD1-031 C O1 | 7.52      |
| 934052     | AD1-031 E O1 | 12.26     |
| 939631     | AE1-193 C O1 | 18.36     |
| 939632     | AE1-193 E O1 | 122.9     |
| 939681     | AE1-198 C O1 | 54.53     |
| 939682     | AE1-198 E O1 | 46.33     |
| 954201     | J887 C       | 3.33      |
| 954202     | J887 E       | 18.0      |
| 990901     | L-005 E      | 30.02     |
| AB2-013    | AB2-013      | 6.15      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.52      |
| CBM-S2     | CBM-S2       | 0.2       |
| CBM-W2     | CBM-W2       | 7.47      |
| CIN        | CIN          | 0.55      |
| CPL        | CPL          | 0.08      |
| FARMERCITY | FARMERCITY   | 0.08      |
| G-007A     | G-007A       | 0.23      |
| IPL        | IPL          | 0.32      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.11      |
| NYISO      | NYISO        | 0.31      |
| O-066A     | O-066A       | 0.11      |
| TATANKA    | TATANKA      | 0.4       |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.61      |
| Z1-043 | Z1-043 | 13.07     |

## Index 35

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217913 | 271845    | KEWANEE ;21 | CE            | 271838  | KEWANEE ;13 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 196.09                | 247.73                 | DC    | 257.17    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 2.91      |
| 274877     | BISHOP HL;1U | 2.21      |
| 274878     | BISHOP HL;2U | 2.21      |
| 293513     | O-009 C1     | 2.26      |
| 293514     | O-009 C2     | 1.15      |
| 293515     | O-009 C3     | 1.27      |
| 293516     | O-009 E1     | 59.09     |
| 293517     | O-009 E2     | 30.01     |
| 293518     | O-009 E3     | 33.05     |
| 294401     | BSHIL;1U E   | 57.74     |
| 294410     | BSHIL;2U E   | 57.74     |
| 919621     | AA2-039 C    | 14.07     |
| 919622     | AA2-039 E    | 94.19     |
| 926841     | AC1-171 C O1 | 3.11      |
| 926842     | AC1-171 E O1 | 20.77     |
| 934051     | AD1-031 C O1 | 19.16     |
| 934052     | AD1-031 E O1 | 31.26     |
| 939631     | AE1-193 C O1 | 46.82     |
| 939632     | AE1-193 E O1 | 313.36    |
| 939681     | AE1-198 C O1 | 139.03    |
| 939682     | AE1-198 E O1 | 118.14    |
| 990901     | L-005 E      | 75.92     |
| BAYOU      | BAYOU        | 0.08      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.09      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.18      |
| CBM-N      | CBM-N        | 0.04      |
| CBM-S1     | CBM-S1       | 0.15      |
| CBM-S2     | CBM-S2       | 0.08      |
| CBM-W2     | CBM-W2       | 3.07      |
| CHOCTAW    | CHOCTAW      | 0.02      |
| CIN        | CIN          | 0.58      |
| COTTONWOOD | COTTONWOOD   | 0.34      |
| CPL        | CPL          | 0.03      |
| FARMERCITY | FARMERCITY   | 0.27      |
| G-007A     | G-007A       | 0.14      |
| IPL        | IPL          | 0.32      |
| LGEE       | LGEE         | 0.09      |
| MECS       | MECS         | 0.06      |
| NYISO      | NYISO        | 0.19      |
| O-066A     | O-066A       | 0.07      |
| TATANKA    | TATANKA      | 0.67      |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| UNIONPOWER | UNIONPOWER | 0.04      |
| VFT        | VFT        | 0.37      |
| Z1-043     | Z1-043     | 16.91     |

## Index 36

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218070 | 272110    | NORMANDY ; B | CE            | 293710  | O29    | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 275.0      | 142.0                 | 166.49                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 35.97     |
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-N</b>      | CBM-N      | 0.08             |
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPLE</b>       | CPLE       | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 37

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219424 | 272189    | OGLESBY ; T | CE            | 348935  | 4OGLESBY MN | AMIL        | 1      | COMED_P7_138-L0903__R-S_+_138-L1206__R-S-A | tower | 202.0      | 128.1                 | 133.67                 | DC    | 24.98     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 5.77      |
| 274849     | CRESCENT ;1U | 0.48      |
| 274851     | PROVIDENC;RU | 0.73      |
| 293771     | O-035 E      | 19.05     |
| 294401     | BSHIL;1U E   | 5.63      |
| 294410     | BSHIL;2U E   | 5.63      |
| 916211     | Z1-072 E     | 14.42     |
| 919621     | AA2-039 C    | 1.37      |
| 919622     | AA2-039 E    | 9.18      |
| 925581     | AC1-033 C    | 0.93      |
| 925582     | AC1-033 E    | 6.22      |
| 927201     | AC1-214 C O1 | 6.12      |
| 927202     | AC1-214 E O1 | 19.44     |
| 934051     | AD1-031 C O1 | 1.86      |
| 934052     | AD1-031 E O1 | 3.04      |
| 936511     | AD2-066 C O1 | 57.02     |
| 936512     | AD2-066 E O1 | 38.02     |
| 939631     | AE1-193 C O1 | 4.55      |
| 939632     | AE1-193 E O1 | 30.44     |
| 939681     | AE1-198 C O1 | 13.51     |
| 939682     | AE1-198 E O1 | 11.48     |
| 954201     | J887 C       | 0.81      |
| 954202     | J887 E       | 4.36      |
| 990901     | L-005 E      | 7.35      |
| BLUEG      | BLUEG        | 0.21      |
| CANNELTON  | CANNELTON    | 0.01      |
| CARR       | CARR         | 0.01      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-S1     | CBM-S1       | 0.07      |
| CBM-W1     | CBM-W1       | 1.35      |
| CBM-W2     | CBM-W2       | 0.57      |
| COFFEEN    | COFFEEN      | 0.02      |
| DEARBORN   | DEARBORN     | 0.04      |
| ELMERSMITH | ELMERSMITH   | 0.01      |
| G-007      | G-007        | 0.03      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.01      |
| MEC        | MEC          | 2.28      |
| NEWTON     | NEWTON       | 0.05      |
| O-066      | O-066        | 0.11      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>TILTON</b>     | TILTON     | 0.12             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.02             |
| <b>WEC</b>        | WEC        | 0.17             |

## Index 38

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217922 | 272269    | POWERTON ; | CE            | 272285  | POWERTON ;RT | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 185.89                | 235.95                 | DC    | 115.15    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.86      |
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.92      |
| 293517     | O-009 E2     | 5.04      |
| 293518     | O-009 E3     | 5.55      |
| 293771     | O-035 E      | 3.84      |
| 294401     | BSHIL;1U E   | 25.83     |
| 294410     | BSHIL;2U E   | 25.83     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.14     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.43      |
| 926841     | AC1-171 C O1 | 7.35      |
| 926842     | AC1-171 E O1 | 49.06     |
| 927201     | AC1-214 C O1 | 1.23      |
| 927202     | AC1-214 E O1 | 3.92      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.0      |
| 939631     | AE1-193 C O1 | 20.97     |
| 939632     | AE1-193 E O1 | 140.31    |
| 939681     | AE1-198 C O1 | 62.25     |
| 939682     | AE1-198 E O1 | 52.9      |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| 990901     | L-005 E      | 48.61     |
| BAYOU      | BAYOU        | 0.19      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.3       |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.61      |
| BLUEG      | BLUEG        | 0.9       |
| CALDERWOOD | CALDERWOOD   | 0.1       |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.04      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.78      |
| CHEOAH     | CHEOAH       | 0.09      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CHOCTAW</b>    | CHOCTAW    | 0.21             |
| <b>COFFEEN</b>    | COFFEEN    | 0.37             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.77             |
| <b>DEARBORN</b>   | DEARBORN   | 0.03             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.03             |
| <b>EDWARDS</b>    | EDWARDS    | 0.71             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.12             |
| <b>G-007</b>      | G-007      | 0.11             |
| <b>GIBSON</b>     | GIBSON     | 0.06             |
| <b>HAMLET</b>     | HAMLET     | 0.17             |
| <b>MEC</b>        | MEC        | 1.51             |
| <b>NEWTON</b>     | NEWTON     | 0.65             |
| <b>O-066</b>      | O-066      | 0.38             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.03             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.39             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.1              |
| <b>TVA</b>        | TVA        | 0.36             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>WEC</b>        | WEC        | 0.44             |
| <b>Z1-043</b>     | Z1-043     | 21.92            |

## Index 39

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 218122 | 272366    | ROCK FALL; B | CE            | 272094  | NELSON ; B | CE          | 1      | COMED_P4_155-38-L15508_ | breaker | 426.0      | 136.64                | 152.43                 | DC    | 67.26     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 32.62     |
| 274848 | CAMPGROVE;RU | 0.77      |
| 274849 | CRESCENT ;1U | 0.24      |
| 274851 | PROVIDENC;RU | 0.36      |
| 274877 | BISHOP HL;1U | 0.58      |
| 274878 | BISHOP HL;2U | 0.58      |
| 293513 | O-009 C1     | 0.92      |
| 293514 | O-009 C2     | 0.46      |
| 293515 | O-009 C3     | 0.51      |
| 293516 | O-009 E1     | 23.89     |
| 293517 | O-009 E2     | 12.13     |
| 293518 | O-009 E3     | 13.36     |
| 293712 | O-029 C      | 2.51      |
| 293713 | O-029 C      | 1.38      |
| 293714 | O-029 C      | 1.27      |
| 293715 | O-029 E      | 65.59     |
| 293716 | O-029 E      | 35.96     |
| 293717 | O-029 E      | 33.05     |
| 293771 | O-035 E      | 9.37      |
| 294401 | BSHIL;1U E   | 15.08     |
| 294410 | BSHIL;2U E   | 15.08     |
| 916211 | Z1-072 E     | 7.09      |
| 919621 | AA2-039 C    | 3.68      |
| 919622 | AA2-039 E    | 24.6      |
| 925581 | AC1-033 C    | 2.47      |
| 925582 | AC1-033 E    | 16.56     |
| 926821 | AC1-168 C O1 | 0.98      |
| 926822 | AC1-168 E O1 | 6.58      |
| 926841 | AC1-171 C O1 | 0.93      |
| 926842 | AC1-171 E O1 | 6.19      |
| 927201 | AC1-214 C O1 | 3.01      |
| 927202 | AC1-214 E O1 | 9.56      |
| 934051 | AD1-031 C O1 | 5.01      |
| 934052 | AD1-031 E O1 | 8.18      |
| 937531 | AD2-214 C    | 20.52     |
| 937532 | AD2-214 E    | 9.66      |
| 939631 | AE1-193 C O1 | 12.25     |
| 939632 | AE1-193 E O1 | 81.96     |
| 939681 | AE1-198 C O1 | 36.36     |
| 939682 | AE1-198 E O1 | 30.9      |
| 953201 | J715 C       | 1.5       |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 953202       | J715 E     | 8.11             |
| 954201       | J887 C     | 2.19             |
| 954202       | J887 E     | 11.87            |
| 990901       | L-005 E    | 20.12            |
| AB2-013      | AB2-013    | 5.37             |
| CBM-N        | CBM-N      | 0.09             |
| CBM-S1       | CBM-S1     | 0.96             |
| CBM-S2       | CBM-S2     | 0.34             |
| CBM-W2       | CBM-W2     | 12.33            |
| CIN          | CIN        | 0.71             |
| CPLE         | CPLE       | 0.13             |
| G-007A       | G-007A     | 0.3              |
| IPL          | IPL        | 0.41             |
| LGEE         | LGEE       | 0.14             |
| MEC          | MEC        | 2.07             |
| MECS         | MECS       | 0.04             |
| NYISO        | NYISO      | 0.41             |
| O-066A       | O-066A     | 0.14             |
| VFT          | VFT        | 0.82             |
| Z1-043       | Z1-043     | 27.98            |

## Index 40

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217907 | 272367    | ROCK FALL; R | CE            | 272095  | NELSON ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 207.79                | 253.73                 | DC    | 105.66    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.2       |
| 274877     | BISHOP HL;1U | 0.91      |
| 274878     | BISHOP HL;2U | 0.91      |
| 293513     | O-009 C1     | 2.25      |
| 293514     | O-009 C2     | 1.14      |
| 293515     | O-009 C3     | 1.26      |
| 293516     | O-009 E1     | 58.62     |
| 293517     | O-009 E2     | 29.78     |
| 293518     | O-009 E3     | 32.79     |
| 293771     | O-035 E      | 3.98      |
| 294401     | BSHIL;1U E   | 23.67     |
| 294410     | BSHIL;2U E   | 23.67     |
| 916211     | Z1-072 E     | 3.01      |
| 919621     | AA2-039 C    | 5.77      |
| 919622     | AA2-039 E    | 38.61     |
| 926821     | AC1-168 C O1 | 0.8       |
| 926822     | AC1-168 E O1 | 5.34      |
| 926841     | AC1-171 C O1 | 1.33      |
| 926842     | AC1-171 E O1 | 8.89      |
| 927201     | AC1-214 C O1 | 1.28      |
| 927202     | AC1-214 E O1 | 4.06      |
| 934051     | AD1-031 C O1 | 7.87      |
| 934052     | AD1-031 E O1 | 12.85     |
| 939631     | AE1-193 C O1 | 19.24     |
| 939632     | AE1-193 E O1 | 128.75    |
| 939681     | AE1-198 C O1 | 57.12     |
| 939682     | AE1-198 E O1 | 48.54     |
| 953201     | J715 C       | 1.09      |
| 953202     | J715 E       | 5.92      |
| 990901     | L-005 E      | 31.29     |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.02      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.05      |
| CBM-N      | CBM-N        | 0.05      |
| CBM-S1     | CBM-S1       | 0.2       |
| CBM-S2     | CBM-S2       | 0.1       |
| CBM-W2     | CBM-W2       | 3.54      |
| CIN        | CIN          | 0.47      |
| COTTONWOOD | COTTONWOOD   | 0.15      |
| CPL        | CPL          | 0.04      |
| FARMERCITY | FARMERCITY   | 0.2       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>G-007A</b>     | G-007A     | 0.16             |
| <b>IPL</b>        | IPL        | 0.27             |
| <b>LGEE</b>       | LGEE       | 0.08             |
| <b>MECS</b>       | MECS       | 0.14             |
| <b>NYISO</b>      | NYISO      | 0.22             |
| <b>O-066A</b>     | O-066A     | 0.07             |
| <b>TATANKA</b>    | TATANKA    | 0.56             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.43             |
| <b>Z1-043</b>     | Z1-043     | 21.86            |

## Index 41

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|---------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 828558 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE | AEP         | 1      | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0      | 137.39                | 138.42                 | DC    | 30.36     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 9.79      |
| 274722 | S-055 E      | 9.15      |
| 274808 | UNIV PK N;4U | 1.62      |
| 274809 | UNIV PK N;5U | 1.62      |
| 274811 | UNIV PK N;7U | 1.62      |
| 274812 | UNIV PK N;8U | 1.62      |
| 274814 | UNIV PK N;0U | 1.62      |
| 274815 | UNIV PK N;XU | 1.62      |
| 274832 | U4-027       | 8.61      |
| 274859 | EASYR;U1 E   | 8.84      |
| 274860 | EASYR;U2 E   | 8.84      |
| 274888 | PILOT HIL;1E | 14.86     |
| 274890 | CAYUG;1U E   | 10.7      |
| 274891 | CAYUG;2U E   | 10.7      |
| 275149 | KEMPTON ;1E  | 14.86     |
| 290021 | O50 E        | 15.62     |
| 290051 | GSG-6; E     | 8.43      |
| 290108 | LEEDK;1U E   | 19.61     |
| 293061 | N-015 E      | 12.6      |
| 293516 | O-009 E1     | 7.26      |
| 293517 | O-009 E2     | 3.69      |
| 293518 | O-009 E3     | 4.06      |
| 293644 | O22 E1       | 7.88      |
| 293645 | O22 E2       | 15.3      |
| 293715 | O-029 E      | 7.84      |
| 293716 | O-029 E      | 4.3       |
| 293717 | O-029 E      | 3.95      |
| 293771 | O-035 E      | 5.09      |
| 294392 | P-010 E      | 16.0      |
| 294401 | BSHIL;1U E   | 6.8       |
| 294410 | BSHIL;2U E   | 6.8       |
| 294763 | P-046 E      | 7.56      |
| 295109 | WESTBROOK E  | 4.51      |
| 295111 | SUBLETTE E   | 2.08      |
| 910542 | X3-005 E     | 0.51      |
| 914641 | Y2-103       | 36.59     |
| 915011 | Y3-013 1     | 3.05      |
| 915021 | Y3-013 2     | 3.05      |
| 915031 | Y3-013 3     | 3.05      |
| 916211 | Z1-072 E     | 3.85      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916221 | Z1-073 E     | 4.35      |
| 916502 | Z1-106 E1    | 1.02      |
| 916504 | Z1-106 E2    | 1.02      |
| 916512 | Z1-107 E     | 2.17      |
| 916522 | Z1-108 E     | 2.02      |
| 918052 | AA1-018 E    | 14.29     |
| 919221 | AA1-146      | 14.12     |
| 919581 | AA2-030      | 14.12     |
| 919621 | AA2-039 C    | 1.66      |
| 919622 | AA2-039 E    | 11.1      |
| 920272 | AA2-123 E    | 1.98      |
| 924471 | AB2-096      | 34.27     |
| 925161 | AB2-173      | 2.52      |
| 925302 | AB2-191 E    | 1.12      |
| 925581 | AC1-033 C    | 1.11      |
| 925582 | AC1-033 E    | 7.46      |
| 925881 | AC1-067 O1   | 97.44     |
| 926311 | AC1-109 1    | 1.55      |
| 926321 | AC1-109 2    | 1.55      |
| 926331 | AC1-110 1    | 1.54      |
| 926341 | AC1-110 2    | 1.54      |
| 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 | 6.18      |
| 927091 | AC1-204 1    | 59.17     |
| 927101 | AC1-204 2    | 59.21     |
| 927201 | AC1-214 C O1 | 1.63      |
| 927202 | AC1-214 E O1 | 5.19      |
| 927451 | AC1-142A 1   | 3.45      |
| 927461 | AC1-142A 2   | 3.45      |
| 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      | 53.11     |
| 930501 | AB1-091 O1   | 57.12     |
| 930741 | AB1-122 1O1  | 58.21     |
| 930751 | AB1-122 2O1  | 59.68     |
| 932881 | AC2-115 1    | 1.92      |
| 932891 | AC2-115 2    | 1.92      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932921 | AC2-116      | 0.67      |
| 932931 | AC2-117      | 10.39     |
| 933341 | AC2-147 C    | 0.7       |
| 933342 | AC2-147 E    | 1.15      |
| 933411 | AC2-154 C    | 2.02      |
| 933412 | AC2-154 E    | 3.29      |
| 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    | 1.23      |
| 934051 | AD1-031 C O1 | 2.26      |
| 934052 | AD1-031 E O1 | 3.69      |
| 934101 | AD1-039 1    | 5.7       |
| 934111 | AD1-039 2    | 5.85      |
| 934401 | AD1-064 C O1 | 2.59      |
| 934402 | AD1-064 E O1 | 12.13     |
| 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 | 5.55      |
| 934702 | AD1-098 E O1 | 4.05      |
| 934721 | AD1-100 C    | 15.58     |
| 934722 | AD1-100 E    | 72.69     |
| 934871 | AD1-116 C    | 0.83      |
| 934872 | AD1-116 E    | 1.36      |
| 934881 | AD1-117 C    | 4.32      |
| 934882 | AD1-117 E    | 2.88      |
| 934971 | AD1-129 C    | 0.73      |
| 934972 | AD1-129 E    | 0.49      |
| 935001 | AD1-133 C O1 | 16.67     |
| 935002 | AD1-133 E O1 | 11.11     |
| 936291 | AD2-038 C O1 | 1.97      |
| 936292 | AD2-038 E O1 | 13.19     |
| 936371 | AD2-047 C O1 | 1.8       |
| 936372 | AD2-047 E O1 | 19.42     |
| 936461 | AD2-060      | 2.12      |
| 936511 | AD2-066 C O1 | 6.83      |
| 936512 | AD2-066 E O1 | 4.55      |
| 936781 | AD2-101 C    | 3.51      |
| 936782 | AD2-101 E    | 16.41     |
| 936791 | AD2-102 C    | 9.71      |
| 936792 | AD2-102 E    | 9.33      |
| 936961 | AD2-130      | 0.46      |
| 937001 | AD2-134 C    | 2.2       |
| 937002 | AD2-134 E    | 9.1       |
| 937031 | AD2-137 C O1 | 2.69      |
| 937032 | AD2-137 E O1 | 12.6      |
| 937051 | AD2-140 C O1 | 2.69      |
| 937052 | AD2-140 E O1 | 12.61     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937061 | AD2-141 C O1 | 2.68      |
| 937062 | AD2-141 E O1 | 12.63     |
| 937071 | AD2-142 C O1 | 5.39      |
| 937072 | AD2-142 E O1 | 25.22     |
| 937121 | AD2-148 C O1 | 2.74      |
| 937122 | AD2-148 E O1 | 12.83     |
| 937131 | AD2-149 C O1 | 2.74      |
| 937132 | AD2-149 E O1 | 12.83     |
| 937141 | AD2-150 C O1 | 2.74      |
| 937142 | AD2-150 E O1 | 12.83     |
| 937181 | AD2-155 C O1 | 2.74      |
| 937182 | AD2-155 E O1 | 12.83     |
| 937311 | AD2-172 C    | 1.98      |
| 937312 | AD2-172 E    | 2.74      |
| 937321 | AD2-175 C    | 12.77     |
| 937322 | AD2-175 E    | 8.51      |
| 937331 | AD2-176 C O1 | 5.94      |
| 937332 | AD2-176 E O1 | 3.96      |
| 937401 | AD2-194 1    | 6.36      |
| 937411 | AD2-194 2    | 6.37      |
| 937531 | AD2-214 C    | 3.53      |
| 937532 | AD2-214 E    | 1.66      |
| 938012 | AE1-002 E O1 | 5.4       |
| 938511 | AE1-070 1    | 7.48      |
| 938521 | AE1-070 2    | 6.84      |
| 938851 | AE1-113 C O1 | 7.07      |
| 938852 | AE1-113 E O1 | 22.22     |
| 938861 | AE1-114 C O1 | 2.9       |
| 938862 | AE1-114 E O1 | 11.07     |
| 939051 | AE1-134 1    | 1.1       |
| 939061 | AE1-134 2    | 1.1       |
| 939321 | AE1-163 C O1 | 4.95      |
| 939322 | AE1-163 E O1 | 30.42     |
| 939351 | AE1-166 C O1 | 8.28      |
| 939352 | AE1-166 E O1 | 7.64      |
| 939401 | AE1-172 C O1 | 4.91      |
| 939402 | AE1-172 E O1 | 22.97     |
| 939631 | AE1-193 C O1 | 5.53      |
| 939632 | AE1-193 E O1 | 37.0      |
| 939681 | AE1-198 C O1 | 16.41     |
| 939682 | AE1-198 E O1 | 13.95     |
| 939691 | AE1-199      | 1.93      |
| 939701 | AE1-201 C    | 1.62      |
| 939702 | AE1-201 E    | 0.36      |
| 939732 | AE1-204 E    | 0.24      |
| 939861 | AE1-222 1    | 64.28     |
| 939871 | AE1-222 2    | 65.91     |
| 939921 | AE1-228 C O1 | 8.11      |
| 939922 | AE1-228 E O1 | 5.4       |
| 939961 | AE1-233 C O1 | 1.88      |
| 939962 | AE1-233 E O1 | 7.77      |
| 940101 | AE1-252 C O1 | 8.36      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>940102</b>     | AE1-252 E O1 | 5.58             |
| <b>990901</b>     | L-005 E      | 5.05             |
| <b>AB2-013</b>    | AB2-013      | 12.84            |
| <b>AE1-033</b>    | AE1-033      | 14.59            |
| <b>BLUEG</b>      | BLUEG        | 4.41             |
| <b>CALDERWOOD</b> | CALDERWOOD   | 0.05             |
| <b>CANNELTON</b>  | CANNELTON    | 0.06             |
| <b>CARR</b>       | CARR         | 0.61             |
| <b>CATAWBA</b>    | CATAWBA      | 0.23             |
| <b>CBM-S1</b>     | CBM-S1       | 1.22             |
| <b>CBM-W1</b>     | CBM-W1       | 21.89            |
| <b>CBM-W2</b>     | CBM-W2       | 43.2             |
| <b>CHEOAH</b>     | CHEOAH       | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE    | 0.01             |
| <b>DEARBORN</b>   | DEARBORN     | 2.62             |
| <b>ELMERSMITH</b> | ELMERSMITH   | 0.06             |
| <b>G-007</b>      | G-007        | 1.71             |
| <b>GIBSON</b>     | GIBSON       | 0.02             |
| <b>HAMLET</b>     | HAMLET       | 0.88             |
| <b>MEC</b>        | MEC          | 30.08            |
| <b>O-066</b>      | O-066        | 5.77             |
| <b>RENSSELAER</b> | RENSSELAER   | 0.49             |
| <b>SANTEETLA</b>  | SANTEETLA    | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE      | 0.52             |
| <b>WEC</b>        | WEC          | 6.46             |
| <b>Z1-043</b>     | Z1-043       | 22.86            |

## Index 42

| ID     | FROM BUS# | FROM BUS          | FROM BUS AREA | TO BUS# | TO BUS          | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------------|---------------|---------|-----------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217967 | 293510    | O09<br>OP1<br>138 | CE            | 272367  | ROCK<br>FALL; R | CE          | 1      | COMED_P4_074-<br>38-L7413__ | breaker | 331.0      | 162.03                | 195.21                 | DC    | 109.85    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293513     | O-009 C1     | 2.34      |
| 293514     | O-009 C2     | 1.18      |
| 293515     | O-009 C3     | 1.31      |
| 293516     | O-009 E1     | 60.95     |
| 293517     | O-009 E2     | 30.96     |
| 293518     | O-009 E3     | 34.09     |
| 293771     | O-035 E      | 4.14      |
| 294401     | BSHIL;1U E   | 24.6      |
| 294410     | BSHIL;2U E   | 24.6      |
| 916211     | Z1-072 E     | 3.13      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.13     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.55      |
| 926841     | AC1-171 C O1 | 1.38      |
| 926842     | AC1-171 E O1 | 9.24      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.22      |
| 934051     | AD1-031 C O1 | 8.18      |
| 934052     | AD1-031 E O1 | 13.35     |
| 939631     | AE1-193 C O1 | 20.0      |
| 939632     | AE1-193 E O1 | 133.85    |
| 939681     | AE1-198 C O1 | 59.38     |
| 939682     | AE1-198 E O1 | 50.46     |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 990901     | L-005 E      | 32.53     |
| BAYOU      | BAYOU        | 0.04      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.04      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.07      |
| CBM-N      | CBM-N        | 0.05      |
| CBM-S1     | CBM-S1       | 0.19      |
| CBM-S2     | CBM-S2       | 0.1       |
| CBM-W2     | CBM-W2       | 3.54      |
| CIN        | CIN          | 0.48      |
| COTTONWOOD | COTTONWOOD   | 0.18      |
| CPLE       | CPLE         | 0.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>FARMERCITY</b> | FARMERCITY | 0.22             |
| <b>G-007A</b>     | G-007A     | 0.17             |
| <b>IPL</b>        | IPL        | 0.28             |
| <b>LGEE</b>       | LGEE       | 0.08             |
| <b>MECS</b>       | MECS       | 0.15             |
| <b>NYISO</b>      | NYISO      | 0.23             |
| <b>O-066A</b>     | O-066A     | 0.08             |
| <b>TATANKA</b>    | TATANKA    | 0.6              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.02             |
| <b>VFT</b>        | VFT        | 0.45             |
| <b>Z1-043</b>     | Z1-043     | 22.72            |

## Index 43

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 219248 | 293710    | O29      | CE            | 272097  | NELSON ;RT | CE          | 1      | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | tower | 275.0      | 223.1                 | 250.88                 | DC    | 76.41     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 31.91     |
| 274848 | CAMPGROVE;RU | 0.87      |
| 274849 | CRESCENT ;1U | 0.27      |
| 274851 | PROVIDENC;RU | 0.41      |
| 274877 | BISHOP HL;1U | 0.66      |
| 274878 | BISHOP HL;2U | 0.66      |
| 293513 | O-009 C1     | 1.66      |
| 293514 | O-009 C2     | 0.84      |
| 293515 | O-009 C3     | 0.93      |
| 293516 | O-009 E1     | 43.42     |
| 293517 | O-009 E2     | 22.06     |
| 293518 | O-009 E3     | 24.29     |
| 293712 | O-029 C      | 2.16      |
| 293713 | O-029 C      | 1.18      |
| 293714 | O-029 C      | 1.09      |
| 293715 | O-029 E      | 56.29     |
| 293716 | O-029 E      | 30.87     |
| 293717 | O-029 E      | 28.37     |
| 293771 | O-035 E      | 10.61     |
| 294401 | BSHIL;1U E   | 17.1      |
| 294410 | BSHIL;2U E   | 17.1      |
| 916211 | Z1-072 E     | 8.03      |
| 919621 | AA2-039 C    | 4.17      |
| 919622 | AA2-039 E    | 27.9      |
| 925581 | AC1-033 C    | 2.8       |
| 925582 | AC1-033 E    | 18.76     |
| 926821 | AC1-168 C O1 | 1.12      |
| 926822 | AC1-168 E O1 | 7.49      |
| 926841 | AC1-171 C O1 | 1.03      |
| 926842 | AC1-171 E O1 | 6.89      |
| 927201 | AC1-214 C O1 | 3.41      |
| 927202 | AC1-214 E O1 | 10.83     |
| 934051 | AD1-031 C O1 | 5.69      |
| 934052 | AD1-031 E O1 | 9.29      |
| 939631 | AE1-193 C O1 | 13.91     |
| 939632 | AE1-193 E O1 | 93.1      |
| 939681 | AE1-198 C O1 | 41.31     |
| 939682 | AE1-198 E O1 | 35.1      |
| 953201 | J715 C       | 1.77      |
| 953202 | J715 E       | 9.57      |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 954201       | J887 C     | 2.54             |
| 954202       | J887 E     | 13.72            |
| 990901       | L-005 E    | 22.79            |
| AB2-013      | AB2-013    | 5.59             |
| CBM-N        | CBM-N      | 0.07             |
| CBM-S1       | CBM-S1     | 0.34             |
| CBM-S2       | CBM-S2     | 0.16             |
| CBM-W2       | CBM-W2     | 5.87             |
| CIN          | CIN        | 0.61             |
| CPLE         | CPLE       | 0.06             |
| FARMERCITY   | FARMERCITY | 0.22             |
| G-007A       | G-007A     | 0.23             |
| IPL          | IPL        | 0.35             |
| LGEE         | LGEE       | 0.11             |
| MECS         | MECS       | 0.2              |
| NYISO        | NYISO      | 0.32             |
| O-066A       | O-066A     | 0.11             |
| TATANKA      | TATANKA    | 0.7              |
| VFT          | VFT        | 0.62             |
| Z1-043       | Z1-043     | 31.71            |

## Index 44

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|---------------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 828525 | 346809    | 7CASEY   | AMIL          | 247712  | 05SULLIVAN | AEP         | 1      | AEP_P4_#3128_05EUGENE<br>345_A2 | breaker | 1466.0     | 145.69                | 146.68                 | DC    | 31.59     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 6.24      |
| 274650 | KINCAID ;1U  | 14.71     |
| 274651 | KINCAID ;2U  | 14.73     |
| 274832 | U4-027       | 8.54      |
| 274853 | TWINGROVE;U1 | 0.74      |
| 274854 | TWINGROVE;U2 | 0.74      |
| 274859 | EASYR;U1 E   | 6.8       |
| 274860 | EASYR;U2 E   | 6.8       |
| 274890 | CAYUG;1U E   | 10.14     |
| 274891 | CAYUG;2U E   | 10.14     |
| 276150 | W2-048 E     | 2.05      |
| 290021 | O50 E        | 10.78     |
| 290051 | GSG-6; E     | 5.68      |
| 290108 | LEEDK;1U E   | 12.4      |
| 290261 | S-027 E      | 19.36     |
| 290265 | S-028 E      | 19.36     |
| 293516 | O-009 E1     | 6.47      |
| 293517 | O-009 E2     | 3.29      |
| 293518 | O-009 E3     | 3.62      |
| 293644 | O22 E1       | 4.9       |
| 293645 | O22 E2       | 9.51      |
| 293715 | O-029 E      | 6.65      |
| 293716 | O-029 E      | 3.65      |
| 293717 | O-029 E      | 3.35      |
| 293771 | O-035 E      | 5.18      |
| 294401 | BSHIL;1U E   | 7.08      |
| 294410 | BSHIL;2U E   | 7.08      |
| 294763 | P-046 E      | 5.38      |
| 295109 | WESTBROOK E  | 3.04      |
| 295111 | SUBLETTE E   | 1.65      |
| 296125 | R-030 C3     | 3.34      |
| 296128 | R-030 E3     | 13.34     |
| 296271 | R-030 C2     | 3.3       |
| 296272 | R-030 E2     | 13.18     |
| 296308 | R-030 C1     | 3.3       |
| 296309 | R-030 E1     | 13.18     |
| 905081 | W4-005 C     | 0.98      |
| 905082 | W4-005 E     | 42.62     |
| 909052 | X2-022 E     | 28.51     |
| 916211 | Z1-072 E     | 3.92      |
| 916221 | Z1-073 E     | 2.93      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 917502 | Z2-087 E     | 17.32     |
| 918052 | AA1-018 E    | 7.91      |
| 919221 | AA1-146      | 11.65     |
| 919581 | AA2-030      | 11.65     |
| 919621 | AA2-039 C    | 1.73      |
| 919622 | AA2-039 E    | 11.55     |
| 920272 | AA2-123 E    | 1.22      |
| 924041 | AB2-047 C O1 | 3.3       |
| 924042 | AB2-047 E O1 | 22.1      |
| 924261 | AB2-070 C O1 | 3.84      |
| 924262 | AB2-070 E O1 | 25.68     |
| 924471 | AB2-096      | 21.83     |
| 925161 | AB2-173      | 2.08      |
| 925302 | AB2-191 E    | 0.75      |
| 925581 | AC1-033 C    | 1.16      |
| 925582 | AC1-033 E    | 7.76      |
| 925771 | AC1-053 C    | 3.87      |
| 925772 | AC1-053 E    | 25.93     |
| 926431 | AC1-114      | 1.3       |
| 926821 | AC1-168 C O1 | 0.83      |
| 926822 | AC1-168 E O1 | 5.54      |
| 926841 | AC1-171 C O1 | 1.14      |
| 926842 | AC1-171 E O1 | 7.61      |
| 927201 | AC1-214 C O1 | 1.66      |
| 927202 | AC1-214 E O1 | 5.29      |
| 927511 | AC1-113 1    | 0.65      |
| 927521 | AC1-113 2    | 0.65      |
| 927531 | AC1-185 1    | 0.43      |
| 927541 | AC1-185 2    | 0.43      |
| 927551 | AC1-185 3    | 0.43      |
| 927561 | AC1-185 4    | 0.43      |
| 927571 | AC1-185 5    | 0.43      |
| 927581 | AC1-185 6    | 0.43      |
| 927591 | AC1-185 7    | 0.43      |
| 927601 | AC1-185 8    | 0.43      |
| 930481 | AB1-089      | 35.32     |
| 930741 | AB1-122 1O1  | 34.94     |
| 932881 | AC2-115 1    | 1.3       |
| 932891 | AC2-115 2    | 1.3       |
| 932921 | AC2-116      | 0.45      |
| 933341 | AC2-147 C    | 0.54      |
| 933342 | AC2-147 E    | 0.88      |
| 933911 | AD1-013 C    | 0.99      |
| 933912 | AD1-013 E    | 1.59      |
| 933931 | AD1-016 C    | 0.46      |
| 933932 | AD1-016 E    | 0.76      |
| 934051 | AD1-031 C O1 | 2.35      |
| 934052 | AD1-031 E O1 | 3.84      |
| 934101 | AD1-039 1    | 3.42      |
| 934401 | AD1-064 C O1 | 1.64      |
| 934402 | AD1-064 E O1 | 7.66      |
| 934431 | AD1-067 C    | 0.07      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 934432 | AD1-067 E    | 0.3       |
| 934651 | AD1-096 C    | 0.51      |
| 934652 | AD1-096 E    | 0.83      |
| 934701 | AD1-098 C O1 | 3.77      |
| 934702 | AD1-098 E O1 | 2.75      |
| 934871 | AD1-116 C    | 0.46      |
| 934872 | AD1-116 E    | 0.75      |
| 934881 | AD1-117 C    | 3.31      |
| 934882 | AD1-117 E    | 2.21      |
| 934971 | AD1-129 C    | 0.47      |
| 934972 | AD1-129 E    | 0.31      |
| 935001 | AD1-133 C O1 | 14.12     |
| 935002 | AD1-133 E O1 | 9.41      |
| 935141 | AD1-148      | 7.45      |
| 936291 | AD2-038 C O1 | 1.34      |
| 936292 | AD2-038 E O1 | 8.98      |
| 936511 | AD2-066 C O1 | 4.76      |
| 936512 | AD2-066 E O1 | 3.17      |
| 936771 | AD2-100 C O1 | 21.12     |
| 936772 | AD2-100 E O1 | 14.08     |
| 936791 | AD2-102 C    | 6.72      |
| 936792 | AD2-102 E    | 6.46      |
| 936972 | AD2-131 E O1 | 8.38      |
| 937001 | AD2-134 C    | 1.48      |
| 937002 | AD2-134 E    | 6.13      |
| 937161 | AD2-153 C O1 | 3.2       |
| 937162 | AD2-153 E O1 | 15.0      |
| 937171 | AD2-154 C O1 | 3.2       |
| 937172 | AD2-154 E O1 | 15.0      |
| 937211 | AD2-159 C    | 4.61      |
| 937212 | AD2-159 E    | 21.56     |
| 937311 | AD2-172 C    | 1.41      |
| 937312 | AD2-172 E    | 1.95      |
| 937331 | AD2-176 C O1 | 3.65      |
| 937332 | AD2-176 E O1 | 2.44      |
| 937531 | AD2-214 C    | 3.23      |
| 937532 | AD2-214 E    | 1.52      |
| 938851 | AE1-113 C O1 | 4.88      |
| 938852 | AE1-113 E O1 | 15.33     |
| 938861 | AE1-114 C O1 | 2.16      |
| 938862 | AE1-114 E O1 | 8.27      |
| 939051 | AE1-134 1    | 0.91      |
| 939061 | AE1-134 2    | 0.91      |
| 939321 | AE1-163 C O1 | 3.37      |
| 939322 | AE1-163 E O1 | 20.72     |
| 939401 | AE1-172 C O1 | 4.02      |
| 939402 | AE1-172 E O1 | 18.81     |
| 939631 | AE1-193 C O1 | 5.75      |
| 939632 | AE1-193 E O1 | 38.49     |
| 939681 | AE1-198 C O1 | 17.08     |
| 939682 | AE1-198 E O1 | 14.51     |
| 939691 | AE1-199      | 1.29      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 939701  | AE1-201 C    | 1.0       |
| 939702  | AE1-201 E    | 0.22      |
| 939741  | AE1-205 C O1 | 8.33      |
| 939742  | AE1-205 E O1 | 11.5      |
| 939861  | AE1-222 1    | 38.59     |
| 939921  | AE1-228 C O1 | 5.41      |
| 939922  | AE1-228 E O1 | 3.61      |
| 939961  | AE1-233 C O1 | 1.15      |
| 939962  | AE1-233 E O1 | 4.76      |
| 940101  | AE1-252 C O1 | 6.85      |
| 940102  | AE1-252 E O1 | 4.57      |
| 950291  | J291         | 3.2       |
| 950701  | J196 C       | 1.33      |
| 950702  | J196 E       | 5.3       |
| 951001  | J339         | 6.03      |
| 951741  | J474 C       | 2.02      |
| 951742  | J474 E       | 10.95     |
| 952251  | J641         | 10.35     |
| 952271  | J644         | 9.57      |
| 952321  | J734         | 5.07      |
| 952651  | J756 C       | 2.46      |
| 952652  | J756 E       | 13.33     |
| 952871  | J757 C       | 4.06      |
| 952872  | J757 E       | 21.98     |
| 953241  | J467 C       | 2.76      |
| 953242  | J467 E       | 14.91     |
| 953371  | J808         | 9.06      |
| 953401  | J811         | 17.76     |
| 953431  | J853         | 11.11     |
| 953641  | J813         | 43.81     |
| 953651  | J815         | 32.11     |
| 953671  | J817         | 10.67     |
| 953741  | J826 C       | 1.65      |
| 953742  | J826 E       | 8.94      |
| 953801  | J835 C       | 2.68      |
| 953802  | J835 E       | 14.48     |
| 953851  | J845 C       | 1.72      |
| 953852  | J845 E       | 9.32      |
| 953881  | J848 C       | 5.27      |
| 953882  | J848 E       | 28.51     |
| 953951  | J859         | 9.79      |
| 954081  | J872 C       | 4.44      |
| 954082  | J872 E       | 24.03     |
| 954181  | J884         | 7.67      |
| 954411  | J912         | 14.24     |
| 954681  | J949         | 38.92     |
| 954721  | J750 C       | 2.11      |
| 954722  | J750 E       | 11.4      |
| 954761  | J468 C       | 7.08      |
| 954762  | J468 E       | 28.32     |
| 990901  | L-005 E      | 11.18     |
| AB2-013 | AB2-013      | 13.3      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AE1-033</b>    | AE1-033    | 10.55            |
| <b>AE1-042</b>    | AE1-042    | 10.08            |
| <b>BLUEG</b>      | BLUEG      | 10.38            |
| <b>CARR</b>       | CARR       | 0.29             |
| <b>CBM-S1</b>     | CBM-S1     | 13.17            |
| <b>CBM-S2</b>     | CBM-S2     | 2.35             |
| <b>CBM-W1</b>     | CBM-W1     | 28.23            |
| <b>CBM-W2</b>     | CBM-W2     | 199.79           |
| <b>CIN</b>        | CIN        | 3.85             |
| <b>CPL</b>        | CPL        | 0.56             |
| <b>DEARBORN</b>   | DEARBORN   | 0.69             |
| <b>G-007</b>      | G-007      | 0.8              |
| <b>GIBSON</b>     | GIBSON     | 0.02             |
| <b>MEC</b>        | MEC        | 45.61            |
| <b>O-066</b>      | O-066      | 2.69             |
| <b>RENSSELAER</b> | RENSSELAER | 0.23             |
| <b>TRIMBLE</b>    | TRIMBLE    | 1.31             |
| <b>WEC</b>        | WEC        | 4.13             |
| <b>Z1-043</b>     | Z1-043     | 21.97            |

## Index 45

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 217927 | 348962    | 4KEEMIN  | AMIL          | 272111  | NORMANDY ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 214.0      | 181.91                | 233.28                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |
| O-066A     | O-066A       | 0.1       |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| TATANKA    | TATANKA    | 0.58      |
| UNIONPOWER | UNIONPOWER | 0.0       |
| VFT        | VFT        | 0.59      |
| Z1-043     | Z1-043     | 22.77     |

# Affected Systems

## MISO

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

| Contingency Name                            | Contingency Definition                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMED_P2-1_981-L7713__                      | CONTINGENCY 'COMED_P2-1_981-L7713__'<br>TRIP BRANCH FROM BUS 271241 TO BUS 272189 CKT 1 / CRESCENT ; R 138 OGLESBY ; T 138<br>END                                                                                                                                                                                                                                           |
| COMED_P2-2_001_LA-138B__1                   | CONTINGENCY 'COMED_P2-2_001_LA-138B__1'<br>DISCONNECT BUS 271908 / LASCO STA; B 138<br>END                                                                                                                                                                                                                                                                                  |
| COMED_P7_345-L19601_B-S+_345-L9801__R-S_FSA | CONTINGENCY 'COMED_P7_345-L19601_B-S+_345-L9801__R-S_FSA'<br>TRIP BRANCH FROM BUS 270790 TO BUS 270770 CKT 1 / KATYD; B 345 GOODI;4B 345<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>END                                                                                                                                               |
| COMED_P2-2_074_KE-138__1_NO_FSA             | CONTINGENCY 'COMED_P2-2_074_KE-138__1_NO_FSA'<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>DISCONNECT BUS 271018 / ANNAWAN; R 138 / ADDED TO TAKE OUT FULL FSA<br>PATH<br>END                                                                                                                 |
| COMED_P4_112-65-BT3-4__                     | CONTINGENCY 'COMED_P4_112-65-BT3-4__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765<br>TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345<br>TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33<br>END         |
| COMED_P7_138-L93008_R-R+_138-L18706_R-R     | CONTINGENCY 'COMED_P7_138-L93008_R-R+_138-L18706_R-R'<br>TRIP BRANCH FROM BUS 271018 TO BUS 272110 CKT 1 / U4-027 NORMANDY<br>TRIP BRANCH FROM BUS 293710 TO BUS 272110 CKT 1 / O29 138 NORMA; B 138<br>TRIP BRANCH FROM BUS 293510 TO BUS 272111 CKT 1 / O09 OP1 138 NORMA; R 138<br>TRIP BRANCH FROM BUS 348962 TO BUS 272111 CKT 1 / 4KEEMIN 138 NORMANDY ; R 138<br>END |
| COMED_P4_001-38-TR81__                      | CONTINGENCY 'COMED_P4_001-38-TR81__'<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>TRIP BRANCH FROM BUS 270802 TO BUS 271908 CKT 1 / LASCO STA; B 345 LASCO STA; B 138<br>DISCONNECT BUS 271908 / LASCO STA; B 138<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>END                |
| COMED_P2-1_074-L6101__                      | CONTINGENCY 'COMED_P2-1_074-L6101__'<br>TRIP BRANCH FROM BUS 271835 TO BUS 271655 CKT 1 / KEWAN; 2 138 HENNE; T 138<br>END                                                                                                                                                                                                                                                  |
| COMED_P4_023-65-BT2-3__                     | CONTINGENCY 'COMED_P4_023-65-BT2-3__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765<br>END                                                                                                                                                                        |

| Contingency Name                                    | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMED_P2-1_155-L15518__                             | CONTINGENCY 'COMED_P2-1_155-L15518__'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AEP_P1-2_#286                                       | CONTINGENCY 'AEP_P1-2_#286'<br>OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885<br>7BUNSONVILLE 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P2-2_155_NE-138B__4                           | CONTINGENCY 'COMED_P2-2_155_NE-138B__4'<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END                                                                                                                                                                                                                                                                                                        |
| COMED_P4_155-38-TR84__                              | CONTINGENCY 'COMED_P4_155-38-TR84__'<br>TRIP BRANCH FROM BUS 275204 TO BUS 270828 CKT 1 / NELSO;4M 138 NELSO; B 345<br>TRIP BRANCH FROM BUS 275204 TO BUS 272094 CKT 1 / NELSO;4M 138 NELSO; B 138<br>TRIP BRANCH FROM BUS 275204 TO BUS 275304 CKT 1 / NELSO;4M 138 NELSO;4C 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>END                                                                                                                                            |
| COMED_P7_138-L6101__-S_+_138-L7713__R-S-B           | CONTINGENCY 'COMED_P7_138-L6101__-S_+_138-L7713__R-S-B'<br>TRIP BRANCH FROM BUS 271655 TO BUS 271835 CKT 1 / HENNEEPIN; T 138 KEWANEE ;23 138<br>TRIP BRANCH FROM BUS 271655 TO BUS 348918 CKT 1 / HENNEEPIN; T 138 4HENNEPIN S 138<br>TRIP BRANCH FROM BUS 926820 TO BUS 271655 CKT 1 / AD2-066 TAP ; 138 HENNEEPIN; T 138<br>TRIP BRANCH FROM BUS 271241 TO BUS 272189 CKT 1 / CRESCENT ; R 138 OGLESBY ; T 138<br>TRIP BRANCH FROM BUS 272189 TO BUS 936510 CKT 1 / OGLESBY ; T 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272189 TO BUS 348935 CKT 1 / OGLESBY ; T 138 4OGLESBY MN 138<br>END |
| AEP_P1-2_#697A                                      | CONTINGENCY 'AEP_P1-2_#697A'<br>OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK<br>N;RP 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P7_138-L7411__R-R_+_138-L7408__R-R_U4-027-FSA | CONTINGENCY 'COMED_P7_138-L7411__R-R_+_138-L7408__R-R_U4-027-FSA'<br>TRIP BRANCH FROM BUS 348962 TO BUS 271835 CKT 1 / NORMA; R 138 KEWAN; 2 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 271836 CKT 1 / U4-027 KEWAN; 1 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 272110 CKT 1 / U4-027 NORMANDY<br>END                                                                                                                                                                                                                                                                                              |
| AEP_P4_#3128_05EUGENE 345_A2                        | CONTINGENCY 'AEP_P4_#3128_05EUGENE 345_A2'<br>OPEN BRANCH FROM BUS 243221 TO BUS 249504 CKT 1 / 243221 05EUGENE 345 249504<br>08CAYSUB 345 1<br>OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885<br>7BUNSONVILLE 345 1<br>END                                                                                                                                                                                                                                                                                                                                          |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AEP_P1-2_#8907                            | CONTINGENCY 'AEP_P1-2_#8907'<br>OPEN BRANCH FROM BUS 247712 TO BUS 346809 CKT 1 / 247712 05SULLIVAN 345 346809<br>7CASEY 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| COMED_P2-2_116_GG-345R__2_NO_FSA          | CONTINGENCY 'COMED_P2-2_116_GG-345R__2_NO_FSA'<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COMED_P1-2_138-L15508_R-R                 | CONTINGENCY 'COMED_P1-2_138-L15508_R-R'<br>TRIP BRANCH FROM BUS 271331 TO BUS 271333 CKT 1 / DIXON;8R 138 DIXON; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 271331 CKT 1 / NELSO;RT 138 DIXON;8R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 272095 CKT 1 / NELSO;RT 138 NELSO; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 293710 CKT 1 / NELSO;RT 138 O29 138<br>MOVE 100 PERCENT LOAD FROM BUS 271331 TO BUS 271330 / DIXON;8R 138 DIXON;7B 138<br>END                                                                                                                                                                                                                                                                                                                       |
| COMED_P1-2_138-L15518GB-R-A               | CONTINGENCY 'COMED_P1-2_138-L15518GB-R-A'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / R FAL; B 138 H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / H71 ;BT 138 H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / H71 ; B 138 H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / R FAL; B 138 R FAL; R 138<br>END                                                                                                                                                                                                                                     |
| COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | CONTINGENCY 'COMED_P7_138-L15509GR-R+_138-L15518GB-R-A'<br>TRIP BRANCH FROM BUS 272095 TO BUS 272367 CKT 1 / NELSON ; R 138 ROCK FALL; R 138<br>TRIP BRANCH FROM BUS 272367 TO BUS 274244 CKT 7 / ROCK FALL; R 138 ROCK FALL; 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSON ; B 138 ROCK FALL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / ROCK FALL; B 138 ESS H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / ESS H71 ;BT 138 AD2-214 TAP; 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / ESS H71 ;BT 138 ESS H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / ESS H71 ; B 138 ESS H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / ROCK FALL; B 138 ROCK FALL; R 138<br>END |
| COMED_P4_023-65-BT4-5__                   | CONTINGENCY 'COMED_P4_023-65-BT4-5__'<br>TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765<br>TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345<br>TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>END                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P4_001-38-L0108__                   | CONTINGENCY 'COMED_P4_001-38-L0108__'<br>TRIP BRANCH FROM BUS 271908 TO BUS 271986 CKT 1 / LASCO; B 138 MAZON; B 138<br>DISCONNECT BUS 271908 / LASCO; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Contingency Name                             | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMED_P1-2_138-L1206__R-S-A                  | CONTINGENCY 'COMED_P1-2_138-L1206__R-S-A'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>END |
| 271835                                       | CONTINGENCY '271835'<br>OPEN BRANCH FROM BUS 271835 TO BUS 271839 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P2-2_074_KE-138__1_FSA                 | CONTINGENCY 'COMED_P2-2_074_KE-138__1_FSA'<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 271837                                       | CONTINGENCY '271837'<br>OPEN BRANCH FROM BUS 271837 TO BUS 271838 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P1-2_345-L1202__B-S-A                  | CONTINGENCY 'COMED_P1-2_345-L1202__B-S-A'<br>TRIP BRANCH FROM BUS 270716 TO BUS 930750 CKT 1 / DRESDEN ; B 345 AB1-122 TAP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COMED_P4_112-65-BT4-5__                      | CONTINGENCY 'COMED_P4_112-65-BT4-5__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765<br>TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345<br>TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 271838                                       | CONTINGENCY '271838'<br>OPEN BRANCH FROM BUS 271838 TO BUS 271845 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P7_345-L0301__B-S_+_345-L9801__R-S_FSA | CONTINGENCY 'COMED_P7_345-L0301__B-S_+_345-L9801__R-S_FSA'<br>TRIP BRANCH FROM BUS 270854 TO BUS 270790 CKT 1 / POWER; B 345 KATYDID<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Contingency Name                        | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| COMED_P4_155-45-BT6-7__                 | CONTINGENCY 'COMED_P4_155-45-BT6-7__'<br>TRIP BRANCH FROM BUS 275204 TO BUS 270828 CKT 1 / NELSO;4M 138 NELSO; B 345<br>TRIP BRANCH FROM BUS 275204 TO BUS 272094 CKT 1 / NELSO;4M 138 NELSO; B 138<br>TRIP BRANCH FROM BUS 275204 TO BUS 275304 CKT 1 / NELSO;4M 138 NELSO;4C 34.5<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P7_345-L6607__B-S+_345-L97008_R-S | CONTINGENCY 'COMED_P7_345-L6607__B-S+_345-L97008_R-S'<br>TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRANKFO; B 345 CRETE EC ;BP 345<br>TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UNIV PK N;RP 345 05OLIVE 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| COMED_P1-2_138-L13304_R-R               | CONTINGENCY 'COMED_P1-2_138-L13304_R-R'<br>TRIP BRANCH FROM BUS 272367 TO BUS 293510 CKT 1 / R FAL; R 138 O9 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P7_138-L7411__R-R+_138-L7408_R-R  | CONTINGENCY 'COMED_P7_138-L7411__R-R+_138-L7408_R-R'<br>TRIP BRANCH FROM BUS 348962 TO BUS 271835 CKT 1 / NORMA; R 138 KEWAN; 2 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 271836 CKT 1 / U4-027 KEWAN; 1 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P4_074-38-L7413__                 | CONTINGENCY 'COMED_P4_074-38-L7413__'<br>TRIP BRANCH FROM BUS 271836 TO BUS 271241 CKT 1 / KEWAN; 1 138 CRESC; R 138<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P1-2_138-L0112__B-S               | CONTINGENCY 'COMED_P1-2_138-L0112__B-S'<br>TRIP BRANCH FROM BUS 271844 TO BUS 271908 CKT 1 / KICKA; B 138 LASCO; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COMED_P4_116-45-L9801_FSA               | CONTINGENCY 'COMED_P4_116-45-L9801_FSA'<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P7_138-L1206__R-S+_345-L2311__R-S | CONTINGENCY 'COMED_P7_138-L1206__R-S+_345-L2311__R-S'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>TRIP BRANCH FROM BUS 270697 TO BUS 270717 CKT 1 / COLLINS ; R 345 DRESDEN ; R 345<br>END |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| COMED_P4_937-45-BT1-2__                   | CONTINGENCY 'COMED_P4_937-45-BT1-2__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>TRIP BRANCH FROM BUS 274768 TO BUS 270678 CKT 1 / LEECO;BP 345 BYRON; B 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COMED_P4_116-45-L11614__                  | CONTINGENCY 'COMED_P4_116-45-L11614__'<br>TRIP BRANCH FROM BUS 270667 TO BUS 270665 CKT 1 / B ISL;RT 345 B ISL; R 345<br>TRIP BRANCH FROM BUS 270667 TO BUS 270927 CKT 1 / B ISL;RT 345 WILTO; R 345<br>TRIP BRANCH FROM BUS 270769 TO BUS 270667 CKT 1 / GOODI;2R 345 B ISL;RT 345<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| COMED_P7_138-L1205__B-S+_138-L1206__R-S-A | CONTINGENCY 'COMED_P7_138-L1205__B-S+_138-L1206__R-S-A'<br>TRIP BRANCH FROM BUS 271336 TO BUS 272124 CKT 1 / DRESDEN ; B 138 ESS J339 ; B 138<br>TRIP BRANCH FROM BUS 271986 TO BUS 271908 CKT 1 / MAZON ; B 138 LASCO STA; B 138<br>TRIP BRANCH FROM BUS 272318 TO BUS 271986 CKT 1 / ESS J375 ; B 138 MAZON ; B 138<br>TRIP BRANCH FROM BUS 272318 TO BUS 272124 CKT 1 / ESS J375 ; B 138 ESS J339 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272124 TO BUS 272125 / ESS J339 ; B 138 ESS J339 ; R 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274837 / EQUISTAR ; B 13.8<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>END |
| Base Case                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| COMED_P4_012-38-L1206__                   | CONTINGENCY 'COMED_P4_012-38-L1206__'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138 /*<br>CONTINGENCY LINE ADDED FOR AE1 BUILD<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>TRIP BRANCH FROM BUS 271337 TO BUS 271336 CKT 1 / DRESDEN ; R 138 DRESDEN ; B 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 271567 CKT 1 / DRESDEN ; R 138 GOOSE LK ; R 138<br>END                                                                                                                                                                                                                                                                                                                                                                          |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| COMED_P7_345-L94507_B-S+_345-L97008_R-S   | CONTINGENCY 'COMED_P7_345-L94507_B-S+_345-L97008_R-S'<br>TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345<br>TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UPNOR;RP 345 05OLIVE 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| COMED_P4_155-38-L15518_                   | CONTINGENCY 'COMED_P4_155-38-L15518_'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / R FAL; B 138 H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138 /*<br>CONTINGENCY LINE ADDED FOR AE1 BUILD<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / H71 ;BT 138 H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / H71 ; B 138 H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / R FAL; B 138 R FAL; R 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END |
| COMED_P1-2_345-L11613AB-S                 | CONTINGENCY 'COMED_P1-2_345-L11613AB-S'<br>TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / B ISL;BT 345 B ISL; B 345<br>TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / B ISL;BT 345 WILTO; B 345<br>TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 / GOODI;4B 345 B ISL;BT 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| COMED_P1-2_345-L11622_R-S                 | CONTINGENCY 'COMED_P1-2_345-L11622_R-S'<br>TRIP BRANCH FROM BUS 270737 TO BUS 270769 CKT 1 / ELWOO; R 345 GOODI;1R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| AEP_P1-2_#695A                            | CONTINGENCY 'AEP_P1-2_#695A'<br>OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644<br>WILTON ; 765 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P1-2_345-L15501_B-R                 | CONTINGENCY 'COMED_P1-2_345-L15501_B-R'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| COMED_P7_345-L1202__B-S+_345-L1227__R-S-A | CONTINGENCY 'COMED_P7_345-L1202__B-S+_345-L1227__R-S-A'<br>TRIP BRANCH FROM BUS 270716 TO BUS 930750 CKT 1 / DRESDEN ; B 345 AB1-122 TAP 345<br>TRIP BRANCH FROM BUS 930740 TO BUS 270717 CKT 1 / AB1-122 TAP 345 DRESDEN ; R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P1-2_345-L19601_B-S                 | CONTINGENCY 'COMED_P1-2_345-L19601_B-S'<br>TRIP BRANCH FROM BUS 270790 TO BUS 270770 CKT 1 / KATYD; B 345 GOODI;4B 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| COMED_P1-3_TR81_LASCO_B-S                 | CONTINGENCY 'COMED_P1-3_TR81_LASCO_B-S'<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>TRIP BRANCH FROM BUS 270802 TO BUS 271908 CKT 1 / LASCO STA; B 345 LASCO STA; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Contingency Name              | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| AEP_P4_#8805_05OLIVE 345_D    | CONTINGENCY 'AEP_P4_#8805_05OLIVE 345_D'<br>OPEN BRANCH FROM BUS 243229 TO BUS 932600 CKT 1 / 243229 05OLIVE 345 932600 AC2-080<br>TAP 345 1 /* CONTINGENCY LINE ADDED FOR AE1 BUILD<br>OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK<br>N;RP 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| COMED_P2-2_116_GG-345R__2_FSA | CONTINGENCY 'COMED_P2-2_116_GG-345R__2_FSA'<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>DISCONNECT BUS 918050 / AA1-018 TAP /ADDED FOR NO FSA CASE<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P4_937-45-BT1-4__       | CONTINGENCY 'COMED_P4_937-45-BT1-4__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>TRIP BRANCH FROM BUS 271421 TO BUS 274450 CKT 1 / EASYR; B 138 EASYR;1 34.5<br>TRIP BRANCH FROM BUS 271421 TO BUS 274451 CKT 1 / EASYR; B 138 EASYR;2 34.5<br>TRIP BRANCH FROM BUS 272528 TO BUS 271421 CKT 1 / S DIX; B 138 EASYR; B 138<br>TRIP BRANCH FROM BUS 274420 TO BUS 274857 CKT 1 / EASYR;1H 34.5 EASYR;U1 0.69<br>TRIP BRANCH FROM BUS 274421 TO BUS 274858 CKT 1 / EASYR;2H 34.5 EASYR;U2 0.69<br>TRIP BRANCH FROM BUS 274450 TO BUS 274420 CKT 1 / EASYR;1 34.5 EASYR;1H 34.5<br>TRIP BRANCH FROM BUS 274451 TO BUS 274421 CKT 1 / EASYR;2 34.5 EASYR;2H 34.5<br>TRIP BRANCH FROM BUS 274768 TO BUS 272528 CKT 1 / LEECO;BP 345 S DIX; B 138<br>REMOVE UNIT W1 FROM BUS 274857 / EASYR;U1 0.69<br>REMOVE UNIT W2 FROM BUS 274858 / EASYR;U2 0.69<br>END |
| COMED_P4_133-38-BT1-2__       | CONTINGENCY 'COMED_P4_133-38-BT1-2__'<br>TRIP BRANCH FROM BUS 272367 TO BUS 272515 CKT 1 / R FAL; R 138 H71 ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272515 TO BUS 272514 / H71 ; R 138 H71 ; B 138<br>TRIP BRANCH FROM BUS 272095 TO BUS 272367 CKT 1 / NELSO; R 138 R FAL; R 138<br>TRIP BRANCH FROM BUS 272367 TO BUS 274244 CKT 7 / R FAL; R 138 R FAL; 34.5<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P4_155-38-L15508_       | CONTINGENCY 'COMED_P4_155-38-L15508_'<br>TRIP BRANCH FROM BUS 271331 TO BUS 271333 CKT 1 / DIXON;8R 138 DIXON; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 271331 CKT 1 / NELSO;RT 138 DIXON;8R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 272095 CKT 1 / NELSO;RT 138 NELSO; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 293710 CKT 1 / NELSO;RT 138 O29 138<br>MOVE 100 PERCENT LOAD FROM BUS 271331 TO BUS 271330 / DIXON;8R 138 DIXON;7B 138<br>DISCONNECT BUS 272095 / NELSO; R 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P4_155-38-TR81__        | CONTINGENCY 'COMED_P4_155-38-TR81__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 272094 TO BUS 275341 CKT 1 / NELSO; B 345 NELSO; B 138<br>NELSO;1C 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P1-2_138-L1352__-S      | CONTINGENCY 'COMED_P1-2_138-L1352__-S'<br>TRIP BRANCH FROM BUS 272269 TO BUS 272285 CKT 1 / POWERTON ; 138 POWERTON ;RT 138<br>TRIP BRANCH FROM BUS 272285 TO BUS 348908 CKT 1 / POWERTON ;RT 138 4HAVANA E 138<br>TRIP BRANCH FROM BUS 272285 TO BUS 349505 CKT 1 / POWERTON ;RT 138 4HUFF 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Contingency Name                                 | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>AEP_P4_#2978_05DUMONT 765_B</b>               | CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B'<br>OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207<br>05GRNTWN 765 1<br>OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644<br>WILTON ; 765 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>COMED_P7_138-L0903__R-S+_138-L1206__R-S-A</b> | CONTINGENCY 'COMED_P7_138-L0903__R-S+_138-L1206__R-S-A'<br>TRIP BRANCH FROM BUS 271567 TO BUS 271337 CKT 1 / GOOSE LK ; R 138 DRESDEN ; R 138<br>TRIP BRANCH FROM BUS 271567 TO BUS 274190 CKT 7 / GOOSE LK ; R 138 GOOSE LK ; 34.5<br>TRIP BRANCH FROM BUS 271725 TO BUS 271723 CKT 1 / ESS J370 ;RT 138 ESS J370 ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 271181 TO BUS 271180 / ESS J326 ; R 138 ESS J326 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 271783 TO BUS 271416 / JOLIET374; R 138 ESS J390 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272019 TO BUS 272018 / MINOOKA ; R 138 MINOOKA ; B<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272318 TO BUS 272319 / ESS J375 ; B 138 ESS J375 ; R 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 271185 / ESS J326 ;RT 138<br>DISCONNECT BUS 271417 / ESS J390 ; R 138<br>DISCONNECT BUS 271473 / ESS J305 ;RT 138<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>END |

# Short Circuit

This queue position has a greater than 3% contribution to a previously identified overdutied breaker at Kewanee (7411). Estimated cost to replace is \$2,000,000, 24-30 months to replace.

## Secondary Point of Interconnection

AE1-198 proposed as a secondary Point of Interconnection to interconnect with the ComEd transmission system at the Crete EC; BP 345 kV substation.

## Network Impacts

The Queue Project AE1-198 was evaluated as a 357 MW (Capacity 193 MW) injection at the Crete EC; BP 345 kV substation in the ComEd area. Project AE1-198 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-198 was studied with a commercial probability of 53%. Potential network impacts were as follows:

## Summer Peak Load Flow

## 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 |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|---------------------------|--------|------------|-----------------------|------------------------|-------|-----------|
| 831769 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1      | COMED_P1-2_345-L11613AB-S | single | 1802.0     | 91.17                 | 91.62                  | DC    | 18.09     |
| 831400 | 930740    | AB1-122 TAP  | CE            | 270717  | DRESDEN ; R  | CE          | 1      | COMED_P1-2_345-L19601_B-S | single | 1195.0     | 95.74                 | 96.81                  | DC    | 12.81     |
| 831416 | 936510    | AD2-066 TAP  | CE            | 271987  | MAZON ; R    | CE          | 1      | Base Case                 | single | 173.0      | 94.65                 | 102.7                  | DC    | 13.92     |

## Multiple Facility Contingency

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

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                        | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC/DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|--------------------------------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 518198 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT    | AEP         | 1      | AEP_P4_#8805_05OLIVE 345_D                       | breaker | 4105.0     | 97.84                 | 98.07                  | DC    | 91.23     |
| 831107 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT    | AEP         | 1      | AEP_P4_#8805_05OLIVE 345_D                       | breaker | 4105.0     | 97.84                 | 98.07                  | DC    | 91.23     |
| 831100 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P4_012-38-L1206                            | breaker | 192.0      | 97.14                 | 103.48                 | DC    | 27.02     |
| 832263 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L1206_R-S+_345-L2311_R-S            | tower   | 192.0      | 97.17                 | 103.52                 | DC    | 27.05     |
| 832264 | 271655    | HENNEEPIN ;T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L0903_R-S+_138-L1206_R-S-A          | tower   | 192.0      | 97.08                 | 103.42                 | DC    | 27.02     |
| 830603 | 271835    | KEWANEE ;23  | CE            | 271839  | KEWANEE ;22 | CE          | 1      | COMED_P4_133-38-BT1-2                            | breaker | 498.0      | 138.12                | 201.28                 | DC    | 314.54    |
| 831983 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS 3  | AMIL        | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R          | tower   | 189.0      | 136.43                | 166.08                 | DC    | 56.03     |
| 831984 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS 3  | AMIL        | 1      | COMED_P7_138-L7411_R-R+_138-L7408_R-R_U4-027-FSA | tower   | 189.0      | 130.63                | 160.28                 | DC    | 56.03     |
| 831985 | 271837    | KEWANEE ;12  | CE            | 349637  | 4EDWARDS 3  | AMIL        | 1      | COMED_P7_138-L7411_R-R+_138-L7408_R-R            | tower   | 189.0      | 130.63                | 160.28                 | DC    | 56.03     |
| 830752 | 271838    | KEWANEE ;13  | CE            | 271837  | KEWANEE ;12 | CE          | 1      | COMED_P4_133-38-BT1-2                            | breaker | 498.0      | 121.95                | 151.33                 | DC    | 146.29    |
| 832003 | 271838    | KEWANEE ;13  | CE            | 348923  | 4KEWANEE N  | AMIL        | Z1     | COMED_P7_138-L6101_S+_138-L7713_R-S-B            | tower   | 449.0      | 134.53                | 162.57                 | DC    | 125.87    |
| 832004 | 271838    | KEWANEE ;13  | CE            | 348923  | 4KEWANEE N  | AMIL        | Z1     | COMED_P7_138-L93008_R-R+_138-L18706_R-R          | tower   | 449.0      | 128.4                 | 159.09                 | DC    | 137.82    |
| 830400 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R  | CE          | 1      | COMED_P2-2_074_KE-138_1_NO_FSA                   | bus     | 336.0      | 88.28                 | 122.57                 | DC    | 115.21    |
| 830401 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R  | CE          | 1      | COMED_P2-2_074_KE-138_1_FSA                      | bus     | 336.0      | 88.28                 | 122.57                 | DC    | 115.21    |
| 830609 | 271839    | KEWANEE ;22  | CE            | 271845  | KEWANEE ;21 | CE          | 1      | COMED_P4_133-38-BT1-2                            | breaker | 498.0      | 143.6                 | 195.26                 | DC    | 257.25    |

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                                          | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|---------------|---------|--------------|-------------|---------|----------------------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 830964 | 271839    | KEWANEE ;22  | CE            | 272607  | TOULON ; R   | CE          | 1       | COMED_P4_074-38-L7413_                             | breaker | 336.0      | 88.28                  | 122.57                  | DC     | 115.21     |
| 832141 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B | CE          | 1       | COMED_P7_138-L93008_R-R+_138-L18706_R-R            | tower   | 498.0      | 109.81                 | 118.6                   | DC     | 43.76      |
| 832181 | 271908    | LASCO STA; B | CE            | 270802  | LASCO STA; B | CE          | 1       | COMED_P7_138-L1205__B-S+_138-L1206__R-S-A          | tower   | 498.0      | 106.28                 | 113.61                  | DC     | 36.51      |
| 831095 | 272095    | NELSON ; R   | CE            | 275203  | NELSON ;2M   | CE          | 1       | COMED_P4_155-38-L15518_                            | breaker | 520.0      | 89.31                  | 102.07                  | DC     | 66.35      |
| 830185 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                       | bus     | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 830186 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                    | bus     | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 830593 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138  | CE          | 1       | COMED_P4_074-38-L7413_                             | breaker | 230.0      | 162.65                 | 210.44                  | DC     | 109.93     |
| 832046 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P7_138-L7411__R-R+_138-L7408__R-R_U4-027-FSA | tower   | 230.0      | 121.44                 | 137.04                  | DC     | 35.88      |
| 832047 | 272189    | OGLESBY ; T  | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P7_138-L7411__R-R+_138-L7408__R-R            | tower   | 230.0      | 121.44                 | 137.04                  | DC     | 35.88      |
| 830378 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                    | bus     | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 830379 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P2-2_074_KE-138__1_FSA                       | bus     | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 830920 | 272285    | POWERTON ;RT | CE            | 349505  | 4HUFF        | AMIL        | 1       | COMED_P4_074-38-L7413_                             | breaker | 268.0      | 104.63                 | 125.4                   | DC     | 55.66      |
| 832251 | 272367    | ROCK FALL; R | CE            | 272366  | ROCK FALL; B | CE          | 1       | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A          | tower   | 230.0      | 98.07                  | 104.91                  | DC     | 34.87      |
| 830225 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                       | bus     | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 830226 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                    | bus     | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 830663 | 272607    | TOULON ; R   | CE            | 272269  | POWERTON ;   | CE          | 1       | COMED_P4_074-38-L7413_                             | breaker | 274.0      | 135.45                 | 177.48                  | DC     | 115.15     |
| 831097 | 275203    | NELSON ;2M   | CE            | 270828  | NELSON ; B   | CE          | 1       | COMED_P4_155-38-L15518_                            | breaker | 520.0      | 89.31                  | 102.07                  | DC     | 66.35      |
| 830978 | 293710    | O29          | CE            | 272366  | ROCK FALL; B | CE          | 1       | COMED_P4_155-38-L15508_                            | breaker | 498.0      | 107.7                  | 120.1                   | DC     | 61.74      |
| 832211 | 918050    | AA1-018 TAP  | CE            | 270769  | GOODINGS ;2R | CE          | 1       | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A          | tower   | 1494.0     | 92.42                  | 93.04                   | DC     | 20.47      |
| 831050 | 926820    | AC1-168 TAP  | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P4_012-38-L1206_                             | breaker | 192.0      | 107.89                 | 114.23                  | DC     | 27.02      |
| 832170 | 926820    | AC1-168 TAP  | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P7_138-L1206__R-S+_345-L2311__R-S            | tower   | 192.0      | 107.87                 | 114.22                  | DC     | 27.05      |
| 832171 | 926820    | AC1-168 TAP  | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P7_138-L0903__R-S+_138-L1206__R-S-A          | tower   | 192.0      | 107.83                 | 114.17                  | DC     | 27.02      |
| 832270 | 936290    | AD2-038 TAP  | CE            | 918050  | AA1-018 TAP  | CE          | 1       | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A          | tower   | 1494.0     | 86.07                  | 86.69                   | DC     | 20.51      |

## 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 | CK T ID | CONT NAME                                           | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC/D C | MW IMPAC T |
|--------|-----------|-----------------|---------------|---------|---------------|-------------|---------|-----------------------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 830833 | 255112    | 17STJOHN        | NIPS          | 270886  | ST JOHN ; T   | CE          | 1       | AEP_P4_#2978_05DUMONT 765_B                         | breaker | 1091.0     | 132.05                 | 132.27                  | DC     | 27.79      |
| 517570 | 255113    | 17STILLWELL     | NIPS          | 243219  | 05DUMONT      | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B                         | breaker | 1409.0     | 177.95                 | 178.74                  | DC     | 43.98      |
| 518399 | 255113    | 17STILLWELL     | NIPS          | 243219  | 05DUMONT      | AEP         | 1       | AEP_P1-2_#695A                                      | single  | 1409.0     | 115.75                 | 116.53                  | DC     | 24.13      |
| 519423 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L94507_B-S_+ 345-L97008_R-S            | tower   | 4105.0     | 106.98                 | 107.54                  | DC     | 98.6       |
| 519424 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L6607__B-S_+ 345-L97008_R-S            | tower   | 4105.0     | 104.51                 | 105.13                  | DC     | 98.75      |
| 832200 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L94507_B-S_+ 345-L97008_R-S            | tower   | 4105.0     | 106.98                 | 107.54                  | DC     | 98.6       |
| 832201 | 270644    | WILTON ;        | CE            | 243206  | 05DUMONT      | AEP         | 1       | COMED_P7_345-L6607__B-S_+ 345-L97008_R-S            | tower   | 4105.0     | 104.51                 | 105.13                  | DC     | 98.75      |
| 830983 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | AEP_P4_#2978_05DUMONT 765_B                         | breaker | 1399.0     | 112.37                 | 113.43                  | DC     | 39.51      |
| 830984 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_023-65-BT2-3__                             | breaker | 1399.0     | 112.0                  | 113.04                  | DC     | 39.71      |
| 830985 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_112-65-BT4-5__                             | breaker | 1399.0     | 111.92                 | 112.95                  | DC     | 39.64      |
| 830986 | 270728    | E FRANKFORD ; B | CE            | 274750  | CRETE EC ; BP | CE          | 1       | COMED_P4_112-65-BT3-4__                             | breaker | 1399.0     | 111.92                 | 112.95                  | DC     | 39.64      |
| 830373 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P2-2_116_GG-345R__2_NO_FSA                    | bus     | 1802.0     | 120.39                 | 121.13                  | DC     | 29.36      |
| 830374 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P2-2_116_GG-345R__2_FSA                       | bus     | 1802.0     | 119.89                 | 120.63                  | DC     | 29.37      |
| 830885 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P4_116-45-L11614__                            | breaker | 1802.0     | 124.85                 | 125.59                  | DC     | 29.46      |
| 830886 | 270770    | GOODINGS ; 4B   | CE            | 270766  | GOODINGS ; 3B | CE          | 1       | COMED_P4_116-45-L9801_FSA                           | breaker | 1802.0     | 120.39                 | 121.13                  | DC     | 29.36      |
| 830828 | 270828    | NELSON ; B      | CE            | 270730  | ELECT JCT ; B | CE          | 1       | COMED_P4_155-45-BT6-7__                             | breaker | 1656.0     | 136.16                 | 137.37                  | DC     | 43.25      |
| 830829 | 270828    | NELSON ; B      | CE            | 270730  | ELECT JCT ; B | CE          | 1       | COMED_P4_937-45-BT1-2__                             | breaker | 1656.0     | 131.77                 | 133.01                  | DC     | 44.36      |
| 830830 | 270828    | NELSON ; B      | CE            | 270730  | ELECT JCT ; B | CE          | 1       | COMED_P4_937-45-BT1-4__                             | breaker | 1656.0     | 131.42                 | 132.65                  | DC     | 44.38      |
| 830838 | 270886    | ST JOHN ; T     | CE            | 255104  | 17GREEN_ACRE  | NIPS        | 1       | AEP_P4_#2978_05DUMONT 765_B                         | breaker | 1091.0     | 132.05                 | 132.27                  | DC     | 27.79      |
| 830704 | 271018    | ANNAWATER       | CE            | 272110  | NORMANDY ; B  | CE          | 1       | COMED_P4_133-38-BT1-2__                             | breaker | 275.0      | 144.26                 | 168.74                  | DC     | 67.33      |
| 831978 | 271241    | CRESCENT ; R    | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L93008_R-R_+ 138-L18706_R-R            | tower   | 185.0      | 145.46                 | 167.69                  | DC     | 41.13      |
| 831979 | 271241    | CRESCENT ; R    | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L7411__R-R_+ 138-L7408__R-R_U4-027-FSA | tower   | 185.0      | 141.0                  | 163.23                  | DC     | 41.13      |
| 831980 | 271241    | CRESCENT ; R    | CE            | 272189  | OGLESBY ; T   | CE          | 1       | COMED_P7_138-L7411__R-R_+ 138-L7408__R-R            | tower   | 185.0      | 141.0                  | 163.23                  | DC     | 41.13      |
| 830165 | 271835    | KEWANEE ; 23    | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P2-2_074_KE-138__1_FSA                        | bus     | 214.0      | 196.26                 | 247.63                  | DC     | 109.93     |
| 830166 | 271835    | KEWANEE ; 23    | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                     | bus     | 214.0      | 196.26                 | 247.63                  | DC     | 109.93     |
| 830563 | 271835    | KEWANEE ; 23    | CE            | 348962  | 4KEEMIN       | AMIL        | 1       | COMED_P4_074-38-L7413__                             | breaker | 214.0      | 196.26                 | 247.63                  | DC     | 109.93     |

| ID     | FROM BUS# | FROM BUS      | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                                  | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC/D C | MW IMPACT |
|--------|-----------|---------------|---------------|---------|--------------|-------------|---------|--------------------------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 830633 | 271836    | KEWANEE ;11   | CE            | 271018  | ANNAWAN; R   | CE          | 1       | COMED_P4_133-38-BT1-2__                    | breaker | 229.0      | 157.53                 | 186.93                  | DC     | 67.33     |
| 830578 | 271837    | KEWANEE ;12   | CE            | 271836  | KEWANEE ;11  | CE          | 1       | COMED_P4_133-38-BT1-2__                    | breaker | 256.0      | 180.26                 | 219.66                  | DC     | 100.86    |
| 830989 | 271844    | KICKAPOO ; B  | CE            | 271908  | LASCO STA; B | CE          | 1       | COMED_P4_012-38-L1206__                    | breaker | 498.0      | 110.99                 | 118.43                  | DC     | 37.07     |
| 832142 | 271844    | KICKAPOO ; B  | CE            | 271908  | LASCO STA; B | CE          | 1       | COMED_P7_138-L1206__R-S_+ 345-L2311__R-S   | tower   | 498.0      | 111.01                 | 118.46                  | DC     | 37.11     |
| 830559 | 271845    | KEWANEE ;21   | CE            | 271838  | KEWANEE ;13  | CE          | 1       | COMED_P4_133-38-BT1-2__                    | breaker | 498.0      | 196.09                 | 247.73                  | DC     | 257.17    |
| 830711 | 272110    | NORMAND Y ; B | CE            | 293710  | O29          | CE          | 1       | COMED_P4_133-38-BT1-2__                    | breaker | 275.0      | 141.97                 | 166.45                  | DC     | 67.33     |
| 830310 | 272189    | OGLESBY ; T   | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P2-2_001_LA-138B_1                   | bus     | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 830820 | 272189    | OGLESBY ; T   | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P4_001-38-L0108__                    | breaker | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 830821 | 272189    | OGLESBY ; T   | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P4_001-38-TR81__                     | breaker | 223.0      | 133.82                 | 140.22                  | DC     | 31.64     |
| 830867 | 272189    | OGLESBY ; T   | CE            | 348935  | 4OGLESBY MN  | AMIL        | 1       | COMED_P4_012-38-L1206__                    | breaker | 202.0      | 128.1                  | 133.67                  | DC     | 24.98     |
| 832045 | 272189    | OGLESBY ; T   | CE            | 936510  | AD2-066 TAP  | CE          | 1       | COMED_P7_138-L93008_R-R_+ 138-L18706_R-R   | tower   | 230.0      | 124.51                 | 140.11                  | DC     | 35.88     |
| 832071 | 272189    | OGLESBY ; T   | CE            | 348935  | 4OGLESBY MN  | AMIL        | 1       | COMED_P7_138-L0903__R-S_+ 138-L1206__R-S-A | tower   | 202.0      | 128.1                  | 133.67                  | DC     | 24.98     |
| 830170 | 272269    | POWERTON ;    | CE            | 272285  | POWERTON ;RT | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA               | bus     | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 830171 | 272269    | POWERTON ;    | CE            | 272285  | POWERTON ;RT | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA            | bus     | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 830568 | 272269    | POWERTON ;    | CE            | 272285  | POWERTON ;RT | CE          | 1       | COMED_P4_074-38-L7413__                    | breaker | 230.0      | 185.89                 | 235.95                  | DC     | 115.15    |
| 830773 | 272366    | ROCK FALL; B  | CE            | 272094  | NELSON ; B   | CE          | 1       | COMED_P4_155-38-L15508__                   | breaker | 426.0      | 136.64                 | 152.43                  | DC     | 67.26     |
| 830160 | 272367    | ROCK FALL; R  | CE            | 272095  | NELSON ; R   | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA               | bus     | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 830161 | 272367    | ROCK FALL; R  | CE            | 272095  | NELSON ; R   | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA            | bus     | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 830553 | 272367    | ROCK FALL; R  | CE            | 272095  | NELSON ; R   | CE          | 1       | COMED_P4_074-38-L7413__                    | breaker | 230.0      | 207.79                 | 253.73                  | DC     | 105.66    |
| 517703 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B                | breaker | 971.0      | 137.32                 | 138.36                  | DC     | 30.36     |
| 517704 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT2-3__                    | breaker | 971.0      | 135.51                 | 136.65                  | DC     | 30.52     |
| 517705 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT4-5__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.51     |
| 517706 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT3-4__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.51     |
| 517707 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT4-5__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.5      |
| 830793 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B                | breaker | 971.0      | 137.32                 | 138.36                  | DC     | 30.36     |
| 830794 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT2-3__                    | breaker | 971.0      | 135.51                 | 136.65                  | DC     | 30.52     |
| 830795 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT4-5__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.51     |
| 830796 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_112-65-BT3-4__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.51     |
| 830797 | 274804    | UNIV PK N;RP  | CE            | 243229  | 05OLIVE      | AEP         | 1       | COMED_P4_023-65-BT4-5__                    | breaker | 971.0      | 136.11                 | 137.15                  | DC     | 30.5      |
| 830195 | 293510    | O09 OP1 138   | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA            | bus     | 331.0      | 162.03                 | 195.21                  | DC     | 109.85    |
| 830196 | 293510    | O09 OP1 138   | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA               | bus     | 331.0      | 162.03                 | 195.21                  | DC     | 109.85    |
| 830613 | 293510    | O09 OP1 138   | CE            | 272367  | ROCK FALL; R | CE          | 1       | COMED_P4_074-38-L7413__                    | breaker | 331.0      | 162.03                 | 195.21                  | DC     | 109.85    |

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                                          | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|-------------|---------------|---------|--------------|-------------|---------|----------------------------------------------------|---------|------------|------------------------|-------------------------|--------|------------|
| 830428 | 293710    | O29         | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P2-2_155_NE-138B_4                           | bus     | 275.0      | 109.38                 | 114.76                  | DC     | 32.83      |
| 830936 | 293710    | O29         | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P4_155-38-TR81                               | breaker | 264.0      | 118.84                 | 124.36                  | DC     | 32.29      |
| 830937 | 293710    | O29         | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P4_155-38-TR84                               | breaker | 264.0      | 113.93                 | 119.54                  | DC     | 32.83      |
| 831896 | 293710    | O29         | CE            | 272097  | NELSON ;RT   | CE          | 1       | COMED_P7_138-L15509GR-R +_138-L15518GB-R-A         | tower   | 275.0      | 223.1                  | 250.88                  | DC     | 76.41      |
| 517670 | 346809    | 7CASEY      | AMIL          | 247712  | 05SULLIVAN   | AEP         | 1       | AEP_P4_#3128_05EUGEN E 345_A2                      | breaker | 1466.0     | 145.72                 | 146.7                   | DC     | 31.59      |
| 830175 | 348962    | 4KEEMIN     | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P2-2_074_KE-138__1_FSA                       | bus     | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 830176 | 348962    | 4KEEMIN     | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P2-2_074_KE-138__1_NO_FSA                    | bus     | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 830573 | 348962    | 4KEEMIN     | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | COMED_P4_074-38-L7413__                            | breaker | 214.0      | 181.91                 | 233.28                  | DC     | 109.93     |
| 831395 | 930740    | AB1-122 TAP | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P1-2_345-L1202__B-S-A                        | single  | 1195.0     | 104.33                 | 105.4                   | DC     | 12.74      |
| 831907 | 930740    | AB1-122 TAP | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P7_345-L19601_B-S+_345-L9801__R-S_FSA        | tower   | 1195.0     | 136.15                 | 137.19                  | DC     | 27.69      |
| 831908 | 930740    | AB1-122 TAP | CE            | 270717  | DRESDEN ; R  | CE          | 1       | COMED_P7_345-L0301__B-S+_345-L9801__R-S_FSA-B      | tower   | 1195.0     | 131.49                 | 132.54                  | DC     | 27.72      |
| 830240 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P2-2_001_LA-138B__1                          | bus     | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 830678 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P4_001-38-TR81__                             | breaker | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 830679 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P4_001-38-L0108__                            | breaker | 223.0      | 167.15                 | 173.55                  | DC     | 31.64      |
| 831968 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P7_138-L7411__R-R+_138-L7408__R-R            | tower   | 230.0      | 153.53                 | 169.13                  | DC     | 35.88      |
| 831969 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P7_138-L7411__R-R+_138-L7408__R-R_U4-027-FSA | tower   | 230.0      | 153.53                 | 169.13                  | DC     | 35.88      |

## 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 | CK T ID | CONT NAME                  | Type      | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|---------------|---------|--------------|-------------|---------|----------------------------|-----------|------------|------------------------|-------------------------|--------|------------|
| 518394 | 255113    | 17STILLWELL  | NIPS          | 243219  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#695A             | operation | 1409.0     | 174.63                 | 175.44                  | DC     | 44.64      |
| 518400 | 255113    | 17STILLWELL  | NIPS          | 243219  | 05DUMONT     | AEP         | 1       | Base Case                  | operation | 1409.0     | 114.48                 | 114.95                  | DC     | 24.87      |
| 518924 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#697A             | operation | 4105.0     | 97.8                   | 98.04                   | DC     | 91.26      |
| 831788 | 270644    | WILTON ;     | CE            | 243206  | 05DUMONT     | AEP         | 1       | AEP_P1-2_#697A             | operation | 4105.0     | 97.8                   | 98.04                   | DC     | 91.26      |
| 831691 | 270728    | E FRANKFO; B | CE            | 274750  | CRETE EC ;BP | CE          | 1       | AEP_P1-2_#695A             | operation | 1399.0     | 111.87                 | 112.91                  | DC     | 39.62      |
| 831763 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1       | COMED_P1-2_345-L11613AB-S  | operation | 1802.0     | 107.33                 | 108.17                  | DC     | 33.46      |
| 831767 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1       | Base Case                  | operation | 1560.0     | 100.9                  | 101.61                  | DC     | 24.47      |
| 831585 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B | CE          | 1       | COMED_P1-2_345-L15501_B-R  | operation | 1656.0     | 131.39                 | 132.63                  | DC     | 44.38      |
| 831586 | 270828    | NELSON ; B   | CE            | 270730  | ELECT JCT; B | CE          | 1       | Base Case                  | operation | 1334.0     | 108.59                 | 109.66                  | DC     | 31.42      |
| 831380 | 271018    | ANNAWAN; R   | CE            | 272110  | NORMANDY ; B | CE          | 1       | COMED_P1-2_138-L13304_R-R  | operation | 264.0      | 149.79                 | 175.31                  | DC     | 67.38      |
| 831382 | 271018    | ANNAWAN; R   | CE            | 272110  | NORMANDY ; B | CE          | 1       | Base Case                  | operation | 208.0      | 143.35                 | 170.22                  | DC     | 55.88      |
| 831440 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T  | CE          | 1       | COMED_P2-1_074-L6101       | operation | 174.0      | 144.72                 | 166.0                   | DC     | 37.04      |
| 831444 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T  | CE          | 1       | Base Case                  | operation | 174.0      | 109.13                 | 116.8                   | DC     | 29.62      |
| 831189 | 271655    | HENNEEPIN; T | CE            | 348918  | 4HENNEPIN S  | AMIL        | 1       | 271838                     | operation | 160.0      | 273.43                 | 341.05                  | DC     | 108.19     |
| 831792 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP  | CE          | 1       | Base Case                  | operation | 142.0      | 102.01                 | 109.51                  | DC     | 23.64      |
| 831793 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP  | CE          | 1       | COMED_P1-2_138-L1206_R-S-A | operation | 184.0      | 100.87                 | 107.49                  | DC     | 27.02      |
| 831199 | 271835    | KEWANEE ;23  | CE            | 271655  | HENNEEPIN; T | CE          | 1       | 271838                     | operation | 195.0      | 240.86                 | 309.58                  | DC     | 134.0      |
| 831204 | 271835    | KEWANEE ;23  | CE            | 271655  | HENNEEPIN; T | CE          | 1       | Base Case                  | operation | 190.0      | 83.09                  | 102.79                  | DC     | 37.44      |
| 831278 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN      | AMIL        | 1       | 271838                     | operation | 214.0      | 185.63                 | 236.34                  | DC     | 108.52     |
| 831283 | 271835    | KEWANEE ;23  | CE            | 348962  | 4KEEMIN      | AMIL        | 1       | Base Case                  | operation | 173.0      | 142.49                 | 169.17                  | DC     | 46.16      |

| ID     | FROM BUS# | FROM BUS     | FRO M BUS AREA | TO BUS# | TO BUS        | TO BUS ARE A | CK T ID | CONT NAME                   | Type       | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|--------------|----------------|---------|---------------|--------------|---------|-----------------------------|------------|------------|------------------------|-------------------------|--------|------------|
| 831296 | 271835    | KEWANEE ;23  | CE             | 271839  | KEWANEE ;22   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 153.16                 | 223.21                  | DC     | 314.55     |
| 831298 | 271835    | KEWANEE ;23  | CE             | 271839  | KEWANEE ;22   | CE           | 1       | Base Case                   | operatio n | 351.0      | 134.52                 | 212.42                  | DC     | 273.4      |
| 831346 | 271836    | KEWANEE ;11  | CE             | 271018  | ANNAWAN; R    | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 214.0      | 167.96                 | 199.45                  | DC     | 67.38      |
| 831348 | 271836    | KEWANEE ;11  | CE             | 271018  | ANNAWAN; R    | CE           | 1       | Base Case                   | operatio n | 173.0      | 152.83                 | 185.14                  | DC     | 55.88      |
| 831779 | 271836    | KEWANEE ;11  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | COMED_P2-1_981-L7713        | operatio n | 246.0      | 107.35                 | 113.32                  | DC     | 14.68      |
| 831284 | 271837    | KEWANEE ;12  | CE             | 271836  | KEWANEE ;11   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 246.0      | 187.1                  | 228.12                  | DC     | 100.91     |
| 831286 | 271837    | KEWANEE ;12  | CE             | 271836  | KEWANEE ;11   | CE           | 1       | Base Case                   | operatio n | 190.0      | 180.82                 | 225.84                  | DC     | 85.54      |
| 831503 | 271837    | KEWANEE ;12  | CE             | 349637  | 4EDWARDS3     | AMIL         | 1       | COMED_P1-2_138-L1352__S     | operatio n | 189.0      | 119.39                 | 144.37                  | DC     | 47.21      |
| 831508 | 271837    | KEWANEE ;12  | CE             | 349637  | 4EDWARDS3     | AMIL         | 1       | Base Case                   | operatio n | 159.0      | 103.28                 | 128.44                  | DC     | 40.01      |
| 831432 | 271838    | KEWANEE ;13  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | Base Case                   | operatio n | 351.0      | 131.93                 | 167.69                  | DC     | 125.55     |
| 831433 | 271838    | KEWANEE ;13  | CE             | 271837  | KEWANEE ;12   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 135.06                 | 167.65                  | DC     | 146.33     |
| 831481 | 271838    | KEWANEE ;13  | CE             | 348923  | 4KEWANEE N    | AMIL         | Z1      | Base Case                   | operatio n | 351.0      | 122.68                 | 150.34                  | DC     | 97.09      |
| 831482 | 271838    | KEWANEE ;13  | CE             | 348923  | 4KEWANEE N    | AMIL         | Z1      | 271837                      | operatio n | 449.0      | 116.15                 | 149.84                  | DC     | 151.27     |
| 831320 | 271839    | KEWANEE ;22  | CE             | 271845  | KEWANEE ;21   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 159.18                 | 216.48                  | DC     | 257.26     |
| 831322 | 271839    | KEWANEE ;22  | CE             | 271845  | KEWANEE ;21   | CE           | 1       | Base Case                   | operatio n | 351.0      | 148.72                 | 212.18                  | DC     | 222.72     |
| 831634 | 271839    | KEWANEE ;22  | CE             | 272607  | TOULON ; R    | CE           | 1       | 271838                      | operatio n | 317.0      | 89.33                  | 125.42                  | DC     | 114.41     |
| 831860 | 271839    | KEWANEE ;22  | CE             | 271835  | KEWANEE ;23   | CE           | 1       | 271838                      | operatio n | 449.0      | 93.9                   | 100.26                  | DC     | 28.54      |
| 831580 | 271844    | KICKAPOO ; B | CE             | 271908  | LASCO STA; B  | CE           | 1       | COMED_P1-2_138-L1206__R-S-A | operatio n | 442.0      | 124.77                 | 133.16                  | DC     | 37.07      |
| 831582 | 271844    | KICKAPOO ; B | CE             | 271908  | LASCO STA; B  | CE           | 1       | Base Case                   | operatio n | 351.0      | 128.82                 | 132.9                   | DC     | 31.63      |
| 831252 | 271845    | KEWANEE ;21  | CE             | 271838  | KEWANEE ;13   | CE           | 1       | Base Case                   | operatio n | 351.0      | 214.5                  | 277.93                  | DC     | 222.64     |
| 831253 | 271845    | KEWANEE ;21  | CE             | 271838  | KEWANEE ;13   | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 449.0      | 217.39                 | 274.68                  | DC     | 257.19     |
| 831496 | 271908    | LASCO STA; B | CE             | 271986  | MAZON ; B     | CE           | 1       | COMED_P1-3_TR81_LASCO_B-S   | operatio n | 223.0      | 144.85                 | 148.94                  | DC     | 20.16      |
| 831498 | 271987    | MAZON ; R    | CE             | 271187  | CHANNAHON ; R | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 223.0      | 141.01                 | 146.64                  | DC     | 27.85      |
| 831499 | 271987    | MAZON ; R    | CE             | 271187  | CHANNAHON ; R | CE           | 1       | Base Case                   | operatio n | 173.0      | 138.62                 | 144.64                  | DC     | 23.13      |
| 831819 | 272095    | NELSON ; R   | CE             | 275203  | NELSON ;2M    | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 480.0      | 88.89                  | 101.88                  | DC     | 62.34      |
| 831406 | 272110    | NORMANDY ; B | CE             | 293710  | O29           | CE           | 1       | COMED_P1-2_138-L13304_R-R   | operatio n | 264.0      | 147.44                 | 172.96                  | DC     | 67.38      |
| 831408 | 272110    | NORMANDY ; B | CE             | 293710  | O29           | CE           | 1       | Base Case                   | operatio n | 208.0      | 140.37                 | 167.24                  | DC     | 55.88      |
| 831340 | 272111    | NORMANDY ; R | CE             | 293510  | O09 OP1 138   | CE           | 1       | 271838                      | operatio n | 223.0      | 157.6                  | 206.26                  | DC     | 108.52     |

| ID     | FROM BUS# | FROM BUS      | FRO M BUS AREA | TO BUS# | TO BUS       | TO BUS ARE A | CK T ID | CONT NAME                   | Type       | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|---------------|----------------|---------|--------------|--------------|---------|-----------------------------|------------|------------|------------------------|-------------------------|--------|------------|
| 831345 | 272111    | NORMANDY ; R  | CE             | 293510  | O09 OP1 138  | CE           | 1       | Base Case                   | operatio n | 173.0      | 116.02                 | 142.7                   | DC     | 46.16      |
| 831736 | 272124    | ESS J339 ; B  | CE             | 271336  | DRESDEN ; B  | CE           | 1       | COMED_P1-3_TR81_LASCO_B-S   | operatio n | 268.0      | 112.11                 | 115.65                  | DC     | 20.89      |
| 831629 | 272125    | ESS J339 ; R  | CE             | 271337  | DRESDEN ; R  | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 268.0      | 121.43                 | 126.11                  | DC     | 27.69      |
| 831630 | 272125    | ESS J339 ; R  | CE             | 271337  | DRESDEN ; R  | CE           | 1       | Base Case                   | operatio n | 210.0      | 119.47                 | 124.43                  | DC     | 22.97      |
| 831532 | 272189    | OGLESBY ; T   | CE             | 936510  | AD2-066 TAP  | CE           | 1       | COMED_P1-2_138-L0112__B-S   | operatio n | 223.0      | 132.49                 | 138.92                  | DC     | 31.77      |
| 831533 | 272189    | OGLESBY ; T   | CE             | 936510  | AD2-066 TAP  | CE           | 1       | Base Case                   | operatio n | 173.0      | 120.24                 | 126.94                  | DC     | 25.74      |
| 831562 | 272189    | OGLESBY ; T   | CE             | 348935  | 4OGLESBY MN  | AMIL         | 1       | COMED_P1-2_138-L1206__R-S-A | operatio n | 202.0      | 128.0                  | 133.57                  | DC     | 24.98      |
| 831262 | 272269    | POWERTON ;    | CE             | 272285  | POWERTON ;RT | CE           | 1       | 271838                      | operatio n | 214.0      | 193.35                 | 246.79                  | DC     | 114.35     |
| 831266 | 272269    | POWERTON ;    | CE             | 272285  | POWERTON ;RT | CE           | 1       | Base Case                   | operatio n | 184.0      | 139.51                 | 167.03                  | DC     | 50.63      |
| 831637 | 272285    | POWERTON ;RT  | CE             | 349505  | 4HUFF        | AMIL         | 1       | 271838                      | operatio n | 268.0      | 104.12                 | 124.74                  | DC     | 55.25      |
| 831618 | 272366    | ROCK FALL; B  | CE             | 272094  | NELSON ; B   | CE           | 1       | COMED_P1-2_138-L15508_R-R   | operatio n | 401.0      | 114.17                 | 126.67                  | DC     | 50.1       |
| 831622 | 272366    | ROCK FALL; B  | CE             | 272094  | NELSON ; B   | CE           | 1       | Base Case                   | operatio n | 351.0      | 93.71                  | 105.69                  | DC     | 42.03      |
| 831257 | 272367    | ROCK FALL; R  | CE             | 272095  | NELSON ; R   | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 223.0      | 221.99                 | 252.76                  | DC     | 68.62      |
| 831261 | 272367    | ROCK FALL; R  | CE             | 272095  | NELSON ; R   | CE           | 1       | Base Case                   | operatio n | 173.0      | 179.22                 | 205.37                  | DC     | 45.25      |
| 831267 | 272607    | TOULON ; R    | CE             | 272269  | POWERTON ;   | CE           | 1       | 271838                      | operatio n | 194.0      | 184.24                 | 243.19                  | DC     | 114.35     |
| 831269 | 272607    | TOULON ; R    | CE             | 272269  | POWERTON ;   | CE           | 1       | Base Case                   | operatio n | 155.0      | 133.02                 | 165.68                  | DC     | 50.63      |
| 518564 | 274804    | UNIV PK N;RP  | CE             | 243229  | 05OLIVE      | AEP          | 1       | AEP_P1-2_#695A              | operatio n | 971.0      | 136.09                 | 137.14                  | DC     | 30.5       |
| 831519 | 274804    | UNIV PK N;RP  | CE             | 243229  | 05OLIVE      | AEP          | 1       | AEP_P1-2_#695A              | operatio n | 971.0      | 136.09                 | 137.14                  | DC     | 30.5       |
| 831820 | 275203    | NELSON ;2M    | CE             | 270828  | NELSON ; B   | CE           | 1       | COMED_P1-2_138-L15518GB-R-A | operatio n | 480.0      | 88.87                  | 101.86                  | DC     | 62.34      |
| 831314 | 293510    | O09 OP1 138   | CE             | 272367  | ROCK FALL; R | CE           | 1       | 271838                      | operatio n | 283.0      | 180.82                 | 219.14                  | DC     | 108.44     |
| 831319 | 293510    | O09 OP1 138   | CE             | 272367  | ROCK FALL; R | CE           | 1       | Base Case                   | operatio n | 238.0      | 149.8                  | 169.16                  | DC     | 46.08      |
| 831677 | 293710    | O29           | CE             | 272366  | ROCK FALL; B | CE           | 1       | COMED_P1-2_138-L15508_R-R   | operatio n | 449.0      | 109.03                 | 121.36                  | DC     | 55.36      |
| 831680 | 293710    | O29           | CE             | 272366  | ROCK FALL; B | CE           | 1       | Base Case                   | operatio n | 351.0      | 105.73                 | 119.14                  | DC     | 47.05      |
| 831737 | 293710    | O29           | CE             | 272097  | NELSON ;RT   | CE           | 1       | COMED_P2-1_155-L15518__     | operatio n | 264.0      | 109.75                 | 115.51                  | DC     | 33.7       |
| 518558 | 346809    | 7CASEY        | AMIL           | 247712  | 05SULLIVAN   | AEP          | 1       | AEP_P1-2_#286               | operatio n | 1466.0     | 140.07                 | 141.06                  | DC     | 31.86      |
| 518559 | 346809    | 7CASEY        | AMIL           | 247712  | 05SULLIVAN   | AEP          | 1       | Base Case                   | operatio n | 1334.0     | 123.99                 | 124.88                  | DC     | 25.74      |
| 519033 | 348885    | 7BUNSONVILL E | AMIL           | 243221  | 05EUGENE     | AEP          | 1       | AEP_P1-2_#8907              | operatio n | 1793.0     | 102.51                 | 103.08                  | DC     | 30.02      |
| 831478 | 348918    | 4HENNEPIN S   | AMIL           | 271655  | HENNEPIN; T  | CE           | 1       | 271835                      | operatio n | 160.0      | 126.62                 | 152.15                  | DC     | 40.86      |
| 831525 | 348935    | 4OGLESBY MN   | AMIL           | 272189  | OGLESBY ; T  | CE           | 1       | 271837                      | operatio n | 202.0      | 122.76                 | 142.17                  | DC     | 39.21      |

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CK T ID | CONT NAME                   | Type      | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPAC T |
|--------|-----------|-------------|---------------|---------|--------------|-------------|---------|-----------------------------|-----------|------------|------------------------|-------------------------|--------|------------|
| 831308 | 348962    | 4KEEMIN     | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | 271838                      | operation | 214.0      | 171.33                 | 222.04                  | DC     | 108.52     |
| 831313 | 348962    | 4KEEMIN     | AMIL          | 272111  | NORMANDY ; R | CE          | 1       | Base Case                   | operation | 173.0      | 124.75                 | 151.43                  | DC     | 46.16      |
| 831649 | 926820    | AC1-168 TAP | CE            | 272521  | STREATOR ;   | CE          | 1       | Base Case                   | operation | 142.0      | 115.72                 | 123.22                  | DC     | 23.64      |
| 831650 | 926820    | AC1-168 TAP | CE            | 272521  | STREATOR ;   | CE          | 1       | COMED_P1-2_138-L1206__R-S-A | operation | 184.0      | 112.09                 | 118.7                   | DC     | 27.02      |
| 831411 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | COMED_P1-2_138-L0112__B-S   | operation | 223.0      | 165.91                 | 172.34                  | DC     | 31.77      |
| 831412 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R    | CE          | 1       | Base Case                   | operation | 173.0      | 162.4                  | 169.1                   | DC     | 25.74      |

## 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.

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## 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 |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830885 | 270770    | GOODINGS ;4B | CE            | 270766  | GOODINGS ;3B | CE          | 1      | COMED_P4_116-45-L11614_ | breaker | 1802.0     | 124.85                | 125.59                 | DC    | 29.46     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 7.96      |
| 274722 | S-055 E      | 7.38      |
| 274728 | ELWOOD EC;5P | 4.75      |
| 274730 | ELWOOD EC;6P | 4.75      |
| 274732 | ELWOOD EC;7P | 4.75      |
| 274734 | ELWOOD EC;8P | 4.75      |
| 274735 | ELWOOD EC;4P | 4.72      |
| 274736 | ELWOOD EC;9P | 4.75      |
| 274832 | U4-027       | 8.21      |
| 274859 | EASYR;U1 E   | 7.73      |
| 274860 | EASYR;U2 E   | 7.73      |
| 274861 | TOP CROP ;1U | 0.95      |
| 274862 | TOP CROP ;2U | 1.84      |
| 290021 | O50 E        | 25.65     |
| 290051 | GSG-6; E     | 6.67      |
| 293516 | O-009 E1     | 6.67      |
| 293517 | O-009 E2     | 3.39      |
| 293518 | O-009 E3     | 3.73      |
| 293644 | O22 E1       | 24.77     |
| 293645 | O22 E2       | 48.08     |
| 293715 | O-029 E      | 7.07      |
| 293716 | O-029 E      | 3.88      |
| 293717 | O-029 E      | 3.56      |
| 293771 | O-035 E      | 4.74      |
| 294401 | BSHIL;1U E   | 6.6       |
| 294410 | BSHIL;2U E   | 6.6       |
| 294763 | P-046 E      | 6.37      |
| 295109 | WESTBROOK E  | 3.57      |
| 295111 | SUBLETTE E   | 1.82      |
| 914641 | Y2-103       | 29.53     |
| 915011 | Y3-013 1     | 2.46      |
| 915021 | Y3-013 2     | 2.46      |
| 915031 | Y3-013 3     | 2.46      |
| 916211 | Z1-072 E     | 3.58      |
| 916221 | Z1-073 E     | 3.44      |
| 916502 | Z1-106 E1    | 0.78      |
| 916504 | Z1-106 E2    | 0.78      |
| 916522 | Z1-108 E     | 1.6       |
| 918052 | AA1-018 E    | 19.58     |
| 919221 | AA1-146      | 12.7      |
| 919581 | AA2-030      | 12.7      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 919621 | AA2-039 C    | 1.61      |
| 919622 | AA2-039 E    | 10.77     |
| 920272 | AA2-123 E    | 1.59      |
| 924471 | AB2-096      | 27.85     |
| 925161 | AB2-173      | 2.27      |
| 925302 | AB2-191 E    | 0.88      |
| 925581 | AC1-033 C    | 1.08      |
| 925582 | AC1-033 E    | 7.24      |
| 926331 | AC1-110 1    | 1.2       |
| 926341 | AC1-110 2    | 1.2       |
| 926431 | AC1-114      | 1.59      |
| 926841 | AC1-171 C O1 | 0.79      |
| 926842 | AC1-171 E O1 | 5.24      |
| 927091 | AC1-204 1    | 115.11    |
| 927101 | AC1-204 2    | 114.46    |
| 927201 | AC1-214 C O1 | 1.52      |
| 927202 | AC1-214 E O1 | 4.83      |
| 927451 | AC1-142A 1   | 3.64      |
| 927461 | AC1-142A 2   | 3.67      |
| 927511 | AC1-113 1    | 0.79      |
| 927521 | AC1-113 2    | 0.79      |
| 927531 | AC1-185 1    | 0.48      |
| 927541 | AC1-185 2    | 0.48      |
| 927551 | AC1-185 3    | 0.48      |
| 927561 | AC1-185 4    | 0.48      |
| 927571 | AC1-185 5    | 0.48      |
| 927581 | AC1-185 6    | 0.48      |
| 927591 | AC1-185 7    | 0.48      |
| 927601 | AC1-185 8    | 0.48      |
| 930481 | AB1-089      | 43.91     |
| 930741 | AB1-122 1O1  | 65.29     |
| 930751 | AB1-122 2O1  | 95.35     |
| 932881 | AC2-115 1    | 1.59      |
| 932891 | AC2-115 2    | 1.59      |
| 932921 | AC2-116      | 0.56      |
| 933341 | AC2-147 C    | 0.61      |
| 933342 | AC2-147 E    | 0.99      |
| 933911 | AD1-013 C    | 1.17      |
| 933912 | AD1-013 E    | 1.87      |
| 933931 | AD1-016 C    | 0.61      |
| 933932 | AD1-016 E    | 0.99      |
| 934051 | AD1-031 C O1 | 2.2       |
| 934052 | AD1-031 E O1 | 3.58      |
| 934101 | AD1-039 1    | 6.4       |
| 934111 | AD1-039 2    | 9.34      |
| 934401 | AD1-064 C O1 | 2.11      |
| 934402 | AD1-064 E O1 | 9.87      |
| 934431 | AD1-067 C    | 0.08      |
| 934432 | AD1-067 E    | 0.35      |
| 934651 | AD1-096 C    | 0.6       |
| 934652 | AD1-096 E    | 0.99      |
| 934701 | AD1-098 C O1 | 4.41      |

| Bus #     | Bus          | MW Impact |
|-----------|--------------|-----------|
| 934702    | AD1-098 E O1 | 3.22      |
| 934871    | AD1-116 C    | 1.14      |
| 934872    | AD1-116 E    | 1.86      |
| 934881    | AD1-117 C    | 3.74      |
| 934882    | AD1-117 E    | 2.49      |
| 934971    | AD1-129 C    | 0.6       |
| 934972    | AD1-129 E    | 0.4       |
| 935001    | AD1-133 C O1 | 14.7      |
| 935002    | AD1-133 E O1 | 9.8       |
| 936291    | AD2-038 C O1 | 2.98      |
| 936292    | AD2-038 E O1 | 19.92     |
| 936511    | AD2-066 C O1 | 6.45      |
| 936512    | AD2-066 E O1 | 4.3       |
| 936791    | AD2-102 C    | 8.1       |
| 936792    | AD2-102 E    | 7.78      |
| 937001    | AD2-134 C    | 1.74      |
| 937002    | AD2-134 E    | 7.2       |
| 937311    | AD2-172 C    | 1.67      |
| 937312    | AD2-172 E    | 2.31      |
| 937331    | AD2-176 C O1 | 4.78      |
| 937332    | AD2-176 E O1 | 3.18      |
| 937401    | AD2-194 1    | 12.38     |
| 937411    | AD2-194 2    | 12.31     |
| 937531    | AD2-214 C    | 3.27      |
| 937532    | AD2-214 E    | 1.54      |
| 938511    | AE1-070 1    | 14.54     |
| 938521    | AE1-070 2    | 13.23     |
| 938851    | AE1-113 C O1 | 11.05     |
| 938852    | AE1-113 E O1 | 34.75     |
| 938861    | AE1-114 C O1 | 2.49      |
| 938862    | AE1-114 E O1 | 9.5       |
| 939051    | AE1-134 1    | 0.99      |
| 939061    | AE1-134 2    | 0.99      |
| 939321    | AE1-163 C O1 | 10.91     |
| 939322    | AE1-163 E O1 | 67.01     |
| 939631    | AE1-193 C O1 | 5.36      |
| 939632    | AE1-193 E O1 | 35.9      |
| 939681    | AE1-198 C O1 | 15.93     |
| 939682    | AE1-198 E O1 | 13.53     |
| 939691    | AE1-199      | 1.52      |
| 939701    | AE1-201 C    | 1.31      |
| 939702    | AE1-201 E    | 0.29      |
| 939732    | AE1-204 E    | 0.19      |
| 939861    | AE1-222 1    | 72.1      |
| 939871    | AE1-222 2    | 105.3     |
| 939921    | AE1-228 C O1 | 6.37      |
| 939922    | AE1-228 E O1 | 4.25      |
| 990901    | L-005 E      | 9.75      |
| AB2-013   | AB2-013      | 17.74     |
| AE1-033   | AE1-033      | 12.31     |
| BLUEG     | BLUEG        | 2.87      |
| CANNELTON | CANNELTON    | 0.0       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CARR</b>       | CARR       | 0.36             |
| <b>CATAWBA</b>    | CATAWBA    | 0.06             |
| <b>CBM-S1</b>     | CBM-S1     | 2.13             |
| <b>CBM-W1</b>     | CBM-W1     | 18.07            |
| <b>CBM-W2</b>     | CBM-W2     | 45.91            |
| <b>DEARBORN</b>   | DEARBORN   | 1.82             |
| <b>G-007</b>      | G-007      | 0.99             |
| <b>GIBSON</b>     | GIBSON     | 0.01             |
| <b>HAMLET</b>     | HAMLET     | 0.28             |
| <b>MEC</b>        | MEC        | 29.52            |
| <b>O-066</b>      | O-066      | 3.34             |
| <b>RENSSELAER</b> | RENSSELAER | 0.28             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.35             |
| <b>WEC</b>        | WEC        | 5.37             |
| <b>Z1-043</b>     | Z1-043     | 19.7             |

## 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 |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|----------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 831907 | 930740    | AB1-122 TAP | CE            | 270717  | DRESDEN ; R | CE          | 1      | COMED_P7_345-L19601_B-S_+_345-L9801__R-S_FSA | tower | 1195.0     | 136.15                | 137.19                 | DC    | 27.69     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274677  | POWERTON ;5U | 26.24     |
| 274678  | POWERTON ;6U | 26.31     |
| 274861  | TOP CROP ;1U | 0.7       |
| 274862  | TOP CROP ;2U | 1.35      |
| 274879  | MINONK ;1U   | 0.74      |
| 290021  | O50 E        | 19.44     |
| 293644  | O22 E1       | 18.15     |
| 293645  | O22 E2       | 35.22     |
| 294401  | BSHIL;1U E   | 6.21      |
| 294410  | BSHIL;2U E   | 6.21      |
| 918051  | AA1-018 C    | 0.67      |
| 918052  | AA1-018 E    | 29.1      |
| 919621  | AA2-039 C    | 1.51      |
| 919622  | AA2-039 E    | 10.13     |
| 925581  | AC1-033 C    | 1.02      |
| 925582  | AC1-033 E    | 6.81      |
| 926841  | AC1-171 C O1 | 0.85      |
| 926842  | AC1-171 E O1 | 5.66      |
| 930741  | AB1-122 1O1  | 524.81    |
| 934051  | AD1-031 C O1 | 2.06      |
| 934052  | AD1-031 E O1 | 3.37      |
| 934101  | AD1-039 1    | 51.43     |
| 934871  | AD1-116 C    | 1.69      |
| 934872  | AD1-116 E    | 2.77      |
| 936291  | AD2-038 C O1 | 4.35      |
| 936292  | AD2-038 E O1 | 29.11     |
| 938851  | AE1-113 C O1 | 16.15     |
| 938852  | AE1-113 E O1 | 50.77     |
| 939321  | AE1-163 C O1 | 10.9      |
| 939322  | AE1-163 E O1 | 66.96     |
| 939631  | AE1-193 C O1 | 5.04      |
| 939632  | AE1-193 E O1 | 33.74     |
| 939681  | AE1-198 C O1 | 14.97     |
| 939682  | AE1-198 E O1 | 12.72     |
| 939861  | AE1-222 1    | 579.57    |
| 954702  | J844 E       | 27.32     |
| 990901  | L-005 E      | 9.43      |
| AB2-013 | AB2-013      | 28.99     |
| CARR    | CARR         | 0.04      |
| CBM-S1  | CBM-S1       | 3.25      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S2</b>     | CBM-S2     | 0.73             |
| <b>CBM-W1</b>     | CBM-W1     | 6.57             |
| <b>CBM-W2</b>     | CBM-W2     | 48.55            |
| <b>CIN</b>        | CIN        | 1.0              |
| <b>CPL</b>        | CPL        | 0.21             |
| <b>DEARBORN</b>   | DEARBORN   | 0.55             |
| <b>G-007</b>      | G-007      | 0.1              |
| <b>IPL</b>        | IPL        | 0.49             |
| <b>LGEE</b>       | LGEE       | 0.12             |
| <b>MEC</b>        | MEC        | 20.19            |
| <b>O-066</b>      | O-066      | 0.35             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>Z1-043</b>     | Z1-043     | 18.2             |

## 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 |
|--------|-----------|-------------|---------------|---------|-----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830679 | 936510    | AD2-066 TAP | CE            | 271987  | MAZON ; R | CE          | 1      | COMED_P4_001-38-L0108__ | breaker | 223.0      | 167.15                | 173.55                 | DC    | 31.64     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 7.15      |
| 274847   | GR RIDGE ;BU | 0.82      |
| 274849   | CRESCENT ;1U | 0.2       |
| 274851   | PROVIDENC;RU | 0.3       |
| 274871   | GR RIDGE ;2U | 1.04      |
| 293061   | N-015 E      | 21.37     |
| 293771   | O-035 E      | 7.88      |
| 294392   | P-010 E      | 27.14     |
| 294401   | BSHIL;1U E   | 7.09      |
| 294410   | BSHIL;2U E   | 7.09      |
| 916211   | Z1-072 E     | 5.96      |
| 917451   | Z2-081       | 0.35      |
| 919621   | AA2-039 C    | 1.73      |
| 919622   | AA2-039 E    | 11.57     |
| 925581   | AC1-033 C    | 1.16      |
| 925582   | AC1-033 E    | 7.77      |
| 926821   | AC1-168 C O1 | 1.69      |
| 926822   | AC1-168 E O1 | 11.35     |
| 927201   | AC1-214 C O1 | 2.53      |
| 927202   | AC1-214 E O1 | 8.04      |
| 934051   | AD1-031 C O1 | 2.36      |
| 934052   | AD1-031 E O1 | 3.85      |
| 936511   | AD2-066 C O1 | 44.66     |
| 936512   | AD2-066 E O1 | 29.77     |
| 939631   | AE1-193 C O1 | 5.76      |
| 939632   | AE1-193 E O1 | 38.56     |
| 939681   | AE1-198 C O1 | 17.11     |
| 939682   | AE1-198 E O1 | 14.54     |
| 953201   | J715 C       | 3.38      |
| 953202   | J715 E       | 18.26     |
| 954201   | J887 C       | 0.99      |
| 954202   | J887 E       | 5.37      |
| 990901   | L-005 E      | 9.6       |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.8       |
| CBM-S2   | CBM-S2       | 0.21      |
| CBM-W1   | CBM-W1       | 1.35      |
| CBM-W2   | CBM-W2       | 12.0      |
| CIN      | CIN          | 0.46      |
| CPL      | CPL          | 0.07      |
| DEARBORN | DEARBORN     | 0.09      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>G-007A</b> | G-007A     | 0.05             |
| <b>IPL</b>    | IPL        | 0.24             |
| <b>LGEE</b>   | LGEE       | 0.07             |
| <b>MEC</b>    | MEC        | 4.04             |
| <b>NYISO</b>  | NYISO      | 0.05             |
| <b>O-066A</b> | O-066A     | 0.02             |
| <b>VFT</b>    | VFT        | 0.12             |
| <b>Z1-043</b> | Z1-043     | 42.98            |

## Index 4

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|----------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832200 | 270644    | WILTON ; | CE            | 243206  | 05DUMONT | AEP         | 1      | COMED_P7_345-L94507_B-S+_345-L97008_R-S | tower | 4105.0     | 106.98                | 107.54                 | DC    | 98.6      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 32.17     |
| 274722 | S-055 E      | 29.55     |
| 274772 | LINCOLN ;3U  | 4.7       |
| 274773 | LINCOLN ;4U  | 4.7       |
| 274774 | LINCOLN ;5U  | 4.7       |
| 274775 | LINCOLN ;6U  | 4.7       |
| 274776 | LINCOLN ;7U  | 4.7       |
| 274777 | LINCOLN ;8U  | 4.7       |
| 274832 | U4-027       | 28.06     |
| 274859 | EASYR;U1 E   | 29.13     |
| 274860 | EASYR;U2 E   | 29.13     |
| 274888 | PILOT HIL;1E | 44.3      |
| 274890 | CAYUG;1U E   | 36.07     |
| 274891 | CAYUG;2U E   | 36.07     |
| 275149 | KEMPTON ;1E  | 44.3      |
| 290021 | O50 E        | 49.24     |
| 290051 | GSG-6; E     | 28.08     |
| 290108 | LEEDK;1U E   | 65.57     |
| 293061 | N-015 E      | 41.22     |
| 293516 | O-009 E1     | 23.79     |
| 293517 | O-009 E2     | 12.09     |
| 293518 | O-009 E3     | 13.31     |
| 293644 | O22 E1       | 25.31     |
| 293645 | O22 E2       | 49.12     |
| 293715 | O-029 E      | 25.78     |
| 293716 | O-029 E      | 14.13     |
| 293717 | O-029 E      | 12.99     |
| 293771 | O-035 E      | 16.49     |
| 294392 | P-010 E      | 52.34     |
| 294763 | P-046 E      | 24.88     |
| 295109 | WESTBROOK E  | 15.03     |
| 295111 | SUBLETTE E   | 6.87      |
| 296125 | R-030 C3     | 9.31      |
| 296128 | R-030 E3     | 37.24     |
| 296271 | R-030 C2     | 9.2       |
| 296272 | R-030 E2     | 36.8      |
| 296308 | R-030 C1     | 9.2       |
| 296309 | R-030 E1     | 36.8      |
| 910542 | X3-005 E     | 1.57      |
| 914641 | Y2-103       | 118.19    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 915011 | Y3-013 1     | 9.85      |
| 915021 | Y3-013 2     | 9.85      |
| 915031 | Y3-013 3     | 9.85      |
| 916211 | Z1-072 E     | 12.48     |
| 916221 | Z1-073 E     | 14.49     |
| 916502 | Z1-106 E1    | 3.41      |
| 916504 | Z1-106 E2    | 3.41      |
| 916512 | Z1-107 E     | 6.53      |
| 916522 | Z1-108 E     | 6.62      |
| 917502 | Z2-087 E     | 48.13     |
| 918052 | AA1-018 E    | 40.41     |
| 919221 | AA1-146      | 46.5      |
| 919581 | AA2-030      | 46.5      |
| 919621 | AA2-039 C    | 3.78      |
| 919622 | AA2-039 E    | 25.31     |
| 920272 | AA2-123 E    | 6.51      |
| 924471 | AB2-096      | 112.6     |
| 925161 | AB2-173      | 8.29      |
| 925302 | AB2-191 E    | 3.72      |
| 925581 | AC1-033 C    | 3.62      |
| 925582 | AC1-033 E    | 24.22     |
| 926311 | AC1-109 1    | 5.21      |
| 926321 | AC1-109 2    | 5.21      |
| 926331 | AC1-110 1    | 5.12      |
| 926341 | AC1-110 2    | 5.12      |
| 926351 | AC1-111 1    | 2.07      |
| 926361 | AC1-111 2    | 2.07      |
| 926371 | AC1-111 3    | 2.07      |
| 926381 | AC1-111 4    | 2.07      |
| 926391 | AC1-111 5    | 2.07      |
| 926401 | AC1-111 6    | 2.07      |
| 926431 | AC1-114      | 6.32      |
| 926821 | AC1-168 C O1 | 2.98      |
| 926822 | AC1-168 E O1 | 20.01     |
| 927091 | AC1-204 1    | 184.27    |
| 927101 | AC1-204 2    | 184.31    |
| 927201 | AC1-214 C O1 | 5.29      |
| 927202 | AC1-214 E O1 | 16.83     |
| 927451 | AC1-142A 1   | 10.61     |
| 927461 | AC1-142A 2   | 10.61     |
| 927511 | AC1-113 1    | 3.16      |
| 927521 | AC1-113 2    | 3.16      |
| 927531 | AC1-185 1    | 1.82      |
| 927541 | AC1-185 2    | 1.82      |
| 927551 | AC1-185 3    | 1.82      |
| 927561 | AC1-185 4    | 1.82      |
| 927571 | AC1-185 5    | 1.82      |
| 927581 | AC1-185 6    | 1.82      |
| 927591 | AC1-185 7    | 1.82      |
| 927601 | AC1-185 8    | 1.82      |
| 930481 | AB1-089      | 175.15    |
| 930501 | AB1-091 O1   | 173.97    |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 930741 | AB1-122 1O1  | 194.95    |
| 930751 | AB1-122 2O1  | 188.67    |
| 932881 | AC2-115 1    | 6.32      |
| 932891 | AC2-115 2    | 6.32      |
| 932921 | AC2-116      | 2.21      |
| 932931 | AC2-117      | 14.95     |
| 933341 | AC2-147 C    | 2.31      |
| 933342 | AC2-147 E    | 3.77      |
| 933411 | AC2-154 C    | 6.01      |
| 933412 | AC2-154 E    | 9.81      |
| 933431 | AC2-156 C O1 | 2.64      |
| 933432 | AC2-156 E O1 | 4.3       |
| 933911 | AD1-013 C    | 4.95      |
| 933912 | AD1-013 E    | 7.9       |
| 933931 | AD1-016 C    | 2.47      |
| 933932 | AD1-016 E    | 4.03      |
| 934051 | AD1-031 C O1 | 7.35      |
| 934052 | AD1-031 E O1 | 11.99     |
| 934101 | AD1-039 1    | 19.1      |
| 934111 | AD1-039 2    | 18.49     |
| 934401 | AD1-064 C O1 | 8.56      |
| 934402 | AD1-064 E O1 | 40.08     |
| 934431 | AD1-067 C    | 0.35      |
| 934432 | AD1-067 E    | 1.48      |
| 934651 | AD1-096 C    | 2.37      |
| 934652 | AD1-096 E    | 3.86      |
| 934701 | AD1-098 C O1 | 18.47     |
| 934702 | AD1-098 E O1 | 13.48     |
| 934721 | AD1-100 C    | 51.04     |
| 934722 | AD1-100 E    | 238.17    |
| 934871 | AD1-116 C    | 2.35      |
| 934872 | AD1-116 E    | 3.84      |
| 934881 | AD1-117 C    | 14.23     |
| 934882 | AD1-117 E    | 9.49      |
| 934971 | AD1-129 C    | 2.4       |
| 934972 | AD1-129 E    | 1.6       |
| 935001 | AD1-133 C O1 | 55.95     |
| 935002 | AD1-133 E O1 | 37.3      |
| 936291 | AD2-038 C O1 | 5.86      |
| 936292 | AD2-038 E O1 | 39.2      |
| 936371 | AD2-047 C O1 | 5.38      |
| 936372 | AD2-047 E O1 | 57.91     |
| 936461 | AD2-060      | 6.33      |
| 936511 | AD2-066 C O1 | 21.47     |
| 936512 | AD2-066 E O1 | 14.31     |
| 936781 | AD2-101 C    | 10.68     |
| 936782 | AD2-101 E    | 49.98     |
| 936791 | AD2-102 C    | 31.89     |
| 936792 | AD2-102 E    | 30.64     |
| 936961 | AD2-130      | 1.4       |
| 937001 | AD2-134 C    | 7.34      |
| 937002 | AD2-134 E    | 30.33     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937031 | AD2-137 C O1 | 10.26     |
| 937032 | AD2-137 E O1 | 48.01     |
| 937051 | AD2-140 C O1 | 10.5      |
| 937052 | AD2-140 E O1 | 49.17     |
| 937061 | AD2-141 C O1 | 10.44     |
| 937062 | AD2-141 E O1 | 49.23     |
| 937071 | AD2-142 C O1 | 21.0      |
| 937072 | AD2-142 E O1 | 98.34     |
| 937121 | AD2-148 C O1 | 8.35      |
| 937122 | AD2-148 E O1 | 39.1      |
| 937131 | AD2-149 C O1 | 8.35      |
| 937132 | AD2-149 E O1 | 39.1      |
| 937141 | AD2-150 C O1 | 8.35      |
| 937142 | AD2-150 E O1 | 39.1      |
| 937181 | AD2-155 C O1 | 8.35      |
| 937182 | AD2-155 E O1 | 39.1      |
| 937311 | AD2-172 C    | 6.53      |
| 937312 | AD2-172 E    | 9.02      |
| 937321 | AD2-175 C    | 38.91     |
| 937322 | AD2-175 E    | 25.94     |
| 937331 | AD2-176 C O1 | 19.52     |
| 937332 | AD2-176 E O1 | 13.01     |
| 937401 | AD2-194 1    | 19.82     |
| 937411 | AD2-194 2    | 19.82     |
| 937531 | AD2-214 C    | 11.6      |
| 937532 | AD2-214 E    | 5.46      |
| 938012 | AE1-002 E O1 | 20.59     |
| 938511 | AE1-070 1    | 23.28     |
| 938521 | AE1-070 2    | 21.31     |
| 938851 | AE1-113 C O1 | 21.75     |
| 938852 | AE1-113 E O1 | 68.37     |
| 938861 | AE1-114 C O1 | 9.46      |
| 938862 | AE1-114 E O1 | 36.16     |
| 939051 | AE1-134 1    | 3.61      |
| 939061 | AE1-134 2    | 3.61      |
| 939321 | AE1-163 C O1 | 14.69     |
| 939322 | AE1-163 E O1 | 90.24     |
| 939351 | AE1-166 C O1 | 26.27     |
| 939352 | AE1-166 E O1 | 24.25     |
| 939401 | AE1-172 C O1 | 16.57     |
| 939402 | AE1-172 E O1 | 77.57     |
| 939631 | AE1-193 C O1 | 17.95     |
| 939632 | AE1-193 E O1 | 120.14    |
| 939641 | AE1-194 C    | 21.1      |
| 939642 | AE1-194 E    | 141.24    |
| 939651 | AE1-195 C    | 21.1      |
| 939652 | AE1-195 E    | 141.24    |
| 939681 | AE1-198 C O1 | 53.3      |
| 939682 | AE1-198 E O1 | 45.3      |
| 939691 | AE1-199      | 6.42      |
| 939701 | AE1-201 C    | 5.34      |
| 939702 | AE1-201 E    | 1.17      |

| <b>Bus #</b> | <b>Bus</b>   | <b>MW Impact</b> |
|--------------|--------------|------------------|
| 939732       | AE1-204 E    | 0.77             |
| 939741       | AE1-205 C O1 | 23.29            |
| 939742       | AE1-205 E O1 | 32.16            |
| 939861       | AE1-222 1    | 215.29           |
| 939871       | AE1-222 2    | 208.36           |
| 939921       | AE1-228 C O1 | 27.02            |
| 939922       | AE1-228 E O1 | 18.01            |
| 939961       | AE1-233 C O1 | 6.29             |
| 939962       | AE1-233 E O1 | 25.97            |
| 940101       | AE1-252 C O1 | 27.05            |
| 940102       | AE1-252 E O1 | 18.03            |
| AB2-013      | AB2-013      | 41.07            |
| AE1-033      | AE1-033      | 47.69            |
| BLUEG        | BLUEG        | 16.82            |
| CALDERWOOD   | CALDERWOOD   | 0.23             |
| CANNELTON    | CANNELTON    | 0.26             |
| CARR         | CARR         | 1.97             |
| CATAWBA      | CATAWBA      | 0.8              |
| CBM-S1       | CBM-S1       | 3.44             |
| CBM-W1       | CBM-W1       | 76.96            |
| CBM-W2       | CBM-W2       | 140.68           |
| CHEOAH       | CHEOAH       | 0.24             |
| CHILHOWEE    | CHILHOWEE    | 0.07             |
| DEARBORN     | DEARBORN     | 6.43             |
| ELMERSMITH   | ELMERSMITH   | 0.27             |
| G-007        | G-007        | 5.53             |
| GIBSON       | GIBSON       | 0.08             |
| HAMLET       | HAMLET       | 3.02             |
| MEC          | MEC          | 98.2             |
| O-066        | O-066        | 18.61            |
| RENSSELAER   | RENSSELAER   | 1.56             |
| SANTEETLA    | SANTEETLA    | 0.08             |
| TRIMBLE      | TRIMBLE      | 1.99             |
| WEC          | WEC          | 20.94            |
| Z1-043       | Z1-043       | 73.86            |

## 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 |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832264 | 271655    | HENNEEPIN; T | CE            | 926820  | AC1-168 TAP | CE          | 1      | COMED_P7_138-L0903__R-S+_138-L1206__R-S-A | tower | 192.0      | 97.08                 | 103.42                 | DC    | 27.02     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 6.13      |
| 293771   | O-035 E      | 5.44      |
| 294401   | BSHIL;1U E   | 6.05      |
| 294410   | BSHIL;2U E   | 6.05      |
| 916211   | Z1-072 E     | 4.11      |
| 919621   | AA2-039 C    | 1.47      |
| 919622   | AA2-039 E    | 9.87      |
| 925581   | AC1-033 C    | 0.99      |
| 925582   | AC1-033 E    | 6.63      |
| 927201   | AC1-214 C O1 | 1.75      |
| 927202   | AC1-214 E O1 | 5.55      |
| 934051   | AD1-031 C O1 | 2.01      |
| 934052   | AD1-031 E O1 | 3.28      |
| 936511   | AD2-066 C O1 | 8.64      |
| 936512   | AD2-066 E O1 | 5.76      |
| 939631   | AE1-193 C O1 | 4.92      |
| 939632   | AE1-193 E O1 | 32.93     |
| 939681   | AE1-198 C O1 | 14.61     |
| 939682   | AE1-198 E O1 | 12.41     |
| 953201   | J715 C       | 1.88      |
| 953202   | J715 E       | 10.15     |
| 954201   | J887 C       | 0.84      |
| 954202   | J887 E       | 4.54      |
| 990901   | L-005 E      | 8.19      |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.19      |
| CBM-W1   | CBM-W1       | 1.69      |
| CBM-W2   | CBM-W2       | 10.8      |
| CIN      | CIN          | 0.36      |
| CPL      | CPL          | 0.06      |
| DEARBORN | DEARBORN     | 0.08      |
| G-007A   | G-007A       | 0.04      |
| IPL      | IPL          | 0.19      |
| LGEE     | LGEE         | 0.06      |
| MEC      | MEC          | 4.0       |
| NYISO    | NYISO        | 0.05      |
| O-066A   | O-066A       | 0.02      |
| VFT      | VFT          | 0.12      |
| WEC      | WEC          | 0.05      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| Z1-043 | Z1-043 | 40.82     |

## 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 |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830603 | 271835    | KEWANEE ;23 | CE            | 271839  | KEWANEE ;22 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 138.12                | 201.28                 | DC    | 314.54    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 293513     | O-009 C1     | 2.77      |
| 293514     | O-009 C2     | 1.4       |
| 293515     | O-009 C3     | 1.55      |
| 293516     | O-009 E1     | 72.28     |
| 293517     | O-009 E2     | 36.71     |
| 293518     | O-009 E3     | 40.43     |
| 926821     | AC1-168 C O1 | 1.5       |
| 926822     | AC1-168 E O1 | 10.1      |
| 934051     | AD1-031 C O1 | 23.44     |
| 934052     | AD1-031 E O1 | 38.24     |
| 939631     | AE1-193 C O1 | 57.27     |
| 939632     | AE1-193 E O1 | 383.26    |
| 939681     | AE1-198 C O1 | 170.04    |
| 939682     | AE1-198 E O1 | 144.49    |
| 953201     | J715 C       | 1.5       |
| 953202     | J715 E       | 8.11      |
| BAYOU      | BAYOU        | 0.21      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.31      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.62      |
| BLUEG      | BLUEG        | 0.1       |
| CALDERWOOD | CALDERWOOD   | 0.05      |
| CANNELTON  | CANNELTON    | 0.02      |
| CARR       | CARR         | 0.0       |
| CATAWBA    | CATAWBA      | 0.02      |
| CHEOAH     | CHEOAH       | 0.04      |
| CHILHOWEE  | CHILHOWEE    | 0.02      |
| CHOCTAW    | CHOCTAW      | 0.18      |
| COFFEEN    | COFFEEN      | 0.09      |
| COTTONWOOD | COTTONWOOD   | 0.87      |
| DUCKCREEK  | DUCKCREEK    | 0.55      |
| EDWARDS    | EDWARDS      | 0.05      |
| ELMERSMITH | ELMERSMITH   | 0.03      |
| FARMERCITY | FARMERCITY   | 0.19      |
| G-007      | G-007        | 0.01      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.06      |
| MECS       | MECS         | 0.16      |
| NEWTON     | NEWTON       | 0.16      |
| O-066      | O-066        | 0.03      |
| PRAIRIE    | PRAIRIE      | 0.63      |
| RENSELAER  | RENSELAER    | 0.0       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 0.35             |
| <b>TILTON</b>     | TILTON     | 0.01             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.01             |
| <b>TVA</b>        | TVA        | 0.23             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>Z1-043</b>     | Z1-043     | 39.42            |

## Index 7

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS    | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-----------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 831983 | 271837    | KEWANEE ;12 | CE            | 349637  | 4EDWARDS3 | AMIL        | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R | tower | 189.0      | 136.43                | 166.08                 | DC    | 56.03     |

| Bus #     | Bus          | MW Impact |
|-----------|--------------|-----------|
| 274832    | U4-027       | 15.76     |
| 274848    | CAMPGROVE;RU | 0.63      |
| 274849    | CRESCENT ;1U | 0.19      |
| 274851    | PROVIDENC;RU | 0.29      |
| 274877    | BISHOP HL;1U | 0.48      |
| 274878    | BISHOP HL;2U | 0.48      |
| 293771    | O-035 E      | 7.64      |
| 294401    | BSHIL;1U E   | 12.57     |
| 294410    | BSHIL;2U E   | 12.57     |
| 916211    | Z1-072 E     | 5.78      |
| 919621    | AA2-039 C    | 3.06      |
| 919622    | AA2-039 E    | 20.51     |
| 925581    | AC1-033 C    | 2.06      |
| 925582    | AC1-033 E    | 13.82     |
| 926821    | AC1-168 C O1 | 0.72      |
| 926822    | AC1-168 E O1 | 4.84      |
| 926841    | AC1-171 C O1 | 0.64      |
| 926842    | AC1-171 E O1 | 4.3       |
| 927201    | AC1-214 C O1 | 2.45      |
| 927202    | AC1-214 E O1 | 7.8       |
| 934051    | AD1-031 C O1 | 4.17      |
| 934052    | AD1-031 E O1 | 6.81      |
| 939631    | AE1-193 C O1 | 10.2      |
| 939632    | AE1-193 E O1 | 68.27     |
| 939681    | AE1-198 C O1 | 30.29     |
| 939682    | AE1-198 E O1 | 25.74     |
| 953201    | J715 C       | 1.13      |
| 953202    | J715 E       | 6.11      |
| 954201    | J887 C       | 1.84      |
| 954202    | J887 E       | 9.94      |
| 990901    | L-005 E      | 16.45     |
| CBM-N     | CBM-N        | 0.01      |
| CBM-S1    | CBM-S1       | 0.05      |
| CBM-S2    | CBM-S2       | 0.02      |
| CBM-W2    | CBM-W2       | 0.35      |
| CIN       | CIN          | 0.09      |
| CPL       | CPL          | 0.01      |
| DEARBORN  | DEARBORN     | 0.0       |
| DUCKCREEK | DUCKCREEK    | 1.24      |
| EDWARDS   | EDWARDS      | 1.91      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>G-007A</b> | G-007A     | 0.02             |
| <b>IPL</b>    | IPL        | 0.05             |
| <b>LGEE</b>   | LGEE       | 0.01             |
| <b>MEC</b>    | MEC        | 0.16             |
| <b>NYISO</b>  | NYISO      | 0.02             |
| <b>O-066A</b> | O-066A     | 0.01             |
| <b>VFT</b>    | VFT        | 0.05             |
| <b>Z1-043</b> | Z1-043     | 20.32            |

## Index 8

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830752 | 271838    | KEWANEE ;13 | CE            | 271837  | KEWANEE ;12 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 121.95                | 151.33                 | DC    | 146.29    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.66      |
| 274877     | BISHOP HL;1U | 1.26      |
| 274878     | BISHOP HL;2U | 1.26      |
| 293513     | O-009 C1     | 1.29      |
| 293514     | O-009 C2     | 0.65      |
| 293515     | O-009 C3     | 0.72      |
| 293516     | O-009 E1     | 33.61     |
| 293517     | O-009 E2     | 17.07     |
| 293518     | O-009 E3     | 18.8      |
| 294401     | BSHIL;1U E   | 32.84     |
| 294410     | BSHIL;2U E   | 32.84     |
| 919621     | AA2-039 C    | 8.0       |
| 919622     | AA2-039 E    | 53.56     |
| 926821     | AC1-168 C O1 | 1.05      |
| 926822     | AC1-168 E O1 | 7.05      |
| 926841     | AC1-171 C O1 | 1.82      |
| 926842     | AC1-171 E O1 | 12.15     |
| 934051     | AD1-031 C O1 | 10.9      |
| 934052     | AD1-031 E O1 | 17.78     |
| 939631     | AE1-193 C O1 | 26.64     |
| 939632     | AE1-193 E O1 | 178.25    |
| 939681     | AE1-198 C O1 | 79.09     |
| 939682     | AE1-198 E O1 | 67.2      |
| 954201     | J887 C       | 4.81      |
| 954202     | J887 E       | 26.03     |
| 990901     | L-005 E      | 43.31     |
| CBM-N      | CBM-N        | 0.06      |
| CBM-S1     | CBM-S1       | 0.51      |
| CBM-S2     | CBM-S2       | 0.19      |
| CBM-W2     | CBM-W2       | 7.03      |
| CIN        | CIN          | 0.54      |
| CPL        | CPL          | 0.07      |
| EDWARDS    | EDWARDS      | 0.24      |
| FARMERCITY | FARMERCITY   | 0.04      |
| G-007A     | G-007A       | 0.19      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.04      |
| NYISO      | NYISO        | 0.26      |
| O-066A     | O-066A       | 0.09      |
| TATANKA    | TATANKA      | 0.28      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.52      |
| Z1-043 | Z1-043 | 28.97     |

## Index 9

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832003 | 271838    | KEWANEE ;13 | CE            | 348923  | 4KEWANEE N | AMIL        | Z1     | COMED_P7_138-L6101__ - S+_138-L7713__R-S-B | tower | 449.0      | 134.53                | 162.57                 | DC    | 125.87    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 28.1      |
| 274848     | CAMPGROVE;RU | 1.41      |
| 274849     | CRESCENT ;1U | 0.52      |
| 274851     | PROVIDENC;RU | 0.8       |
| 274877     | BISHOP HL;1U | 1.08      |
| 274878     | BISHOP HL;2U | 1.08      |
| 293513     | O-009 C1     | 0.44      |
| 293514     | O-009 C2     | 0.22      |
| 293515     | O-009 C3     | 0.25      |
| 293516     | O-009 E1     | 11.49     |
| 293517     | O-009 E2     | 5.84      |
| 293518     | O-009 E3     | 6.43      |
| 293715     | O-029 E      | 5.27      |
| 293716     | O-029 E      | 2.89      |
| 293717     | O-029 E      | 2.66      |
| 293771     | O-035 E      | 20.89     |
| 294401     | BSHIL;1U E   | 28.25     |
| 294410     | BSHIL;2U E   | 28.25     |
| 916211     | Z1-072 E     | 15.81     |
| 919621     | AA2-039 C    | 6.89      |
| 919622     | AA2-039 E    | 46.08     |
| 925581     | AC1-033 C    | 4.63      |
| 925582     | AC1-033 E    | 30.97     |
| 926841     | AC1-171 C O1 | 1.41      |
| 926842     | AC1-171 E O1 | 9.43      |
| 927201     | AC1-214 C O1 | 6.7       |
| 927202     | AC1-214 E O1 | 21.31     |
| 934051     | AD1-031 C O1 | 9.38      |
| 934052     | AD1-031 E O1 | 15.3      |
| 939631     | AE1-193 C O1 | 22.92     |
| 939632     | AE1-193 E O1 | 153.37    |
| 939681     | AE1-198 C O1 | 68.05     |
| 939682     | AE1-198 E O1 | 57.82     |
| 990901     | L-005 E      | 36.88     |
| BAYOU      | BAYOU        | 0.18      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.27      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.54      |
| BLUEG      | BLUEG        | 0.5       |
| CALDERWOOD | CALDERWOOD   | 0.07      |
| CANNELTON  | CANNELTON    | 0.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CARR</b>       | CARR       | 0.03             |
| <b>CATAWBA</b>    | CATAWBA    | 0.04             |
| <b>CBM-W1</b>     | CBM-W1     | 0.45             |
| <b>CHEOAH</b>     | CHEOAH     | 0.06             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.02             |
| <b>CHOCTAW</b>    | CHOCTAW    | 0.17             |
| <b>COFFEEN</b>    | COFFEEN    | 0.13             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.72             |
| <b>DEARBORN</b>   | DEARBORN   | 0.04             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.12             |
| <b>EDWARDS</b>    | EDWARDS    | 0.33             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>FARMERCITY</b> | FARMERCITY | 0.07             |
| <b>G-007</b>      | G-007      | 0.08             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.12             |
| <b>NEWTON</b>     | NEWTON     | 0.26             |
| <b>O-066</b>      | O-066      | 0.28             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.61             |
| <b>RENSSELAER</b> | RENSSELAER | 0.02             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.04             |
| <b>TILTON</b>     | TILTON     | 0.13             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.05             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.13             |
| <b>WEC</b>        | WEC        | 0.35             |

## Index 10

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830964 | 271839    | KEWANEE ;22 | CE            | 272607  | TOULON ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 336.0      | 88.28                 | 122.57                 | DC    | 115.21    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.94      |
| 293517     | O-009 E2     | 5.05      |
| 293518     | O-009 E3     | 5.56      |
| 293771     | O-035 E      | 3.85      |
| 294401     | BSHIL;1U E   | 25.84     |
| 294410     | BSHIL;2U E   | 25.84     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.16     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.44      |
| 927201     | AC1-214 C O1 | 1.24      |
| 927202     | AC1-214 E O1 | 3.93      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.01     |
| 939631     | AE1-193 C O1 | 20.98     |
| 939632     | AE1-193 E O1 | 140.38    |
| 939681     | AE1-198 C O1 | 62.28     |
| 939682     | AE1-198 E O1 | 52.93     |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| BAYOU      | BAYOU        | 0.18      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.28      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.56      |
| BLUEG      | BLUEG        | 0.82      |
| CALDERWOOD | CALDERWOOD   | 0.09      |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.03      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.87      |
| CHEOAH     | CHEOAH       | 0.08      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |
| CHOCTAW    | CHOCTAW      | 0.19      |
| COFFEEN    | COFFEEN      | 0.36      |
| COTTONWOOD | COTTONWOOD   | 0.7       |
| DEARBORN   | DEARBORN     | 0.02      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.02             |
| <b>EDWARDS</b>    | EDWARDS    | 0.7              |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.11             |
| <b>G-007</b>      | G-007      | 0.1              |
| <b>GIBSON</b>     | GIBSON     | 0.05             |
| <b>HAMLET</b>     | HAMLET     | 0.15             |
| <b>MEC</b>        | MEC        | 1.58             |
| <b>NEWTON</b>     | NEWTON     | 0.63             |
| <b>O-066</b>      | O-066      | 0.32             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.02             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.38             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.09             |
| <b>TVA</b>        | TVA        | 0.33             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.13             |
| <b>WEC</b>        | WEC        | 0.45             |
| <b>Z1-043</b>     | Z1-043     | 21.96            |

## Index 11

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|---------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830609 | 271839    | KEWANEE  | CE            | 271845  | KEWANEE | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 143.6                 | 195.26                 | DC    | 257.25    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 2.91      |
| 293513     | O-009 C1     | 2.26      |
| 293514     | O-009 C2     | 1.15      |
| 293515     | O-009 C3     | 1.27      |
| 293516     | O-009 E1     | 59.11     |
| 293517     | O-009 E2     | 30.02     |
| 293518     | O-009 E3     | 33.06     |
| 926841     | AC1-171 C O1 | 3.11      |
| 926842     | AC1-171 E O1 | 20.78     |
| 934051     | AD1-031 C O1 | 19.17     |
| 934052     | AD1-031 E O1 | 31.27     |
| 939631     | AE1-193 C O1 | 46.84     |
| 939632     | AE1-193 E O1 | 313.45    |
| 939681     | AE1-198 C O1 | 139.07    |
| 939682     | AE1-198 E O1 | 118.18    |
| 990901     | L-005 E      | 75.95     |
| BAYOU      | BAYOU        | 0.05      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.06      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.11      |
| CBM-N      | CBM-N        | 0.06      |
| CBM-S1     | CBM-S1       | 0.22      |
| CBM-S2     | CBM-S2       | 0.11      |
| CBM-W2     | CBM-W2       | 3.56      |
| CIN        | CIN          | 0.63      |
| COTTONWOOD | COTTONWOOD   | 0.25      |
| CPL        | CPL          | 0.05      |
| FARMERCITY | FARMERCITY   | 0.26      |
| G-007A     | G-007A       | 0.19      |
| IPL        | IPL          | 0.35      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.14      |
| NYISO      | NYISO        | 0.26      |
| O-066A     | O-066A       | 0.09      |
| TATANKA    | TATANKA      | 0.65      |
| UNIONPOWER | UNIONPOWER   | 0.03      |
| VFT        | VFT          | 0.51      |
| Z1-043     | Z1-043       | 16.96     |

## Index 12

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832142 | 271844    | KICKAPOO ; B | CE            | 271908  | LASCO STA; B | CE          | 1      | COMED_P7_138-L1206__R-S_+_345-L2311__R-S | tower | 498.0      | 111.01                | 118.46                 | DC    | 37.11     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274832  | U4-027       | 8.41      |
| 274847  | GR RIDGE ;BU | 4.04      |
| 274849  | CRESCENT ;1U | 0.2       |
| 274851  | PROVIDENC;RU | 0.31      |
| 274871  | GR RIDGE ;2U | 5.13      |
| 274877  | BISHOP HL;1U | 0.32      |
| 274878  | BISHOP HL;2U | 0.32      |
| 293061  | N-015 E      | 105.38    |
| 293771  | O-035 E      | 8.08      |
| 294392  | P-010 E      | 133.83    |
| 294401  | BSHIL;1U E   | 8.31      |
| 294410  | BSHIL;2U E   | 8.31      |
| 916211  | Z1-072 E     | 6.11      |
| 917451  | Z2-081       | 1.24      |
| 919621  | AA2-039 C    | 2.03      |
| 919622  | AA2-039 E    | 13.56     |
| 925581  | AC1-033 C    | 1.36      |
| 925582  | AC1-033 E    | 9.11      |
| 926821  | AC1-168 C O1 | 3.02      |
| 926822  | AC1-168 E O1 | 20.26     |
| 927201  | AC1-214 C O1 | 2.59      |
| 927202  | AC1-214 E O1 | 8.24      |
| 934051  | AD1-031 C O1 | 2.77      |
| 934052  | AD1-031 E O1 | 4.51      |
| 936511  | AD2-066 C O1 | 13.99     |
| 936512  | AD2-066 E O1 | 9.33      |
| 939631  | AE1-193 C O1 | 6.76      |
| 939632  | AE1-193 E O1 | 45.22     |
| 939681  | AE1-198 C O1 | 20.06     |
| 939682  | AE1-198 E O1 | 17.05     |
| 953201  | J715 C       | 3.06      |
| 953202  | J715 E       | 16.57     |
| 954201  | J887 C       | 1.16      |
| 954202  | J887 E       | 6.26      |
| 990901  | L-005 E      | 11.25     |
| AB2-013 | AB2-013      | 5.34      |
| CARR    | CARR         | 0.01      |
| CBM-S1  | CBM-S1       | 0.87      |
| CBM-S2  | CBM-S2       | 0.2       |
| CBM-W1  | CBM-W1       | 2.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-W2</b>     | CBM-W2     | 14.12            |
| <b>CIN</b>        | CIN        | 0.43             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>DEARBORN</b>   | DEARBORN   | 0.14             |
| <b>G-007</b>      | G-007      | 0.02             |
| <b>IPL</b>        | IPL        | 0.21             |
| <b>LGEE</b>       | LGEE       | 0.05             |
| <b>MEC</b>        | MEC        | 5.3              |
| <b>O-066</b>      | O-066      | 0.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>WEC</b>        | WEC        | 0.03             |
| <b>Z1-043</b>     | Z1-043     | 54.04            |

## Index 13

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832181 | 271908    | LASCO STA; B | CE            | 270802  | LASCO STA; B | CE          | 1      | COMED_P7_138-L1205__B-S_+_138-L1206__R-S-A | tower | 498.0      | 106.28                | 113.61                 | DC    | 36.51     |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 274832  | U4-027       | 8.28      |
| 274847  | GR RIDGE ;BU | 3.97      |
| 274849  | CRESCENT ;1U | 0.2       |
| 274851  | PROVIDENC;RU | 0.3       |
| 274871  | GR RIDGE ;2U | 5.04      |
| 274877  | BISHOP HL;1U | 0.31      |
| 274878  | BISHOP HL;2U | 0.31      |
| 293061  | N-015 E      | 103.47    |
| 293771  | O-035 E      | 7.94      |
| 294392  | P-010 E      | 131.41    |
| 294401  | BSHIL;1U E   | 8.18      |
| 294410  | BSHIL;2U E   | 8.18      |
| 916211  | Z1-072 E     | 6.01      |
| 917451  | Z2-081       | 1.22      |
| 919621  | AA2-039 C    | 1.99      |
| 919622  | AA2-039 E    | 13.34     |
| 925581  | AC1-033 C    | 1.34      |
| 925582  | AC1-033 E    | 8.96      |
| 926821  | AC1-168 C O1 | 2.97      |
| 926822  | AC1-168 E O1 | 19.9      |
| 927201  | AC1-214 C O1 | 2.55      |
| 927202  | AC1-214 E O1 | 8.1       |
| 934051  | AD1-031 C O1 | 2.72      |
| 934052  | AD1-031 E O1 | 4.44      |
| 936511  | AD2-066 C O1 | 13.75     |
| 936512  | AD2-066 E O1 | 9.17      |
| 939631  | AE1-193 C O1 | 6.65      |
| 939632  | AE1-193 E O1 | 44.49     |
| 939681  | AE1-198 C O1 | 19.74     |
| 939682  | AE1-198 E O1 | 16.77     |
| 953201  | J715 C       | 3.01      |
| 953202  | J715 E       | 16.27     |
| 954201  | J887 C       | 1.14      |
| 954202  | J887 E       | 6.16      |
| 990901  | L-005 E      | 11.07     |
| AB2-013 | AB2-013      | 5.3       |
| CARR    | CARR         | 0.01      |
| CBM-S1  | CBM-S1       | 0.87      |
| CBM-S2  | CBM-S2       | 0.2       |
| CBM-W1  | CBM-W1       | 2.05      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-W2</b>     | CBM-W2     | 14.08            |
| <b>CIN</b>        | CIN        | 0.43             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>DEARBORN</b>   | DEARBORN   | 0.14             |
| <b>G-007</b>      | G-007      | 0.02             |
| <b>IPL</b>        | IPL        | 0.22             |
| <b>LGEE</b>       | LGEE       | 0.05             |
| <b>MEC</b>        | MEC        | 5.28             |
| <b>O-066</b>      | O-066      | 0.05             |
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>WEC</b>        | WEC        | 0.04             |
| <b>Z1-043</b>     | Z1-043     | 53.11            |

## Index 14

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 831095 | 272095    | NELSON   | CE            | 275203  | NELSON | CE          | 1      | COMED_P4_155-38-L15518_ | breaker | 520.0      | 89.31                 | 102.07                 | DC    | 66.35     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 272363 | ESS H440 ; R | 0.58      |
| 274832 | U4-027       | 27.73     |
| 274848 | CAMPGROVE;RU | 0.76      |
| 274849 | CRESCENT ;1U | 0.23      |
| 274850 | MENDOTA H;RU | 0.14      |
| 274851 | PROVIDENC;RU | 0.35      |
| 274855 | GSG-6 ;RU    | 0.59      |
| 274872 | LEE DEKAL;1U | 0.84      |
| 274877 | BISHOP HL;1U | 0.57      |
| 274878 | BISHOP HL;2U | 0.57      |
| 290051 | GSG-6; E     | 15.38     |
| 290108 | LEEDK;1U E   | 22.77     |
| 293513 | O-009 C1     | 1.5       |
| 293514 | O-009 C2     | 0.76      |
| 293515 | O-009 C3     | 0.84      |
| 293516 | O-009 E1     | 39.16     |
| 293517 | O-009 E2     | 19.89     |
| 293518 | O-009 E3     | 21.9      |
| 293712 | O-029 C      | 1.88      |
| 293713 | O-029 C      | 1.03      |
| 293714 | O-029 C      | 0.95      |
| 293715 | O-029 E      | 48.99     |
| 293716 | O-029 E      | 26.86     |
| 293717 | O-029 E      | 24.69     |
| 293771 | O-035 E      | 9.22      |
| 294401 | BSHIL;1U E   | 14.85     |
| 294410 | BSHIL;2U E   | 14.85     |
| 294763 | P-046 E      | 6.26      |
| 295108 | WESTBROOK C  | 0.21      |
| 295109 | WESTBROOK E  | 8.23      |
| 295110 | SUBLETTE C   | 0.18      |
| 295111 | SUBLETTE E   | 7.76      |
| 905471 | W4-084       | 0.19      |
| 907361 | X1-087       | 0.31      |
| 916211 | Z1-072 E     | 6.98      |
| 916221 | Z1-073 E     | 7.94      |
| 919621 | AA2-039 C    | 3.62      |
| 919622 | AA2-039 E    | 24.22     |
| 925301 | AB2-191 C    | 0.23      |
| 925302 | AB2-191 E    | 2.04      |
| 925581 | AC1-033 C    | 2.43      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 925582     | AC1-033 E    | 16.29     |
| 926821     | AC1-168 C O1 | 0.97      |
| 926822     | AC1-168 E O1 | 6.52      |
| 926841     | AC1-171 C O1 | 0.87      |
| 926842     | AC1-171 E O1 | 5.82      |
| 927201     | AC1-214 C O1 | 2.96      |
| 927202     | AC1-214 E O1 | 9.41      |
| 933341     | AC2-147 C    | 1.48      |
| 933342     | AC2-147 E    | 2.41      |
| 933911     | AD1-013 C    | 2.63      |
| 933912     | AD1-013 E    | 4.2       |
| 934051     | AD1-031 C O1 | 4.94      |
| 934052     | AD1-031 E O1 | 8.07      |
| 934431     | AD1-067 C    | 0.19      |
| 934432     | AD1-067 E    | 0.81      |
| 934651     | AD1-096 C    | 1.01      |
| 934652     | AD1-096 E    | 1.65      |
| 934701     | AD1-098 C O1 | 10.67     |
| 934702     | AD1-098 E O1 | 7.79      |
| 934881     | AD1-117 C    | 9.08      |
| 934882     | AD1-117 E    | 6.06      |
| 937001     | AD2-134 C    | 4.02      |
| 937002     | AD2-134 E    | 16.61     |
| 937311     | AD2-172 C    | 1.64      |
| 937312     | AD2-172 E    | 2.27      |
| 938861     | AE1-114 C O1 | 6.04      |
| 938862     | AE1-114 E O1 | 23.08     |
| 939631     | AE1-193 C O1 | 12.08     |
| 939632     | AE1-193 E O1 | 80.84     |
| 939681     | AE1-198 C O1 | 35.87     |
| 939682     | AE1-198 E O1 | 30.48     |
| 939691     | AE1-199      | 3.41      |
| 939921     | AE1-228 C O1 | 13.95     |
| 939922     | AE1-228 E O1 | 9.3       |
| 939961     | AE1-233 C O1 | 1.23      |
| 939962     | AE1-233 E O1 | 5.07      |
| 953201     | J715 C       | 1.58      |
| 953202     | J715 E       | 8.56      |
| 954201     | J887 C       | 2.24      |
| 954202     | J887 E       | 12.09     |
| 990901     | L-005 E      | 19.73     |
| BAYOU      | BAYOU        | 0.37      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.51      |
| BIG_CAJUN2 | BIG_CAJUN2   | 1.04      |
| CALDERWOOD | CALDERWOOD   | 0.03      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-N      | CBM-N        | 0.06      |
| CHEOAH     | CHEOAH       | 0.03      |
| CHILHOWEE  | CHILHOWEE    | 0.01      |
| CHOCTAW    | CHOCTAW      | 0.26      |
| CIN        | CIN          | 0.42      |
| COTTONWOOD | COTTONWOOD   | 1.56      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CPL</b>        | CPL        | 0.01             |
| <b>FARMERCITY</b> | FARMERCITY | 0.55             |
| <b>G-007A</b>     | G-007A     | 0.19             |
| <b>HAMLET</b>     | HAMLET     | 0.0              |
| <b>IPL</b>        | IPL        | 0.25             |
| <b>LGEE</b>       | LGEE       | 0.07             |
| <b>MECS</b>       | MECS       | 0.5              |
| <b>NYISO</b>      | NYISO      | 0.27             |
| <b>O-066A</b>     | O-066A     | 0.09             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.59             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 1.17             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.25             |
| <b>VFT</b>        | VFT        | 0.52             |
| <b>Z1-043</b>     | Z1-043     | 27.51            |

## Index 15

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830593 | 272111    | NORMANDY ; R | CE            | 293510  | O09 OP1 138 | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 162.65                | 210.44                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>O-066A</b>     | O-066A     | 0.1              |
| <b>TATANKA</b>    | TATANKA    | 0.58             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.0              |
| <b>VFT</b>        | VFT        | 0.59             |
| <b>Z1-043</b>     | Z1-043     | 22.77            |

## Index 16

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|-------------|-------------|--------|------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832045 | 272189    | OGLESBY ;T | CE            | 936510  | AD2-066 TAP | CE          | 1      | COMED_P7_138-L93008_R-R_+_138-L18706_R-R | tower | 230.0      | 124.51                | 140.11                 | DC    | 35.88     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 10.06     |
| 274849   | CRESCENT ;1U | 0.2       |
| 274851   | PROVIDENC;RU | 0.31      |
| 274877   | BISHOP HL;1U | 0.31      |
| 274878   | BISHOP HL;2U | 0.31      |
| 293771   | O-035 E      | 8.05      |
| 294401   | BSHIL;1U E   | 8.04      |
| 294410   | BSHIL;2U E   | 8.04      |
| 916211   | Z1-072 E     | 6.09      |
| 919621   | AA2-039 C    | 1.96      |
| 919622   | AA2-039 E    | 13.11     |
| 925581   | AC1-033 C    | 1.32      |
| 925582   | AC1-033 E    | 8.81      |
| 926821   | AC1-168 C O1 | 1.32      |
| 926822   | AC1-168 E O1 | 8.85      |
| 926841   | AC1-171 C O1 | 0.54      |
| 926842   | AC1-171 E O1 | 3.58      |
| 927201   | AC1-214 C O1 | 2.58      |
| 927202   | AC1-214 E O1 | 8.21      |
| 934051   | AD1-031 C O1 | 2.67      |
| 934052   | AD1-031 E O1 | 4.36      |
| 939631   | AE1-193 C O1 | 6.53      |
| 939632   | AE1-193 E O1 | 43.72     |
| 939681   | AE1-198 C O1 | 19.4      |
| 939682   | AE1-198 E O1 | 16.48     |
| 953201   | J715 C       | 3.16      |
| 953202   | J715 E       | 17.07     |
| 954201   | J887 C       | 1.15      |
| 954202   | J887 E       | 6.2       |
| 990901   | L-005 E      | 10.83     |
| CBM-N    | CBM-N        | 0.03      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.21      |
| CBM-W1   | CBM-W1       | 0.45      |
| CBM-W2   | CBM-W2       | 10.61     |
| CIN      | CIN          | 0.49      |
| CPL      | CPL          | 0.07      |
| DEARBORN | DEARBORN     | 0.06      |
| G-007A   | G-007A       | 0.1       |
| IPL      | IPL          | 0.27      |

| <b>Bus #</b>  | <b>Bus</b> | <b>MW Impact</b> |
|---------------|------------|------------------|
| <b>LGEE</b>   | LGEE       | 0.08             |
| <b>MEC</b>    | MEC        | 2.58             |
| <b>NYISO</b>  | NYISO      | 0.13             |
| <b>O-066A</b> | O-066A     | 0.05             |
| <b>VFT</b>    | VFT        | 0.26             |
| <b>Z1-043</b> | Z1-043     | 38.42            |

## Index 17

| ID     | FROM BUS# | FROM BUS        | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-----------------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830920 | 272285    | POWERTON<br>;RT | CE            | 349505  | 4HUFF  | AMIL        | 1      | COMED_P4_074-38-L7413__ | breaker | 268.0      | 104.63                | 125.4                  | DC    | 55.66     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 0.9       |
| 274877     | BISHOP HL;1U | 0.48      |
| 274878     | BISHOP HL;2U | 0.48      |
| 293516     | O-009 E1     | 4.96      |
| 293517     | O-009 E2     | 2.52      |
| 293518     | O-009 E3     | 2.78      |
| 294401     | BSHIL;1U E   | 12.49     |
| 294410     | BSHIL;2U E   | 12.49     |
| 919621     | AA2-039 C    | 3.04      |
| 919622     | AA2-039 E    | 20.37     |
| 926841     | AC1-171 C O1 | 3.57      |
| 926842     | AC1-171 E O1 | 23.85     |
| 934051     | AD1-031 C O1 | 4.15      |
| 934052     | AD1-031 E O1 | 6.77      |
| 939631     | AE1-193 C O1 | 10.13     |
| 939632     | AE1-193 E O1 | 67.83     |
| 939681     | AE1-198 C O1 | 30.09     |
| 939682     | AE1-198 E O1 | 25.57     |
| 990901     | L-005 E      | 23.55     |
| BLUEG      | BLUEG        | 0.51      |
| CANNELTON  | CANNELTON    | 0.03      |
| CARR       | CARR         | 0.02      |
| CATAWBA    | CATAWBA      | 0.01      |
| CBM-S1     | CBM-S1       | 0.06      |
| CBM-W1     | CBM-W1       | 2.04      |
| CBM-W2     | CBM-W2       | 2.81      |
| COFFEEN    | COFFEEN      | 0.06      |
| DEARBORN   | DEARBORN     | 0.05      |
| EDWARDS    | EDWARDS      | 1.76      |
| ELMERSMITH | ELMERSMITH   | 0.04      |
| G-007      | G-007        | 0.06      |
| GIBSON     | GIBSON       | 0.03      |
| HAMLET     | HAMLET       | 0.03      |
| MEC        | MEC          | 3.32      |
| NEWTON     | NEWTON       | 0.22      |
| O-066      | O-066        | 0.2       |
| RENSSELAER | RENSSELAER   | 0.02      |
| TILTON     | TILTON       | 0.45      |
| TRIMBLE    | TRIMBLE      | 0.06      |
| WEC        | WEC          | 0.28      |
| Z1-043     | Z1-043       | 9.52      |



## Index 18

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832251 | 272367    | ROCK FALL; R | CE            | 272366  | ROCK FALL; B | CE          | 1      | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | tower | 230.0      | 98.07                 | 104.91                 | DC    | 34.87     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 293513     | O-009 C1     | 2.02      |
| 293514     | O-009 C2     | 1.03      |
| 293515     | O-009 C3     | 1.13      |
| 293516     | O-009 E1     | 52.76     |
| 293517     | O-009 E2     | 26.8      |
| 293518     | O-009 E3     | 29.51     |
| 293771     | O-035 E      | 4.77      |
| 294401     | BSHIL;1U E   | 7.76      |
| 294410     | BSHIL;2U E   | 7.76      |
| 916211     | Z1-072 E     | 3.61      |
| 919621     | AA2-039 C    | 1.89      |
| 919622     | AA2-039 E    | 12.65     |
| 925581     | AC1-033 C    | 1.26      |
| 925582     | AC1-033 E    | 8.45      |
| 927201     | AC1-214 C O1 | 1.53      |
| 927202     | AC1-214 E O1 | 4.87      |
| 934051     | AD1-031 C O1 | 2.6       |
| 934052     | AD1-031 E O1 | 4.24      |
| 939631     | AE1-193 C O1 | 6.35      |
| 939632     | AE1-193 E O1 | 42.49     |
| 939681     | AE1-198 C O1 | 18.85     |
| 939682     | AE1-198 E O1 | 16.02     |
| 954201     | J887 C       | 1.15      |
| 954202     | J887 E       | 6.2       |
| 990901     | L-005 E      | 10.37     |
| CBM-N      | CBM-N        | 0.03      |
| CBM-S1     | CBM-S1       | 0.16      |
| CBM-S2     | CBM-S2       | 0.07      |
| CBM-W2     | CBM-W2       | 2.69      |
| CIN        | CIN          | 0.28      |
| CPL        | CPL          | 0.03      |
| FARMERCITY | FARMERCITY   | 0.1       |
| G-007A     | G-007A       | 0.11      |
| IPL        | IPL          | 0.16      |
| LGEE       | LGEE         | 0.05      |
| MECS       | MECS         | 0.09      |
| NYISO      | NYISO        | 0.15      |
| O-066A     | O-066A       | 0.05      |
| TATANKA    | TATANKA      | 0.32      |
| VFT        | VFT          | 0.29      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| Z1-043 | Z1-043 | 14.37     |

## Index 19

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|----------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830663 | 272607    | TOULON   | CE            | 272269  | POWERTON | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 274.0      | 135.45                | 177.48                 | DC    | 115.15    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.86      |
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.92      |
| 293517     | O-009 E2     | 5.04      |
| 293518     | O-009 E3     | 5.55      |
| 293771     | O-035 E      | 3.84      |
| 294401     | BSHIL;1U E   | 25.83     |
| 294410     | BSHIL;2U E   | 25.83     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.14     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.43      |
| 927201     | AC1-214 C O1 | 1.23      |
| 927202     | AC1-214 E O1 | 3.92      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.0      |
| 939631     | AE1-193 C O1 | 20.97     |
| 939632     | AE1-193 E O1 | 140.31    |
| 939681     | AE1-198 C O1 | 62.25     |
| 939682     | AE1-198 E O1 | 52.9      |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| 990901     | L-005 E      | 48.61     |
| BAYOU      | BAYOU        | 0.19      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.3       |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.61      |
| BLUEG      | BLUEG        | 0.9       |
| CALDERWOOD | CALDERWOOD   | 0.1       |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.04      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.78      |
| CHEOAH     | CHEOAH       | 0.09      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |
| CHOCTAW    | CHOCTAW      | 0.21      |
| COFFEEN    | COFFEEN      | 0.37      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>COTTONWOOD</b> | COTTONWOOD | 0.77             |
| <b>DEARBORN</b>   | DEARBORN   | 0.03             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.03             |
| <b>EDWARDS</b>    | EDWARDS    | 0.71             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.12             |
| <b>G-007</b>      | G-007      | 0.11             |
| <b>GIBSON</b>     | GIBSON     | 0.06             |
| <b>HAMLET</b>     | HAMLET     | 0.17             |
| <b>MEC</b>        | MEC        | 1.51             |
| <b>NEWTON</b>     | NEWTON     | 0.65             |
| <b>O-066</b>      | O-066      | 0.38             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.03             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.39             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.1              |
| <b>TVA</b>        | TVA        | 0.36             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>WEC</b>        | WEC        | 0.44             |
| <b>Z1-043</b>     | Z1-043     | 21.92            |

## Index 20

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 831097 | 275203    | NELSON ;2M | CE            | 270828  | NELSON ; B | CE          | 1      | COMED_P4_155-38-L15518_ | breaker | 520.0      | 89.31                 | 102.07                 | DC    | 66.35     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 272363 | ESS H440 ; R | 0.58      |
| 274832 | U4-027       | 27.73     |
| 274848 | CAMPGROVE;RU | 0.76      |
| 274849 | CRESCENT ;1U | 0.23      |
| 274850 | MENDOTA H;RU | 0.14      |
| 274851 | PROVIDENC;RU | 0.35      |
| 274855 | GSG-6 ;RU    | 0.59      |
| 274872 | LEE DEKAL;1U | 0.84      |
| 274877 | BISHOP HL;1U | 0.57      |
| 274878 | BISHOP HL;2U | 0.57      |
| 290051 | GSG-6; E     | 15.38     |
| 290108 | LEEDK;1U E   | 22.77     |
| 293513 | O-009 C1     | 1.5       |
| 293514 | O-009 C2     | 0.76      |
| 293515 | O-009 C3     | 0.84      |
| 293516 | O-009 E1     | 39.16     |
| 293517 | O-009 E2     | 19.89     |
| 293518 | O-009 E3     | 21.9      |
| 293712 | O-029 C      | 1.88      |
| 293713 | O-029 C      | 1.03      |
| 293714 | O-029 C      | 0.95      |
| 293715 | O-029 E      | 48.99     |
| 293716 | O-029 E      | 26.86     |
| 293717 | O-029 E      | 24.69     |
| 293771 | O-035 E      | 9.22      |
| 294401 | BSHIL;1U E   | 14.85     |
| 294410 | BSHIL;2U E   | 14.85     |
| 294763 | P-046 E      | 6.26      |
| 295108 | WESTBROOK C  | 0.21      |
| 295109 | WESTBROOK E  | 8.23      |
| 295110 | SUBLETTE C   | 0.18      |
| 295111 | SUBLETTE E   | 7.76      |
| 905471 | W4-084       | 0.19      |
| 907361 | X1-087       | 0.31      |
| 916211 | Z1-072 E     | 6.98      |
| 916221 | Z1-073 E     | 7.94      |
| 919621 | AA2-039 C    | 3.62      |
| 919622 | AA2-039 E    | 24.22     |
| 925301 | AB2-191 C    | 0.23      |
| 925302 | AB2-191 E    | 2.04      |
| 925581 | AC1-033 C    | 2.43      |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 925582     | AC1-033 E    | 16.29     |
| 926821     | AC1-168 C O1 | 0.97      |
| 926822     | AC1-168 E O1 | 6.52      |
| 926841     | AC1-171 C O1 | 0.87      |
| 926842     | AC1-171 E O1 | 5.82      |
| 927201     | AC1-214 C O1 | 2.96      |
| 927202     | AC1-214 E O1 | 9.41      |
| 933341     | AC2-147 C    | 1.48      |
| 933342     | AC2-147 E    | 2.41      |
| 933911     | AD1-013 C    | 2.63      |
| 933912     | AD1-013 E    | 4.2       |
| 934051     | AD1-031 C O1 | 4.94      |
| 934052     | AD1-031 E O1 | 8.07      |
| 934431     | AD1-067 C    | 0.19      |
| 934432     | AD1-067 E    | 0.81      |
| 934651     | AD1-096 C    | 1.01      |
| 934652     | AD1-096 E    | 1.65      |
| 934701     | AD1-098 C O1 | 10.67     |
| 934702     | AD1-098 E O1 | 7.79      |
| 934881     | AD1-117 C    | 9.08      |
| 934882     | AD1-117 E    | 6.06      |
| 937001     | AD2-134 C    | 4.02      |
| 937002     | AD2-134 E    | 16.61     |
| 937311     | AD2-172 C    | 1.64      |
| 937312     | AD2-172 E    | 2.27      |
| 938861     | AE1-114 C O1 | 6.04      |
| 938862     | AE1-114 E O1 | 23.08     |
| 939631     | AE1-193 C O1 | 12.08     |
| 939632     | AE1-193 E O1 | 80.84     |
| 939681     | AE1-198 C O1 | 35.87     |
| 939682     | AE1-198 E O1 | 30.48     |
| 939691     | AE1-199      | 3.41      |
| 939921     | AE1-228 C O1 | 13.95     |
| 939922     | AE1-228 E O1 | 9.3       |
| 939961     | AE1-233 C O1 | 1.23      |
| 939962     | AE1-233 E O1 | 5.07      |
| 953201     | J715 C       | 1.58      |
| 953202     | J715 E       | 8.56      |
| 954201     | J887 C       | 2.24      |
| 954202     | J887 E       | 12.09     |
| 990901     | L-005 E      | 19.73     |
| BAYOU      | BAYOU        | 0.37      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.51      |
| BIG_CAJUN2 | BIG_CAJUN2   | 1.04      |
| CALDERWOOD | CALDERWOOD   | 0.03      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-N      | CBM-N        | 0.06      |
| CHEOAH     | CHEOAH       | 0.03      |
| CHILHOWEE  | CHILHOWEE    | 0.01      |
| CHOCTAW    | CHOCTAW      | 0.26      |
| CIN        | CIN          | 0.42      |
| COTTONWOOD | COTTONWOOD   | 1.56      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CPL</b>        | CPL        | 0.01             |
| <b>FARMERCITY</b> | FARMERCITY | 0.55             |
| <b>G-007A</b>     | G-007A     | 0.19             |
| <b>HAMLET</b>     | HAMLET     | 0.0              |
| <b>IPL</b>        | IPL        | 0.25             |
| <b>LGEE</b>       | LGEE       | 0.07             |
| <b>MECS</b>       | MECS       | 0.5              |
| <b>NYISO</b>      | NYISO      | 0.27             |
| <b>O-066A</b>     | O-066A     | 0.09             |
| <b>PRAIRIE</b>    | PRAIRIE    | 0.59             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.01             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.03             |
| <b>TATANKA</b>    | TATANKA    | 1.17             |
| <b>TVA</b>        | TVA        | 0.26             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.25             |
| <b>VFT</b>        | VFT        | 0.52             |
| <b>Z1-043</b>     | Z1-043     | 27.51            |

## Index 21

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830978 | 293710    | O29      | CE            | 272366  | ROCK FALL; B | CE          | 1      | COMED_P4_155-38-L15508_ | breaker | 498.0      | 107.7                 | 120.1                  | DC    | 61.74     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 34.46     |
| 274848 | CAMPGROVE;RU | 0.71      |
| 274849 | CRESCENT ;1U | 0.22      |
| 274851 | PROVIDENC;RU | 0.33      |
| 274877 | BISHOP HL;1U | 0.53      |
| 274878 | BISHOP HL;2U | 0.53      |
| 293513 | O-009 C1     | 0.38      |
| 293514 | O-009 C2     | 0.19      |
| 293515 | O-009 C3     | 0.21      |
| 293516 | O-009 E1     | 9.97      |
| 293517 | O-009 E2     | 5.06      |
| 293518 | O-009 E3     | 5.57      |
| 293712 | O-029 C      | 2.92      |
| 293713 | O-029 C      | 1.6       |
| 293714 | O-029 C      | 1.48      |
| 293715 | O-029 E      | 76.19     |
| 293716 | O-029 E      | 41.77     |
| 293717 | O-029 E      | 38.39     |
| 293771 | O-035 E      | 8.63      |
| 294401 | BSHIL;1U E   | 13.86     |
| 294410 | BSHIL;2U E   | 13.86     |
| 916211 | Z1-072 E     | 6.53      |
| 919621 | AA2-039 C    | 3.38      |
| 919622 | AA2-039 E    | 22.61     |
| 925581 | AC1-033 C    | 2.28      |
| 925582 | AC1-033 E    | 15.24     |
| 926821 | AC1-168 C O1 | 0.9       |
| 926822 | AC1-168 E O1 | 6.07      |
| 926841 | AC1-171 C O1 | 0.83      |
| 926842 | AC1-171 E O1 | 5.55      |
| 927201 | AC1-214 C O1 | 2.77      |
| 927202 | AC1-214 E O1 | 8.8       |
| 934051 | AD1-031 C O1 | 4.6       |
| 934052 | AD1-031 E O1 | 7.51      |
| 939631 | AE1-193 C O1 | 11.24     |
| 939632 | AE1-193 E O1 | 75.23     |
| 939681 | AE1-198 C O1 | 33.38     |
| 939682 | AE1-198 E O1 | 28.36     |
| 953201 | J715 C       | 1.44      |
| 953202 | J715 E       | 7.81      |
| 954201 | J887 C       | 2.07      |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 954202       | J887 E     | 11.18            |
| 990901       | L-005 E    | 18.43            |
| BAYOU        | BAYOU      | 0.06             |
| BIG_CAJUN1   | BIG_CAJUN1 | 0.06             |
| BIG_CAJUN2   | BIG_CAJUN2 | 0.13             |
| CBM-N        | CBM-N      | 0.05             |
| CBM-S1       | CBM-S1     | 0.16             |
| CBM-S2       | CBM-S2     | 0.09             |
| CBM-W2       | CBM-W2     | 3.44             |
| CHOCTAW      | CHOCTAW    | 0.01             |
| CIN          | CIN        | 0.46             |
| COTTONWOOD   | COTTONWOOD | 0.27             |
| CPL          | CPL        | 0.04             |
| FARMERCITY   | FARMERCITY | 0.24             |
| G-007A       | G-007A     | 0.17             |
| IPL          | IPL        | 0.26             |
| LGEE         | LGEE       | 0.08             |
| MECS         | MECS       | 0.19             |
| NYISO        | NYISO      | 0.23             |
| O-066A       | O-066A     | 0.08             |
| TATANKA      | TATANKA    | 0.68             |
| UNIONPOWER   | UNIONPOWER | 0.03             |
| VFT          | VFT        | 0.46             |
| Z1-043       | Z1-043     | 25.69            |

## Index 22

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|--------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832211 | 918050    | AA1-018 TAP | CE            | 270769  | GOODINGS ;2R | CE          | 1      | COMED_P7_345-L1202__B-S+_345-L1227__R-S-A | tower | 1494.0     | 92.42                 | 93.04                  | DC    | 20.47     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274677 | POWERTON ;5U | 24.82     |
| 274678 | POWERTON ;6U | 24.88     |
| 274879 | MINONK ;1U   | 1.29      |
| 290021 | O50 E        | 33.68     |
| 293644 | O22 E1       | 6.5       |
| 293645 | O22 E2       | 12.61     |
| 294401 | BSHIL;1U E   | 4.59      |
| 294410 | BSHIL;2U E   | 4.59      |
| 918051 | AA1-018 C    | 1.89      |
| 918052 | AA1-018 E    | 82.43     |
| 919621 | AA2-039 C    | 1.12      |
| 919622 | AA2-039 E    | 7.49      |
| 925581 | AC1-033 C    | 0.75      |
| 925582 | AC1-033 E    | 5.03      |
| 926841 | AC1-171 C O1 | 0.64      |
| 926842 | AC1-171 E O1 | 4.29      |
| 930741 | AB1-122 1O1  | 102.48    |
| 930751 | AB1-122 2O1  | 121.04    |
| 934051 | AD1-031 C O1 | 1.53      |
| 934052 | AD1-031 E O1 | 2.49      |
| 934101 | AD1-039 1    | 10.04     |
| 934111 | AD1-039 2    | 11.86     |
| 934871 | AD1-116 C    | 4.8       |
| 934872 | AD1-116 E    | 7.83      |
| 936291 | AD2-038 C O1 | 8.22      |
| 936292 | AD2-038 E O1 | 54.98     |
| 938851 | AE1-113 C O1 | 30.5      |
| 938852 | AE1-113 E O1 | 95.89     |
| 939321 | AE1-163 C O1 | 7.42      |
| 939322 | AE1-163 E O1 | 45.55     |
| 939631 | AE1-193 C O1 | 3.73      |
| 939632 | AE1-193 E O1 | 24.94     |
| 939681 | AE1-198 C O1 | 11.07     |
| 939682 | AE1-198 E O1 | 9.4       |
| 939861 | AE1-222 1    | 113.17    |
| 939871 | AE1-222 2    | 133.67    |
| 951631 | J456 C       | 1.31      |
| 951632 | J456 E       | 7.1       |
| 954702 | J844 E       | 20.17     |
| 990901 | L-005 E      | 7.01      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AB2-013</b>    | AB2-013    | 21.27            |
| <b>CARR</b>       | CARR       | 0.05             |
| <b>CBM-S1</b>     | CBM-S1     | 2.46             |
| <b>CBM-S2</b>     | CBM-S2     | 0.52             |
| <b>CBM-W1</b>     | CBM-W1     | 4.37             |
| <b>CBM-W2</b>     | CBM-W2     | 37.42            |
| <b>CIN</b>        | CIN        | 0.84             |
| <b>CPLE</b>       | CPLE       | 0.14             |
| <b>DEARBORN</b>   | DEARBORN   | 0.49             |
| <b>G-007</b>      | G-007      | 0.12             |
| <b>IPL</b>        | IPL        | 0.4              |
| <b>LGEE</b>       | LGEE       | 0.09             |
| <b>MEC</b>        | MEC        | 14.95            |
| <b>O-066</b>      | O-066      | 0.42             |
| <b>RENSSELAER</b> | RENSSELAER | 0.04             |
| <b>Z1-043</b>     | Z1-043     | 13.46            |

## Index 23

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832171 | 926820    | AC1-168 TAP | CE            | 272521  | STREATOR ; | CE          | 1      | COMED_P7_138-L0903__R-S_+_138-L1206__R-S-A | tower | 192.0      | 107.83                | 114.17                 | DC    | 27.02     |

| Bus #    | Bus          | MW Impact |
|----------|--------------|-----------|
| 274832   | U4-027       | 6.13      |
| 293771   | O-035 E      | 5.44      |
| 294401   | BSHIL;1U E   | 6.05      |
| 294410   | BSHIL;2U E   | 6.05      |
| 916211   | Z1-072 E     | 4.11      |
| 919621   | AA2-039 C    | 1.47      |
| 919622   | AA2-039 E    | 9.87      |
| 925581   | AC1-033 C    | 0.99      |
| 925582   | AC1-033 E    | 6.63      |
| 926821   | AC1-168 C O1 | 2.68      |
| 926822   | AC1-168 E O1 | 17.96     |
| 927201   | AC1-214 C O1 | 1.75      |
| 927202   | AC1-214 E O1 | 5.55      |
| 934051   | AD1-031 C O1 | 2.01      |
| 934052   | AD1-031 E O1 | 3.28      |
| 936511   | AD2-066 C O1 | 8.64      |
| 936512   | AD2-066 E O1 | 5.76      |
| 939631   | AE1-193 C O1 | 4.92      |
| 939632   | AE1-193 E O1 | 32.93     |
| 939681   | AE1-198 C O1 | 14.61     |
| 939682   | AE1-198 E O1 | 12.41     |
| 953201   | J715 C       | 1.88      |
| 953202   | J715 E       | 10.15     |
| 954201   | J887 C       | 0.84      |
| 954202   | J887 E       | 4.54      |
| 990901   | L-005 E      | 8.19      |
| CBM-N    | CBM-N        | 0.01      |
| CBM-S1   | CBM-S1       | 0.71      |
| CBM-S2   | CBM-S2       | 0.19      |
| CBM-W1   | CBM-W1       | 1.69      |
| CBM-W2   | CBM-W2       | 10.8      |
| CIN      | CIN          | 0.36      |
| CPL      | CPL          | 0.06      |
| DEARBORN | DEARBORN     | 0.08      |
| G-007A   | G-007A       | 0.04      |
| IPL      | IPL          | 0.19      |
| LGEE     | LGEE         | 0.06      |
| MEC      | MEC          | 4.0       |
| NYISO    | NYISO        | 0.05      |
| O-066A   | O-066A       | 0.02      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.12      |
| WEC    | WEC    | 0.05      |
| Z1-043 | Z1-043 | 40.82     |

## Index 24

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832270 | 936290    | AD2-038 TAP | CE            | 918050  | AA1-018 TAP | CE          | 1      | COMED_P7_345-L1202__B-S_+_345-L1227__R-S-A | tower | 1494.0     | 86.07                 | 86.69                  | DC    | 20.51     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274677 | POWERTON ;5U | 24.83     |
| 274678 | POWERTON ;6U | 24.89     |
| 274879 | MINONK ;1U   | 1.29      |
| 290021 | O50 E        | 33.7      |
| 293644 | O22 E1       | 6.5       |
| 293645 | O22 E2       | 12.63     |
| 293771 | O-035 E      | 3.1       |
| 294401 | BSHIL;1U E   | 4.6       |
| 294410 | BSHIL;2U E   | 4.6       |
| 916211 | Z1-072 E     | 2.34      |
| 919621 | AA2-039 C    | 1.12      |
| 919622 | AA2-039 E    | 7.5       |
| 925581 | AC1-033 C    | 0.75      |
| 925582 | AC1-033 E    | 5.04      |
| 926841 | AC1-171 C O1 | 0.64      |
| 926842 | AC1-171 E O1 | 4.29      |
| 927201 | AC1-214 C O1 | 0.99      |
| 927202 | AC1-214 E O1 | 3.16      |
| 930741 | AB1-122 1O1  | 102.53    |
| 930751 | AB1-122 2O1  | 121.11    |
| 934051 | AD1-031 C O1 | 1.53      |
| 934052 | AD1-031 E O1 | 2.49      |
| 934101 | AD1-039 1    | 10.05     |
| 934111 | AD1-039 2    | 11.87     |
| 936291 | AD2-038 C O1 | 8.22      |
| 936292 | AD2-038 E O1 | 55.0      |
| 938851 | AE1-113 C O1 | 30.51     |
| 938852 | AE1-113 E O1 | 95.92     |
| 939321 | AE1-163 C O1 | 7.42      |
| 939322 | AE1-163 E O1 | 45.58     |
| 939631 | AE1-193 C O1 | 3.73      |
| 939632 | AE1-193 E O1 | 24.99     |
| 939681 | AE1-198 C O1 | 11.09     |
| 939682 | AE1-198 E O1 | 9.42      |
| 939861 | AE1-222 1    | 113.23    |
| 939871 | AE1-222 2    | 133.74    |
| 951631 | J456 C       | 1.31      |
| 951632 | J456 E       | 7.1       |
| 953951 | J859         | 8.13      |
| 954702 | J844 E       | 20.17     |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 990901       | L-005 E    | 7.02             |
| AB2-013      | AB2-013    | 21.29            |
| CARR         | CARR       | 0.04             |
| CBM-S1       | CBM-S1     | 2.49             |
| CBM-S2       | CBM-S2     | 0.53             |
| CBM-W1       | CBM-W1     | 4.43             |
| CBM-W2       | CBM-W2     | 37.66            |
| CIN          | CIN        | 0.86             |
| CPL          | CPL        | 0.15             |
| DEARBORN     | DEARBORN   | 0.48             |
| G-007        | G-007      | 0.11             |
| IPL          | IPL        | 0.42             |
| LGEE         | LGEE       | 0.09             |
| MEC          | MEC        | 15.0             |
| O-066        | O-066      | 0.38             |
| RENSSELAER   | RENSSELAER | 0.04             |
| Z1-043       | Z1-043     | 13.48            |

## Index 25

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830833 | 255112    | 17STJOHN | NIPS          | 270886  | ST JOHN ;T | CE          | 1      | AEP_P4_#2978_05DUMONT 765_B | breaker | 1091.0     | 132.05                | 132.27                 | DC    | 27.79     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 8.96      |
| 274654 | BRAIDWOOD;1U | 18.89     |
| 274655 | BRAIDWOOD;2U | 18.08     |
| 274687 | WILL CNTY;4U | 7.96      |
| 274722 | S-055 E      | 8.37      |
| 274751 | CRETE EC ;1U | 3.35      |
| 274752 | CRETE EC ;2U | 3.35      |
| 274753 | CRETE EC ;3U | 3.35      |
| 274754 | CRETE EC ;4U | 3.35      |
| 274832 | U4-027       | 7.88      |
| 274859 | EASYR;U1 E   | 8.1       |
| 274860 | EASYR;U2 E   | 8.1       |
| 274861 | TOP CROP ;1U | 0.32      |
| 274862 | TOP CROP ;2U | 0.63      |
| 274888 | PILOT HIL;1E | 12.69     |
| 274890 | CAYUG;1U E   | 9.71      |
| 274891 | CAYUG;2U E   | 9.71      |
| 275149 | KEMPTON ;1E  | 12.69     |
| 290021 | O50 E        | 14.55     |
| 290051 | GSG-6; E     | 7.7       |
| 290108 | LEEDK;1U E   | 17.91     |
| 293061 | N-015 E      | 11.5      |
| 293516 | O-009 E1     | 6.65      |
| 293517 | O-009 E2     | 3.38      |
| 293518 | O-009 E3     | 3.72      |
| 293644 | O22 E1       | 8.45      |
| 293645 | O22 E2       | 16.4      |
| 293715 | O-029 E      | 7.18      |
| 293716 | O-029 E      | 3.94      |
| 293717 | O-029 E      | 3.62      |
| 293771 | O-035 E      | 4.65      |
| 294392 | P-010 E      | 14.6      |
| 294763 | P-046 E      | 6.92      |
| 295109 | WESTBROOK E  | 4.12      |
| 295111 | SUBLETTE E   | 1.91      |
| 910542 | X3-005 E     | 0.44      |
| 914641 | Y2-103       | 33.49     |
| 915011 | Y3-013 1     | 2.79      |
| 915021 | Y3-013 2     | 2.79      |
| 915031 | Y3-013 3     | 2.79      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916211 | Z1-072 E     | 3.52      |
| 916221 | Z1-073 E     | 3.97      |
| 916502 | Z1-106 E1    | 0.93      |
| 916504 | Z1-106 E2    | 0.93      |
| 916512 | Z1-107 E     | 1.84      |
| 916522 | Z1-108 E     | 1.84      |
| 918052 | AA1-018 E    | 11.55     |
| 919221 | AA1-146      | 12.94     |
| 919581 | AA2-030      | 12.94     |
| 920272 | AA2-123 E    | 1.81      |
| 924471 | AB2-096      | 31.34     |
| 925161 | AB2-173      | 2.31      |
| 925302 | AB2-191 E    | 1.02      |
| 925581 | AC1-033 C    | 1.02      |
| 925582 | AC1-033 E    | 6.83      |
| 926311 | AC1-109 1    | 1.41      |
| 926321 | AC1-109 2    | 1.41      |
| 926331 | AC1-110 1    | 1.41      |
| 926341 | AC1-110 2    | 1.41      |
| 926351 | AC1-111 1    | 0.56      |
| 926361 | AC1-111 2    | 0.56      |
| 926371 | AC1-111 3    | 0.56      |
| 926381 | AC1-111 4    | 0.56      |
| 926391 | AC1-111 5    | 0.56      |
| 926401 | AC1-111 6    | 0.56      |
| 926431 | AC1-114      | 1.76      |
| 926821 | AC1-168 C O1 | 0.84      |
| 926822 | AC1-168 E O1 | 5.64      |
| 927091 | AC1-204 1    | 54.79     |
| 927101 | AC1-204 2    | 54.72     |
| 927201 | AC1-214 C O1 | 1.49      |
| 927202 | AC1-214 E O1 | 4.75      |
| 927451 | AC1-142A 1   | 3.17      |
| 927461 | AC1-142A 2   | 3.18      |
| 927511 | AC1-113 1    | 0.88      |
| 927521 | AC1-113 2    | 0.88      |
| 927531 | AC1-185 1    | 0.51      |
| 927541 | AC1-185 2    | 0.51      |
| 927551 | AC1-185 3    | 0.51      |
| 927561 | AC1-185 4    | 0.51      |
| 927571 | AC1-185 5    | 0.51      |
| 927581 | AC1-185 6    | 0.51      |
| 927591 | AC1-185 7    | 0.51      |
| 927601 | AC1-185 8    | 0.51      |
| 930481 | AB1-089      | 48.61     |
| 930501 | AB1-091 O1   | 50.14     |
| 930741 | AB1-122 1O1  | 52.67     |
| 930751 | AB1-122 2O1  | 55.87     |
| 932881 | AC2-115 1    | 1.76      |
| 932891 | AC2-115 2    | 1.76      |
| 932921 | AC2-116      | 0.62      |
| 933341 | AC2-147 C    | 0.64      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933342 | AC2-147 E    | 1.05      |
| 933411 | AC2-154 C    | 1.72      |
| 933412 | AC2-154 E    | 2.81      |
| 933431 | AC2-156 C O1 | 0.7       |
| 933432 | AC2-156 E O1 | 1.15      |
| 933911 | AD1-013 C    | 1.36      |
| 933912 | AD1-013 E    | 2.17      |
| 933931 | AD1-016 C    | 0.69      |
| 933932 | AD1-016 E    | 1.12      |
| 934101 | AD1-039 1    | 5.16      |
| 934111 | AD1-039 2    | 5.48      |
| 934401 | AD1-064 C O1 | 2.37      |
| 934402 | AD1-064 E O1 | 11.1      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.41      |
| 934651 | AD1-096 C    | 0.66      |
| 934652 | AD1-096 E    | 1.07      |
| 934701 | AD1-098 C O1 | 5.07      |
| 934702 | AD1-098 E O1 | 3.7       |
| 934721 | AD1-100 C    | 14.17     |
| 934722 | AD1-100 E    | 66.14     |
| 934871 | AD1-116 C    | 0.67      |
| 934872 | AD1-116 E    | 1.1       |
| 934881 | AD1-117 C    | 3.96      |
| 934882 | AD1-117 E    | 2.64      |
| 934971 | AD1-129 C    | 0.67      |
| 934972 | AD1-129 E    | 0.45      |
| 935001 | AD1-133 C O1 | 15.09     |
| 935002 | AD1-133 E O1 | 10.06     |
| 936291 | AD2-038 C O1 | 1.7       |
| 936292 | AD2-038 E O1 | 11.38     |
| 936371 | AD2-047 C O1 | 1.54      |
| 936372 | AD2-047 E O1 | 16.59     |
| 936461 | AD2-060      | 1.81      |
| 936511 | AD2-066 C O1 | 6.15      |
| 936512 | AD2-066 E O1 | 4.1       |
| 936781 | AD2-101 C    | 3.06      |
| 936782 | AD2-101 E    | 14.32     |
| 936791 | AD2-102 C    | 8.89      |
| 936792 | AD2-102 E    | 8.54      |
| 936961 | AD2-130      | 0.42      |
| 937001 | AD2-134 C    | 2.01      |
| 937002 | AD2-134 E    | 8.32      |
| 937031 | AD2-137 C O1 | 2.43      |
| 937032 | AD2-137 E O1 | 11.38     |
| 937051 | AD2-140 C O1 | 2.43      |
| 937052 | AD2-140 E O1 | 11.38     |
| 937061 | AD2-141 C O1 | 2.42      |
| 937062 | AD2-141 E O1 | 11.39     |
| 937071 | AD2-142 C O1 | 4.86      |
| 937072 | AD2-142 E O1 | 22.76     |
| 937121 | AD2-148 C O1 | 2.41      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 937122  | AD2-148 E O1 | 11.27     |
| 937131  | AD2-149 C O1 | 2.41      |
| 937132  | AD2-149 E O1 | 11.27     |
| 937141  | AD2-150 C O1 | 2.41      |
| 937142  | AD2-150 E O1 | 11.27     |
| 937181  | AD2-155 C O1 | 2.41      |
| 937182  | AD2-155 E O1 | 11.27     |
| 937311  | AD2-172 C    | 1.82      |
| 937312  | AD2-172 E    | 2.51      |
| 937321  | AD2-175 C    | 11.21     |
| 937322  | AD2-175 E    | 7.48      |
| 937331  | AD2-176 C O1 | 5.43      |
| 937332  | AD2-176 E O1 | 3.62      |
| 937401  | AD2-194 1    | 5.89      |
| 937411  | AD2-194 2    | 5.88      |
| 937531  | AD2-214 C    | 3.24      |
| 937532  | AD2-214 E    | 1.52      |
| 938012  | AE1-002 E O1 | 4.88      |
| 938511  | AE1-070 1    | 6.92      |
| 938521  | AE1-070 2    | 6.33      |
| 938851  | AE1-113 C O1 | 6.31      |
| 938852  | AE1-113 E O1 | 19.84     |
| 938861  | AE1-114 C O1 | 2.63      |
| 938862  | AE1-114 E O1 | 10.06     |
| 939051  | AE1-134 1    | 1.01      |
| 939061  | AE1-134 2    | 1.01      |
| 939321  | AE1-163 C O1 | 4.6       |
| 939322  | AE1-163 E O1 | 28.26     |
| 939351  | AE1-166 C O1 | 7.54      |
| 939352  | AE1-166 E O1 | 6.96      |
| 939401  | AE1-172 C O1 | 4.45      |
| 939402  | AE1-172 E O1 | 20.86     |
| 939641  | AE1-194 C    | 18.89     |
| 939642  | AE1-194 E    | 126.42    |
| 939651  | AE1-195 C    | 18.89     |
| 939652  | AE1-195 E    | 126.42    |
| 939681  | AE1-198 C O1 | 3.53      |
| 939682  | AE1-198 E O1 | 3.0       |
| 939691  | AE1-199      | 1.76      |
| 939701  | AE1-201 C    | 1.48      |
| 939702  | AE1-201 E    | 0.33      |
| 939732  | AE1-204 E    | 0.22      |
| 939861  | AE1-222 1    | 58.17     |
| 939871  | AE1-222 2    | 61.7      |
| 939921  | AE1-228 C O1 | 7.41      |
| 939922  | AE1-228 E O1 | 4.94      |
| 939961  | AE1-233 C O1 | 1.72      |
| 939962  | AE1-233 E O1 | 7.09      |
| 940101  | AE1-252 C O1 | 7.28      |
| 940102  | AE1-252 E O1 | 4.85      |
| AB2-013 | AB2-013      | 11.82     |
| AE1-033 | AE1-033      | 13.36     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>BLUEG</b>      | BLUEG      | 4.19             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.05             |
| <b>CANNELTON</b>  | CANNELTON  | 0.07             |
| <b>CARR</b>       | CARR       | 0.56             |
| <b>CATAWBA</b>    | CATAWBA    | 0.21             |
| <b>CBM-S1</b>     | CBM-S1     | 1.06             |
| <b>CBM-W1</b>     | CBM-W1     | 19.6             |
| <b>CBM-W2</b>     | CBM-W2     | 39.02            |
| <b>CHEOAH</b>     | CHEOAH     | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.01             |
| <b>DEARBORN</b>   | DEARBORN   | 2.36             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>G-007</b>      | G-007      | 1.57             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.82             |
| <b>MEC</b>        | MEC        | 27.54            |
| <b>O-066</b>      | O-066      | 5.27             |
| <b>RENSSELAER</b> | RENSSELAER | 0.44             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.49             |
| <b>WEC</b>        | WEC        | 5.92             |
| <b>Z1-043</b>     | Z1-043     | 20.86            |

## Index 26

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS   | TO BUS AREA | CK T ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPACT |
|--------|-----------|------------|---------------|---------|----------|-------------|---------|-----------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 517570 | 255113    | 17STILLWEL | NIPS          | 243219  | 05DUMONT | AEP         | 1       | AEP_P4_#2978_05DUMONT 765_B | breaker | 1409.0     | 177.95                 | 178.74                  | DC     | 43.98     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 13.92     |
| 274722 | S-055 E      | 12.95     |
| 274724 | RIVER EC ;11 | 4.75      |
| 274788 | SE CHICAG;5U | 1.14      |
| 274789 | SE CHICAG;6U | 1.14      |
| 274790 | SE CHICAG;7U | 1.14      |
| 274791 | SE CHICAG;8U | 1.14      |
| 274795 | SE CHICAG;2U | 1.12      |
| 274832 | U4-027       | 12.45     |
| 274859 | EASYR;U1 E   | 12.67     |
| 274860 | EASYR;U2 E   | 12.67     |
| 274888 | PILOT HIL;1E | 22.3      |
| 274890 | CAYUG;1U E   | 15.76     |
| 274891 | CAYUG;2U E   | 15.76     |
| 275149 | KEMPTON ;1E  | 22.3      |
| 290021 | O50 E        | 22.31     |
| 290051 | GSG-6; E     | 12.02     |
| 290108 | LEEDK;1U E   | 27.92     |
| 293061 | N-015 E      | 17.54     |
| 293516 | O-009 E1     | 10.45     |
| 293517 | O-009 E2     | 5.31      |
| 293518 | O-009 E3     | 5.85      |
| 293644 | O22 E1       | 11.95     |
| 293645 | O22 E2       | 23.2      |
| 293715 | O-029 E      | 11.27     |
| 293716 | O-029 E      | 6.18      |
| 293717 | O-029 E      | 5.68      |
| 293771 | O-035 E      | 7.36      |
| 294392 | P-010 E      | 22.27     |
| 294763 | P-046 E      | 10.8      |
| 295109 | WESTBROOK E  | 6.44      |
| 295111 | SUBLETTE E   | 2.99      |
| 910542 | X3-005 E     | 1.0       |
| 914641 | Y2-103       | 51.8      |
| 915011 | Y3-013 1     | 4.32      |
| 915021 | Y3-013 2     | 4.32      |
| 915031 | Y3-013 3     | 4.32      |
| 916211 | Z1-072 E     | 5.57      |
| 916221 | Z1-073 E     | 6.2       |
| 916502 | Z1-106 E1    | 1.45      |
| 916504 | Z1-106 E2    | 1.45      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916512 | Z1-107 E     | 3.03      |
| 916522 | Z1-108 E     | 2.86      |
| 918052 | AA1-018 E    | 18.74     |
| 919221 | AA1-146      | 20.28     |
| 919581 | AA2-030      | 20.28     |
| 920272 | AA2-123 E    | 2.81      |
| 924471 | AB2-096      | 48.73     |
| 925161 | AB2-173      | 3.62      |
| 925302 | AB2-191 E    | 1.59      |
| 925581 | AC1-033 C    | 1.61      |
| 925582 | AC1-033 E    | 10.81     |
| 925881 | AC1-067 O1   | 198.49    |
| 926311 | AC1-109 1    | 2.19      |
| 926321 | AC1-109 2    | 2.19      |
| 926331 | AC1-110 1    | 2.18      |
| 926341 | AC1-110 2    | 2.18      |
| 926351 | AC1-111 1    | 0.88      |
| 926361 | AC1-111 2    | 0.88      |
| 926371 | AC1-111 3    | 0.88      |
| 926381 | AC1-111 4    | 0.88      |
| 926391 | AC1-111 5    | 0.88      |
| 926401 | AC1-111 6    | 0.88      |
| 926431 | AC1-114      | 2.74      |
| 926821 | AC1-168 C O1 | 1.32      |
| 926822 | AC1-168 E O1 | 8.85      |
| 927091 | AC1-204 1    | 83.26     |
| 927101 | AC1-204 2    | 83.23     |
| 927201 | AC1-214 C O1 | 2.36      |
| 927202 | AC1-214 E O1 | 7.51      |
| 927451 | AC1-142A 1   | 4.83      |
| 927461 | AC1-142A 2   | 4.84      |
| 927511 | AC1-113 1    | 1.37      |
| 927521 | AC1-113 2    | 1.37      |
| 927531 | AC1-185 1    | 0.79      |
| 927541 | AC1-185 2    | 0.79      |
| 927551 | AC1-185 3    | 0.79      |
| 927561 | AC1-185 4    | 0.79      |
| 927571 | AC1-185 5    | 0.79      |
| 927581 | AC1-185 6    | 0.79      |
| 927591 | AC1-185 7    | 0.79      |
| 927601 | AC1-185 8    | 0.79      |
| 930481 | AB1-089      | 75.67     |
| 930501 | AB1-091 O1   | 88.22     |
| 930741 | AB1-122 1O1  | 82.42     |
| 930751 | AB1-122 2O1  | 84.95     |
| 932881 | AC2-115 1    | 2.74      |
| 932891 | AC2-115 2    | 2.74      |
| 932921 | AC2-116      | 0.96      |
| 932931 | AC2-117      | 5.81      |
| 933341 | AC2-147 C    | 1.0       |
| 933342 | AC2-147 E    | 1.64      |
| 933411 | AC2-154 C    | 3.03      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933412 | AC2-154 E    | 4.94      |
| 933431 | AC2-156 C O1 | 1.1       |
| 933432 | AC2-156 E O1 | 1.79      |
| 933911 | AD1-013 C    | 2.12      |
| 933912 | AD1-013 E    | 3.38      |
| 933931 | AD1-016 C    | 1.07      |
| 933932 | AD1-016 E    | 1.74      |
| 934101 | AD1-039 1    | 8.08      |
| 934111 | AD1-039 2    | 8.33      |
| 934401 | AD1-064 C O1 | 3.69      |
| 934402 | AD1-064 E O1 | 17.25     |
| 934431 | AD1-067 C    | 0.15      |
| 934432 | AD1-067 E    | 0.63      |
| 934651 | AD1-096 C    | 1.03      |
| 934652 | AD1-096 E    | 1.67      |
| 934701 | AD1-098 C O1 | 7.91      |
| 934702 | AD1-098 E O1 | 5.78      |
| 934721 | AD1-100 C    | 22.45     |
| 934722 | AD1-100 E    | 104.76    |
| 934871 | AD1-116 C    | 1.09      |
| 934872 | AD1-116 E    | 1.78      |
| 934881 | AD1-117 C    | 6.19      |
| 934882 | AD1-117 E    | 4.13      |
| 934971 | AD1-129 C    | 1.04      |
| 934972 | AD1-129 E    | 0.69      |
| 935001 | AD1-133 C O1 | 24.06     |
| 935002 | AD1-133 E O1 | 16.04     |
| 936291 | AD2-038 C O1 | 2.69      |
| 936292 | AD2-038 E O1 | 18.02     |
| 936371 | AD2-047 C O1 | 2.71      |
| 936372 | AD2-047 E O1 | 29.15     |
| 936461 | AD2-060      | 3.19      |
| 936511 | AD2-066 C O1 | 9.67      |
| 936512 | AD2-066 E O1 | 6.45      |
| 936781 | AD2-101 C    | 5.9       |
| 936782 | AD2-101 E    | 27.62     |
| 936791 | AD2-102 C    | 13.85     |
| 936792 | AD2-102 E    | 13.3      |
| 936961 | AD2-130      | 0.66      |
| 937001 | AD2-134 C    | 3.14      |
| 937002 | AD2-134 E    | 12.98     |
| 937031 | AD2-137 C O1 | 4.08      |
| 937032 | AD2-137 E O1 | 19.09     |
| 937051 | AD2-140 C O1 | 4.11      |
| 937052 | AD2-140 E O1 | 19.25     |
| 937061 | AD2-141 C O1 | 4.09      |
| 937062 | AD2-141 E O1 | 19.27     |
| 937071 | AD2-142 C O1 | 8.22      |
| 937072 | AD2-142 E O1 | 38.5      |
| 937121 | AD2-148 C O1 | 4.23      |
| 937122 | AD2-148 E O1 | 19.82     |
| 937131 | AD2-149 C O1 | 4.23      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937132 | AD2-149 E O1 | 19.82     |
| 937141 | AD2-150 C O1 | 4.23      |
| 937142 | AD2-150 E O1 | 19.82     |
| 937181 | AD2-155 C O1 | 4.23      |
| 937182 | AD2-155 E O1 | 19.82     |
| 937311 | AD2-172 C    | 2.83      |
| 937312 | AD2-172 E    | 3.91      |
| 937321 | AD2-175 C    | 19.73     |
| 937322 | AD2-175 E    | 13.15     |
| 937331 | AD2-176 C O1 | 8.43      |
| 937332 | AD2-176 E O1 | 5.62      |
| 937401 | AD2-194 1    | 8.95      |
| 937411 | AD2-194 2    | 8.95      |
| 937531 | AD2-214 C    | 5.1       |
| 937532 | AD2-214 E    | 2.4       |
| 938012 | AE1-002 E O1 | 8.18      |
| 938511 | AE1-070 1    | 10.52     |
| 938521 | AE1-070 2    | 9.62      |
| 938851 | AE1-113 C O1 | 10.0      |
| 938852 | AE1-113 E O1 | 31.44     |
| 938861 | AE1-114 C O1 | 4.11      |
| 938862 | AE1-114 E O1 | 15.72     |
| 939051 | AE1-134 1    | 1.58      |
| 939061 | AE1-134 2    | 1.58      |
| 939321 | AE1-163 C O1 | 6.81      |
| 939322 | AE1-163 E O1 | 41.82     |
| 939351 | AE1-166 C O1 | 11.8      |
| 939352 | AE1-166 E O1 | 10.89     |
| 939401 | AE1-172 C O1 | 7.21      |
| 939402 | AE1-172 E O1 | 33.74     |
| 939631 | AE1-193 C O1 | 4.73      |
| 939632 | AE1-193 E O1 | 31.63     |
| 939641 | AE1-194 C    | 10.24     |
| 939642 | AE1-194 E    | 68.55     |
| 939651 | AE1-195 C    | 10.24     |
| 939652 | AE1-195 E    | 68.55     |
| 939681 | AE1-198 C O1 | 23.78     |
| 939682 | AE1-198 E O1 | 20.2      |
| 939691 | AE1-199      | 2.75      |
| 939701 | AE1-201 C    | 2.31      |
| 939702 | AE1-201 E    | 0.51      |
| 939732 | AE1-204 E    | 0.34      |
| 939861 | AE1-222 1    | 91.02     |
| 939871 | AE1-222 2    | 93.81     |
| 939921 | AE1-228 C O1 | 11.56     |
| 939922 | AE1-228 E O1 | 7.71      |
| 939961 | AE1-233 C O1 | 2.67      |
| 939962 | AE1-233 E O1 | 11.05     |
| 940101 | AE1-252 C O1 | 11.82     |
| 940102 | AE1-252 E O1 | 7.88      |
| 951721 | J643         | 25.73     |
| 952581 | J740 C       | 4.3       |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 952582       | J740 E     | 23.28            |
| 953871       | J847       | 13.1             |
| 954751       | J351       | 434.54           |
| AB2-013      | AB2-013    | 18.6             |
| AE1-033      | AE1-033    | 20.85            |
| BLUEG        | BLUEG      | 1.07             |
| CARR         | CARR       | 0.9              |
| CATAWBA      | CATAWBA    | 0.22             |
| CBM-S1       | CBM-S1     | 3.95             |
| CBM-W1       | CBM-W1     | 35.83            |
| CBM-W2       | CBM-W2     | 81.92            |
| CIN          | CIN        | 3.3              |
| DEARBORN     | DEARBORN   | 4.0              |
| G-007        | G-007      | 2.51             |
| HAMLET       | HAMLET     | 0.96             |
| IPL          | IPL        | 1.12             |
| MEC          | MEC        | 44.69            |
| O-066        | O-066      | 8.44             |
| RENSSELAER   | RENSSELAER | 0.71             |
| TRIMBLE      | TRIMBLE    | 0.16             |
| WEC          | WEC        | 9.2              |
| Z1-043       | Z1-043     | 32.93            |

## Index 27

| ID     | FROM BUS# | FROM BUS           | FROM BUS AREA | TO BUS# | TO BUS          | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------------|---------------|---------|-----------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830984 | 270728    | E<br>FRANKFO;<br>B | CE            | 274750  | CRETE<br>EC ;BP | CE          | 1      | COMED_P4_023-<br>65-BT2-3__ | breaker | 1399.0     | 112.0                 | 113.04                 | DC    | 39.71     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 12.84     |
| 274654 | BRAIDWOOD;1U | 27.44     |
| 274655 | BRAIDWOOD;2U | 26.25     |
| 274660 | LASCO STA;1U | 25.18     |
| 274661 | LASCO STA;2U | 25.23     |
| 274675 | JOLIET 29;7U | 11.31     |
| 274676 | JOLIET 29;8U | 11.32     |
| 274687 | WILL CNTY;4U | 11.43     |
| 274704 | KENDALL ;1C  | 4.03      |
| 274705 | KENDALL ;1S  | 2.68      |
| 274706 | KENDALL ;2C  | 4.03      |
| 274707 | KENDALL ;2S  | 2.68      |
| 274722 | S-055 E      | 12.01     |
| 274736 | ELWOOD EC;9P | 3.24      |
| 274832 | U4-027       | 11.27     |
| 274859 | EASYR;U1 E   | 11.62     |
| 274860 | EASYR;U2 E   | 11.62     |
| 274861 | TOP CROP ;1U | 0.48      |
| 274862 | TOP CROP ;2U | 0.92      |
| 274888 | PILOT HIL;1E | 17.21     |
| 274890 | CAYUG;1U E   | 13.66     |
| 274891 | CAYUG;2U E   | 13.66     |
| 275149 | KEMPTON ;1E  | 17.21     |
| 290021 | O50 E        | 20.89     |
| 290051 | GSG-6; E     | 11.05     |
| 290108 | LEEDK;1U E   | 25.7      |
| 293061 | N-015 E      | 16.59     |
| 293516 | O-009 E1     | 9.52      |
| 293517 | O-009 E2     | 4.83      |
| 293518 | O-009 E3     | 5.32      |
| 293644 | O22 E1       | 12.39     |
| 293645 | O22 E2       | 24.06     |
| 293715 | O-029 E      | 10.29     |
| 293716 | O-029 E      | 5.64      |
| 293717 | O-029 E      | 5.19      |
| 293771 | O-035 E      | 6.65      |
| 294392 | P-010 E      | 21.07     |
| 294763 | P-046 E      | 9.92      |
| 295109 | WESTBROOK E  | 5.92      |
| 295111 | SUBLETTE E   | 2.73      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 914641 | Y2-103       | 48.03     |
| 915011 | Y3-013 1     | 4.0       |
| 915021 | Y3-013 2     | 4.0       |
| 915031 | Y3-013 3     | 4.0       |
| 916211 | Z1-072 E     | 5.03      |
| 916221 | Z1-073 E     | 5.7       |
| 916502 | Z1-106 E1    | 1.34      |
| 916504 | Z1-106 E2    | 1.34      |
| 916512 | Z1-107 E     | 2.57      |
| 916522 | Z1-108 E     | 2.65      |
| 918052 | AA1-018 E    | 16.27     |
| 919221 | AA1-146      | 18.55     |
| 919581 | AA2-030      | 18.55     |
| 920272 | AA2-123 E    | 2.6       |
| 924471 | AB2-096      | 44.95     |
| 925161 | AB2-173      | 3.31      |
| 925302 | AB2-191 E    | 1.46      |
| 925581 | AC1-033 C    | 1.46      |
| 925582 | AC1-033 E    | 9.76      |
| 926311 | AC1-109 1    | 2.02      |
| 926321 | AC1-109 2    | 2.02      |
| 926331 | AC1-110 1    | 2.02      |
| 926341 | AC1-110 2    | 2.02      |
| 926351 | AC1-111 1    | 0.81      |
| 926361 | AC1-111 2    | 0.81      |
| 926371 | AC1-111 3    | 0.81      |
| 926381 | AC1-111 4    | 0.81      |
| 926391 | AC1-111 5    | 0.81      |
| 926401 | AC1-111 6    | 0.81      |
| 926431 | AC1-114      | 2.52      |
| 926821 | AC1-168 C O1 | 1.2       |
| 926822 | AC1-168 E O1 | 8.08      |
| 927091 | AC1-204 1    | 78.67     |
| 927101 | AC1-204 2    | 78.54     |
| 927201 | AC1-214 C O1 | 2.13      |
| 927202 | AC1-214 E O1 | 6.78      |
| 927451 | AC1-142A 1   | 4.56      |
| 927461 | AC1-142A 2   | 4.56      |
| 927511 | AC1-113 1    | 1.26      |
| 927521 | AC1-113 2    | 1.26      |
| 927531 | AC1-185 1    | 0.73      |
| 927541 | AC1-185 2    | 0.73      |
| 927551 | AC1-185 3    | 0.73      |
| 927561 | AC1-185 4    | 0.73      |
| 927571 | AC1-185 5    | 0.73      |
| 927581 | AC1-185 6    | 0.73      |
| 927591 | AC1-185 7    | 0.73      |
| 927601 | AC1-185 8    | 0.73      |
| 930481 | AB1-089      | 69.71     |
| 930501 | AB1-091 O1   | 67.82     |
| 930741 | AB1-122 1O1  | 74.89     |
| 930751 | AB1-122 2O1  | 80.34     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932881 | AC2-115 1    | 2.52      |
| 932891 | AC2-115 2    | 2.52      |
| 932921 | AC2-116      | 0.88      |
| 933341 | AC2-147 C    | 0.92      |
| 933342 | AC2-147 E    | 1.5       |
| 933411 | AC2-154 C    | 2.34      |
| 933412 | AC2-154 E    | 3.81      |
| 933431 | AC2-156 C O1 | 1.01      |
| 933432 | AC2-156 E O1 | 1.65      |
| 933911 | AD1-013 C    | 1.95      |
| 933912 | AD1-013 E    | 3.11      |
| 933931 | AD1-016 C    | 0.99      |
| 933932 | AD1-016 E    | 1.61      |
| 934101 | AD1-039 1    | 7.34      |
| 934111 | AD1-039 2    | 7.87      |
| 934401 | AD1-064 C O1 | 3.4       |
| 934402 | AD1-064 E O1 | 15.92     |
| 934431 | AD1-067 C    | 0.14      |
| 934432 | AD1-067 E    | 0.58      |
| 934651 | AD1-096 C    | 0.94      |
| 934652 | AD1-096 E    | 1.54      |
| 934701 | AD1-098 C O1 | 7.27      |
| 934702 | AD1-098 E O1 | 5.31      |
| 934721 | AD1-100 C    | 20.03     |
| 934722 | AD1-100 E    | 93.46     |
| 934871 | AD1-116 C    | 0.95      |
| 934872 | AD1-116 E    | 1.55      |
| 934881 | AD1-117 C    | 5.67      |
| 934882 | AD1-117 E    | 3.78      |
| 934971 | AD1-129 C    | 0.96      |
| 934972 | AD1-129 E    | 0.64      |
| 935001 | AD1-133 C O1 | 21.37     |
| 935002 | AD1-133 E O1 | 14.25     |
| 936291 | AD2-038 C O1 | 2.42      |
| 936292 | AD2-038 E O1 | 16.17     |
| 936371 | AD2-047 C O1 | 2.09      |
| 936372 | AD2-047 E O1 | 22.5      |
| 936461 | AD2-060      | 2.46      |
| 936511 | AD2-066 C O1 | 8.77      |
| 936512 | AD2-066 E O1 | 5.84      |
| 936781 | AD2-101 C    | 3.99      |
| 936782 | AD2-101 E    | 18.7      |
| 936791 | AD2-102 C    | 12.74     |
| 936792 | AD2-102 E    | 12.24     |
| 936961 | AD2-130      | 0.6       |
| 937001 | AD2-134 C    | 2.89      |
| 937002 | AD2-134 E    | 11.93     |
| 937031 | AD2-137 C O1 | 3.33      |
| 937032 | AD2-137 E O1 | 15.61     |
| 937051 | AD2-140 C O1 | 3.32      |
| 937052 | AD2-140 E O1 | 15.53     |
| 937061 | AD2-141 C O1 | 3.3       |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937062 | AD2-141 E O1 | 15.55     |
| 937071 | AD2-142 C O1 | 6.63      |
| 937072 | AD2-142 E O1 | 31.05     |
| 937121 | AD2-148 C O1 | 3.26      |
| 937122 | AD2-148 E O1 | 15.25     |
| 937131 | AD2-149 C O1 | 3.26      |
| 937132 | AD2-149 E O1 | 15.25     |
| 937141 | AD2-150 C O1 | 3.26      |
| 937142 | AD2-150 E O1 | 15.25     |
| 937181 | AD2-155 C O1 | 3.26      |
| 937182 | AD2-155 E O1 | 15.25     |
| 937311 | AD2-172 C    | 2.6       |
| 937312 | AD2-172 E    | 3.6       |
| 937321 | AD2-175 C    | 15.17     |
| 937322 | AD2-175 E    | 10.11     |
| 937331 | AD2-176 C O1 | 7.79      |
| 937332 | AD2-176 E O1 | 5.19      |
| 937401 | AD2-194 1    | 8.46      |
| 937411 | AD2-194 2    | 8.45      |
| 937531 | AD2-214 C    | 4.64      |
| 937532 | AD2-214 E    | 2.18      |
| 938012 | AE1-002 E O1 | 6.69      |
| 938511 | AE1-070 1    | 9.94      |
| 938521 | AE1-070 2    | 9.08      |
| 938851 | AE1-113 C O1 | 8.97      |
| 938852 | AE1-113 E O1 | 28.19     |
| 938861 | AE1-114 C O1 | 3.77      |
| 938862 | AE1-114 E O1 | 14.41     |
| 939051 | AE1-134 1    | 1.44      |
| 939061 | AE1-134 2    | 1.44      |
| 939321 | AE1-163 C O1 | 6.67      |
| 939322 | AE1-163 E O1 | 40.99     |
| 939351 | AE1-166 C O1 | 10.72     |
| 939352 | AE1-166 E O1 | 9.9       |
| 939401 | AE1-172 C O1 | 6.26      |
| 939402 | AE1-172 E O1 | 29.33     |
| 939631 | AE1-193 C O1 | 1.04      |
| 939632 | AE1-193 E O1 | 6.93      |
| 939681 | AE1-198 C O1 | 21.47     |
| 939682 | AE1-198 E O1 | 18.24     |
| 939691 | AE1-199      | 2.53      |
| 939701 | AE1-201 C    | 2.13      |
| 939702 | AE1-201 E    | 0.47      |
| 939732 | AE1-204 E    | 0.31      |
| 939861 | AE1-222 1    | 82.7      |
| 939871 | AE1-222 2    | 88.73     |
| 939921 | AE1-228 C O1 | 10.63     |
| 939922 | AE1-228 E O1 | 7.08      |
| 939961 | AE1-233 C O1 | 2.46      |
| 939962 | AE1-233 E O1 | 10.18     |
| 940101 | AE1-252 C O1 | 10.24     |
| 940102 | AE1-252 E O1 | 6.83      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AB2-013</b>    | AB2-013    | 16.9             |
| <b>AE1-033</b>    | AE1-033    | 19.14            |
| <b>BLUEG</b>      | BLUEG      | 6.67             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.07             |
| <b>CANNELTON</b>  | CANNELTON  | 0.13             |
| <b>CARR</b>       | CARR       | 0.74             |
| <b>CATAWBA</b>    | CATAWBA    | 0.28             |
| <b>CBM-S1</b>     | CBM-S1     | 1.38             |
| <b>CBM-W1</b>     | CBM-W1     | 26.95            |
| <b>CBM-W2</b>     | CBM-W2     | 54.02            |
| <b>CHEOAH</b>     | CHEOAH     | 0.07             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.02             |
| <b>DEARBORN</b>   | DEARBORN   | 2.92             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.15             |
| <b>G-007</b>      | G-007      | 2.07             |
| <b>GIBSON</b>     | GIBSON     | 0.08             |
| <b>HAMLET</b>     | HAMLET     | 1.08             |
| <b>MEC</b>        | MEC        | 39.3             |
| <b>O-066</b>      | O-066      | 6.96             |
| <b>RENSSELAER</b> | RENSSELAER | 0.58             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.78             |
| <b>WEC</b>        | WEC        | 8.49             |
| <b>Z1-043</b>     | Z1-043     | 29.83            |

## Index 28

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830828 | 270828    | NELSON ; B | CE            | 270730  | ELECT JCT; B | CE          | 1      | COMED_P4_155-45-BT6-7__ | breaker | 1656.0     | 136.16                | 137.37                 | DC    | 43.25     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274662 | QUAD CITI;1U | 35.3      |
| 274663 | QUAD CITI;2U | 36.21     |
| 274699 | CORDOVA ;1C  | 6.18      |
| 274700 | CORDOVA ;2C  | 6.18      |
| 274701 | CORDOVA ;1S  | 6.96      |
| 274715 | NELSON EC;1C | 6.74      |
| 274716 | NELSON EC;1S | 9.31      |
| 274717 | NELSON EC;2C | 6.74      |
| 274718 | NELSON EC;2S | 9.31      |
| 274832 | U4-027       | 15.61     |
| 290051 | GSG-6; E     | 8.32      |
| 293513 | O-009 C1     | 0.76      |
| 293514 | O-009 C2     | 0.39      |
| 293515 | O-009 C3     | 0.43      |
| 293516 | O-009 E1     | 19.89     |
| 293517 | O-009 E2     | 10.1      |
| 293518 | O-009 E3     | 11.13     |
| 293712 | O-029 C      | 0.89      |
| 293713 | O-029 C      | 0.48      |
| 293714 | O-029 C      | 0.45      |
| 293715 | O-029 E      | 23.12     |
| 293716 | O-029 E      | 12.68     |
| 293717 | O-029 E      | 11.65     |
| 293771 | O-035 E      | 5.91      |
| 294401 | BSHIL;1U E   | 9.69      |
| 294410 | BSHIL;2U E   | 9.69      |
| 294763 | P-046 E      | 5.6       |
| 295109 | WESTBROOK E  | 4.46      |
| 295110 | SUBLETTE C   | 0.12      |
| 295111 | SUBLETTE E   | 5.2       |
| 905471 | W4-084       | 0.13      |
| 916211 | Z1-072 E     | 4.47      |
| 916221 | Z1-073 E     | 4.3       |
| 919221 | AA1-146      | 54.78     |
| 919581 | AA2-030      | 54.78     |
| 919621 | AA2-039 C    | 2.36      |
| 919622 | AA2-039 E    | 15.8      |
| 925161 | AB2-173      | 9.77      |
| 925302 | AB2-191 E    | 1.1       |
| 925581 | AC1-033 C    | 1.59      |
| 925582 | AC1-033 E    | 10.62     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 926841 | AC1-171 C O1 | 0.77      |
| 926842 | AC1-171 E O1 | 5.14      |
| 927201 | AC1-214 C O1 | 1.9       |
| 927202 | AC1-214 E O1 | 6.03      |
| 933341 | AC2-147 C    | 1.33      |
| 933342 | AC2-147 E    | 2.18      |
| 933911 | AD1-013 C    | 1.4       |
| 933912 | AD1-013 E    | 2.24      |
| 934051 | AD1-031 C O1 | 3.22      |
| 934052 | AD1-031 E O1 | 5.26      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.44      |
| 934651 | AD1-096 C    | 0.65      |
| 934652 | AD1-096 E    | 1.05      |
| 934701 | AD1-098 C O1 | 5.92      |
| 934702 | AD1-098 E O1 | 4.32      |
| 934881 | AD1-117 C    | 8.21      |
| 934882 | AD1-117 E    | 5.48      |
| 937001 | AD2-134 C    | 2.18      |
| 937002 | AD2-134 E    | 8.99      |
| 937311 | AD2-172 C    | 1.47      |
| 937312 | AD2-172 E    | 2.03      |
| 937531 | AD2-214 C    | 10.2      |
| 937532 | AD2-214 E    | 4.8       |
| 938861 | AE1-114 C O1 | 5.46      |
| 938862 | AE1-114 E O1 | 20.87     |
| 939051 | AE1-134 1    | 4.26      |
| 939061 | AE1-134 2    | 4.26      |
| 939631 | AE1-193 C O1 | 7.87      |
| 939632 | AE1-193 E O1 | 52.7      |
| 939681 | AE1-198 C O1 | 23.38     |
| 939682 | AE1-198 E O1 | 19.87     |
| 939691 | AE1-199      | 1.82      |
| 939921 | AE1-228 C O1 | 7.34      |
| 939922 | AE1-228 E O1 | 4.9       |
| 950181 | J407 C       | 3.1       |
| 950182 | J407 E       | 12.38     |
| 950211 | J411 C       | 4.17      |
| 950212 | J411 E       | 16.68     |
| 950221 | J416 C       | 3.95      |
| 950222 | J416 E       | 15.8      |
| 950401 | J041 C       | 1.68      |
| 950402 | J041 E       | 6.72      |
| 950471 | J438 C       | 3.45      |
| 950472 | J438 E       | 13.85     |
| 950491 | J443 C       | 0.98      |
| 950492 | J443 E       | 3.91      |
| 950501 | J449 C       | 3.29      |
| 950502 | J449 E       | 13.15     |
| 950522 | J455 E       | 22.35     |
| 950541 | G798 C       | 2.65      |
| 950542 | G798 E       | 10.6      |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| 950571 | G870 C | 2.88      |
| 950572 | G870 E | 11.51     |
| 950581 | G947 C | 1.79      |
| 950582 | G947 E | 7.14      |
| 950591 | H008 C | 0.73      |
| 950592 | H008 E | 2.93      |
| 950601 | H009 C | 2.88      |
| 950602 | H009 E | 11.53     |
| 950611 | H021 C | 2.59      |
| 950612 | H021 E | 10.34     |
| 950631 | H096 C | 0.77      |
| 950632 | H096 E | 3.06      |
| 950641 | J026 C | 0.75      |
| 950642 | J026 E | 2.99      |
| 950661 | J097 C | 3.88      |
| 950662 | J097 E | 15.5      |
| 950721 | R420 C | 3.71      |
| 950722 | R420 E | 14.86     |
| 950731 | R490 C | 0.18      |
| 950732 | R490 E | 0.71      |
| 950821 | J274 C | 1.46      |
| 950822 | J274 E | 5.84      |
| 950911 | J289 C | 0.29      |
| 950912 | J289 E | 0.88      |
| 950961 | J329   | 4.75      |
| 951031 | J344 C | 3.12      |
| 951032 | J344 E | 9.36      |
| 951221 | J475 C | 3.81      |
| 951222 | J475 E | 15.25     |
| 951301 | J495 C | 3.62      |
| 951302 | J495 E | 10.86     |
| 951331 | J498 C | 5.12      |
| 951332 | J498 E | 20.48     |
| 951341 | J499 C | 5.0       |
| 951342 | J499 E | 20.01     |
| 951351 | J500 C | 6.94      |
| 951352 | J500 E | 27.77     |
| 951381 | J504   | 5.89      |
| 951421 | J514   | 3.52      |
| 951441 | J523 C | 2.25      |
| 951442 | J523 E | 1.5       |
| 951451 | J524 C | 4.63      |
| 951452 | J524 E | 3.09      |
| 951501 | J529 C | 3.56      |
| 951502 | J529 E | 14.26     |
| 951511 | J530 C | 5.62      |
| 951512 | J530 E | 22.48     |
| 951541 | J534 C | 3.71      |
| 951542 | J534 E | 14.82     |
| 951551 | J535 C | 3.12      |
| 951552 | J535 E | 12.48     |
| 951821 | J541 C | 4.58      |

| Bus #   | Bus     | MW Impact |
|---------|---------|-----------|
| 951822  | J541 E  | 24.78     |
| 951841  | J555 C  | 2.08      |
| 951842  | J555 E  | 11.26     |
| 952021  | J614 C  | 0.76      |
| 952022  | J614 E  | 4.13      |
| 952191  | J583 C  | 2.21      |
| 952192  | J583 E  | 11.96     |
| 952211  | J590 C  | 1.05      |
| 952212  | J590 E  | 5.66      |
| 952231  | J598 C  | 3.44      |
| 952232  | J598 E  | 18.59     |
| 952441  | J776 C  | 1.68      |
| 952442  | J776 E  | 9.1       |
| 952451  | J777 C  | 1.41      |
| 952452  | J777 E  | 7.61      |
| 952461  | J522    | 1.49      |
| 952491  | J761 C  | 2.34      |
| 952492  | J761 E  | 12.68     |
| 952561  | J731 C  | 2.31      |
| 952562  | J731 E  | 12.51     |
| 952571  | J733 C  | 2.74      |
| 952572  | J733 E  | 14.8      |
| 952671  | J767 C  | 0.15      |
| 952672  | J767 E  | 0.84      |
| 952681  | J768 C  | 0.17      |
| 952682  | J768 E  | 0.89      |
| 953001  | J785 C  | 1.14      |
| 953002  | J785 E  | 6.18      |
| 953011  | J885 C  | 0.77      |
| 953012  | J885 E  | 4.18      |
| 953082  | J836 E  | 15.02     |
| 953231  | J447 C  | 2.0       |
| 953232  | J447 E  | 10.84     |
| 953391  | J810    | 9.76      |
| 953821  | J840 C  | 1.67      |
| 953822  | J840 E  | 9.03      |
| 954091  | J873 C  | 3.36      |
| 954092  | J873 E  | 18.19     |
| 954121  | J876 C  | 2.26      |
| 954122  | J876 E  | 12.24     |
| 954131  | J877    | 18.63     |
| 954201  | J887 C  | 1.04      |
| 954202  | J887 E  | 5.6       |
| 954301  | J898 C  | 1.15      |
| 954302  | J898 E  | 6.2       |
| 954521  | J927 C  | 1.15      |
| 954522  | J927 E  | 6.24      |
| 954702  | J844 E  | 29.56     |
| 990901  | L-005 E | 13.36     |
| AB2-013 | AB2-013 | 7.86      |
| CARR    | CARR    | 0.06      |
| CBM-S1  | CBM-S1  | 5.15      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S2</b>     | CBM-S2     | 1.19             |
| <b>CBM-W1</b>     | CBM-W1     | 20.85            |
| <b>CBM-W2</b>     | CBM-W2     | 65.48            |
| <b>CIN</b>        | CIN        | 0.73             |
| <b>CPL</b>        | CPL        | 0.35             |
| <b>DEARBORN</b>   | DEARBORN   | 0.8              |
| <b>G-007</b>      | G-007      | 0.15             |
| <b>IPL</b>        | IPL        | 0.3              |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MEC</b>        | MEC        | 53.98            |
| <b>O-066</b>      | O-066      | 0.52             |
| <b>RENSSELAER</b> | RENSSELAER | 0.05             |
| <b>Z1-043</b>     | Z1-043     | 17.62            |

## Index 29

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS        | TO BUS AREA | CK T ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADIN G % | POST PROJECT LOADIN G % | AC D C | MW IMPACT |
|--------|-----------|------------|---------------|---------|---------------|-------------|---------|-----------------------------|---------|------------|------------------------|-------------------------|--------|-----------|
| 830838 | 270886    | ST JOHN ;T | CE            | 255104  | 17GREEN_ACR E | NIPS        | 1       | AEP_P4_#2978_05DUMONT 765_B | breaker | 1091.0     | 132.05                 | 132.27                  | DC     | 27.79     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 8.96      |
| 274654 | BRAIDWOOD;1U | 18.89     |
| 274655 | BRAIDWOOD;2U | 18.08     |
| 274687 | WILL CNTY;4U | 7.96      |
| 274722 | S-055 E      | 8.37      |
| 274751 | CRETE EC ;1U | 3.35      |
| 274752 | CRETE EC ;2U | 3.35      |
| 274753 | CRETE EC ;3U | 3.35      |
| 274754 | CRETE EC ;4U | 3.35      |
| 274832 | U4-027       | 7.88      |
| 274859 | EASYR;U1 E   | 8.1       |
| 274860 | EASYR;U2 E   | 8.1       |
| 274861 | TOP CROP ;1U | 0.32      |
| 274862 | TOP CROP ;2U | 0.63      |
| 274888 | PILOT HIL;1E | 12.69     |
| 274890 | CAYUG;1U E   | 9.71      |
| 274891 | CAYUG;2U E   | 9.71      |
| 275149 | KEMPTON ;1E  | 12.69     |
| 290021 | O50 E        | 14.55     |
| 290051 | GSG-6; E     | 7.7       |
| 290108 | LEEDK;1U E   | 17.91     |
| 293061 | N-015 E      | 11.5      |
| 293516 | O-009 E1     | 6.65      |
| 293517 | O-009 E2     | 3.38      |
| 293518 | O-009 E3     | 3.72      |
| 293644 | O22 E1       | 8.45      |
| 293645 | O22 E2       | 16.4      |
| 293715 | O-029 E      | 7.18      |
| 293716 | O-029 E      | 3.94      |
| 293717 | O-029 E      | 3.62      |
| 293771 | O-035 E      | 4.65      |
| 294392 | P-010 E      | 14.6      |
| 294763 | P-046 E      | 6.92      |
| 295109 | WESTBROOK E  | 4.12      |
| 295111 | SUBLETTE E   | 1.91      |
| 910542 | X3-005 E     | 0.44      |
| 914641 | Y2-103       | 33.49     |
| 915011 | Y3-013 1     | 2.79      |
| 915021 | Y3-013 2     | 2.79      |
| 915031 | Y3-013 3     | 2.79      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916211 | Z1-072 E     | 3.52      |
| 916221 | Z1-073 E     | 3.97      |
| 916502 | Z1-106 E1    | 0.93      |
| 916504 | Z1-106 E2    | 0.93      |
| 916512 | Z1-107 E     | 1.84      |
| 916522 | Z1-108 E     | 1.84      |
| 918052 | AA1-018 E    | 11.55     |
| 919221 | AA1-146      | 12.94     |
| 919581 | AA2-030      | 12.94     |
| 920272 | AA2-123 E    | 1.81      |
| 924471 | AB2-096      | 31.34     |
| 925161 | AB2-173      | 2.31      |
| 925302 | AB2-191 E    | 1.02      |
| 925581 | AC1-033 C    | 1.02      |
| 925582 | AC1-033 E    | 6.83      |
| 926311 | AC1-109 1    | 1.41      |
| 926321 | AC1-109 2    | 1.41      |
| 926331 | AC1-110 1    | 1.41      |
| 926341 | AC1-110 2    | 1.41      |
| 926351 | AC1-111 1    | 0.56      |
| 926361 | AC1-111 2    | 0.56      |
| 926371 | AC1-111 3    | 0.56      |
| 926381 | AC1-111 4    | 0.56      |
| 926391 | AC1-111 5    | 0.56      |
| 926401 | AC1-111 6    | 0.56      |
| 926431 | AC1-114      | 1.76      |
| 926821 | AC1-168 C O1 | 0.84      |
| 926822 | AC1-168 E O1 | 5.64      |
| 927091 | AC1-204 1    | 54.79     |
| 927101 | AC1-204 2    | 54.72     |
| 927201 | AC1-214 C O1 | 1.49      |
| 927202 | AC1-214 E O1 | 4.75      |
| 927451 | AC1-142A 1   | 3.17      |
| 927461 | AC1-142A 2   | 3.18      |
| 927511 | AC1-113 1    | 0.88      |
| 927521 | AC1-113 2    | 0.88      |
| 927531 | AC1-185 1    | 0.51      |
| 927541 | AC1-185 2    | 0.51      |
| 927551 | AC1-185 3    | 0.51      |
| 927561 | AC1-185 4    | 0.51      |
| 927571 | AC1-185 5    | 0.51      |
| 927581 | AC1-185 6    | 0.51      |
| 927591 | AC1-185 7    | 0.51      |
| 927601 | AC1-185 8    | 0.51      |
| 930481 | AB1-089      | 48.61     |
| 930501 | AB1-091 O1   | 50.14     |
| 930741 | AB1-122 1O1  | 52.67     |
| 930751 | AB1-122 2O1  | 55.87     |
| 932881 | AC2-115 1    | 1.76      |
| 932891 | AC2-115 2    | 1.76      |
| 932921 | AC2-116      | 0.62      |
| 933341 | AC2-147 C    | 0.64      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 933342 | AC2-147 E    | 1.05      |
| 933411 | AC2-154 C    | 1.72      |
| 933412 | AC2-154 E    | 2.81      |
| 933431 | AC2-156 C O1 | 0.7       |
| 933432 | AC2-156 E O1 | 1.15      |
| 933911 | AD1-013 C    | 1.36      |
| 933912 | AD1-013 E    | 2.17      |
| 933931 | AD1-016 C    | 0.69      |
| 933932 | AD1-016 E    | 1.12      |
| 934101 | AD1-039 1    | 5.16      |
| 934111 | AD1-039 2    | 5.48      |
| 934401 | AD1-064 C O1 | 2.37      |
| 934402 | AD1-064 E O1 | 11.1      |
| 934431 | AD1-067 C    | 0.1       |
| 934432 | AD1-067 E    | 0.41      |
| 934651 | AD1-096 C    | 0.66      |
| 934652 | AD1-096 E    | 1.07      |
| 934701 | AD1-098 C O1 | 5.07      |
| 934702 | AD1-098 E O1 | 3.7       |
| 934721 | AD1-100 C    | 14.17     |
| 934722 | AD1-100 E    | 66.14     |
| 934871 | AD1-116 C    | 0.67      |
| 934872 | AD1-116 E    | 1.1       |
| 934881 | AD1-117 C    | 3.96      |
| 934882 | AD1-117 E    | 2.64      |
| 934971 | AD1-129 C    | 0.67      |
| 934972 | AD1-129 E    | 0.45      |
| 935001 | AD1-133 C O1 | 15.09     |
| 935002 | AD1-133 E O1 | 10.06     |
| 936291 | AD2-038 C O1 | 1.7       |
| 936292 | AD2-038 E O1 | 11.38     |
| 936371 | AD2-047 C O1 | 1.54      |
| 936372 | AD2-047 E O1 | 16.59     |
| 936461 | AD2-060      | 1.81      |
| 936511 | AD2-066 C O1 | 6.15      |
| 936512 | AD2-066 E O1 | 4.1       |
| 936781 | AD2-101 C    | 3.06      |
| 936782 | AD2-101 E    | 14.32     |
| 936791 | AD2-102 C    | 8.89      |
| 936792 | AD2-102 E    | 8.54      |
| 936961 | AD2-130      | 0.42      |
| 937001 | AD2-134 C    | 2.01      |
| 937002 | AD2-134 E    | 8.32      |
| 937031 | AD2-137 C O1 | 2.43      |
| 937032 | AD2-137 E O1 | 11.38     |
| 937051 | AD2-140 C O1 | 2.43      |
| 937052 | AD2-140 E O1 | 11.38     |
| 937061 | AD2-141 C O1 | 2.42      |
| 937062 | AD2-141 E O1 | 11.39     |
| 937071 | AD2-142 C O1 | 4.86      |
| 937072 | AD2-142 E O1 | 22.76     |
| 937121 | AD2-148 C O1 | 2.41      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 937122  | AD2-148 E O1 | 11.27     |
| 937131  | AD2-149 C O1 | 2.41      |
| 937132  | AD2-149 E O1 | 11.27     |
| 937141  | AD2-150 C O1 | 2.41      |
| 937142  | AD2-150 E O1 | 11.27     |
| 937181  | AD2-155 C O1 | 2.41      |
| 937182  | AD2-155 E O1 | 11.27     |
| 937311  | AD2-172 C    | 1.82      |
| 937312  | AD2-172 E    | 2.51      |
| 937321  | AD2-175 C    | 11.21     |
| 937322  | AD2-175 E    | 7.48      |
| 937331  | AD2-176 C O1 | 5.43      |
| 937332  | AD2-176 E O1 | 3.62      |
| 937401  | AD2-194 1    | 5.89      |
| 937411  | AD2-194 2    | 5.88      |
| 937531  | AD2-214 C    | 3.24      |
| 937532  | AD2-214 E    | 1.52      |
| 938012  | AE1-002 E O1 | 4.88      |
| 938511  | AE1-070 1    | 6.92      |
| 938521  | AE1-070 2    | 6.33      |
| 938851  | AE1-113 C O1 | 6.31      |
| 938852  | AE1-113 E O1 | 19.84     |
| 938861  | AE1-114 C O1 | 2.63      |
| 938862  | AE1-114 E O1 | 10.06     |
| 939051  | AE1-134 1    | 1.01      |
| 939061  | AE1-134 2    | 1.01      |
| 939321  | AE1-163 C O1 | 4.6       |
| 939322  | AE1-163 E O1 | 28.26     |
| 939351  | AE1-166 C O1 | 7.54      |
| 939352  | AE1-166 E O1 | 6.96      |
| 939401  | AE1-172 C O1 | 4.45      |
| 939402  | AE1-172 E O1 | 20.86     |
| 939641  | AE1-194 C    | 18.89     |
| 939642  | AE1-194 E    | 126.42    |
| 939651  | AE1-195 C    | 18.89     |
| 939652  | AE1-195 E    | 126.42    |
| 939681  | AE1-198 C O1 | 3.53      |
| 939682  | AE1-198 E O1 | 3.0       |
| 939691  | AE1-199      | 1.76      |
| 939701  | AE1-201 C    | 1.48      |
| 939702  | AE1-201 E    | 0.33      |
| 939732  | AE1-204 E    | 0.22      |
| 939861  | AE1-222 1    | 58.17     |
| 939871  | AE1-222 2    | 61.7      |
| 939921  | AE1-228 C O1 | 7.41      |
| 939922  | AE1-228 E O1 | 4.94      |
| 939961  | AE1-233 C O1 | 1.72      |
| 939962  | AE1-233 E O1 | 7.09      |
| 940101  | AE1-252 C O1 | 7.28      |
| 940102  | AE1-252 E O1 | 4.85      |
| AB2-013 | AB2-013      | 11.82     |
| AE1-033 | AE1-033      | 13.36     |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>BLUEG</b>      | BLUEG      | 4.19             |
| <b>CALDERWOOD</b> | CALDERWOOD | 0.05             |
| <b>CANNELTON</b>  | CANNELTON  | 0.07             |
| <b>CARR</b>       | CARR       | 0.56             |
| <b>CATAWBA</b>    | CATAWBA    | 0.21             |
| <b>CBM-S1</b>     | CBM-S1     | 1.06             |
| <b>CBM-W1</b>     | CBM-W1     | 19.6             |
| <b>CBM-W2</b>     | CBM-W2     | 39.02            |
| <b>CHEOAH</b>     | CHEOAH     | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE  | 0.01             |
| <b>DEARBORN</b>   | DEARBORN   | 2.36             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.07             |
| <b>G-007</b>      | G-007      | 1.57             |
| <b>GIBSON</b>     | GIBSON     | 0.03             |
| <b>HAMLET</b>     | HAMLET     | 0.82             |
| <b>MEC</b>        | MEC        | 27.54            |
| <b>O-066</b>      | O-066      | 5.27             |
| <b>RENSSELAER</b> | RENSSELAER | 0.44             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.49             |
| <b>WEC</b>        | WEC        | 5.92             |
| <b>Z1-043</b>     | Z1-043     | 20.86            |

## Index 30

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830704 | 271018    | ANNAWAN; R | CE            | 272110  | NORMANDY ; B | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 275.0      | 144.26                | 168.74                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 35.97     |
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-N</b>      | CBM-N      | 0.08             |
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 31

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                               | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|-------------|-------------|--------|-----------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 831978 | 271241    | CRESCENT ; R | CE            | 272189  | OGLESBY ; T | CE          | 1      | COMED_P7_138-L93008_R-R+_138-L18706_R-R | tower | 185.0      | 145.46                | 167.69                 | DC    | 41.13     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 11.65     |
| 274848     | CAMPGROVE;RU | 0.47      |
| 274849     | CRESCENT ;1U | 0.55      |
| 274851     | PROVIDENC;RU | 0.84      |
| 274877     | BISHOP HL;1U | 0.35      |
| 274878     | BISHOP HL;2U | 0.35      |
| 293771     | O-035 E      | 21.85     |
| 294401     | BSHIL;1U E   | 9.24      |
| 294410     | BSHIL;2U E   | 9.24      |
| 916211     | Z1-072 E     | 16.53     |
| 919621     | AA2-039 C    | 2.25      |
| 919622     | AA2-039 E    | 15.08     |
| 925581     | AC1-033 C    | 1.52      |
| 925582     | AC1-033 E    | 10.18     |
| 927201     | AC1-214 C O1 | 7.01      |
| 927202     | AC1-214 E O1 | 22.29     |
| 934051     | AD1-031 C O1 | 3.06      |
| 934052     | AD1-031 E O1 | 5.0       |
| 939631     | AE1-193 C O1 | 7.49      |
| 939632     | AE1-193 E O1 | 50.12     |
| 939681     | AE1-198 C O1 | 22.24     |
| 939682     | AE1-198 E O1 | 18.89     |
| 954201     | J887 C       | 1.33      |
| 954202     | J887 E       | 7.22      |
| 990901     | L-005 E      | 12.19     |
| CARR       | CARR         | 0.0       |
| CBM-S1     | CBM-S1       | 0.24      |
| CBM-S2     | CBM-S2       | 0.06      |
| CBM-W1     | CBM-W1       | 0.87      |
| CBM-W2     | CBM-W2       | 3.18      |
| CIN        | CIN          | 0.02      |
| CPL        | CPL          | 0.02      |
| DEARBORN   | DEARBORN     | 0.04      |
| G-007      | G-007        | 0.01      |
| IPL        | IPL          | 0.01      |
| LGEE       | LGEE         | 0.0       |
| MEC        | MEC          | 2.13      |
| O-066      | O-066        | 0.03      |
| RENSSELAER | RENSSELAER   | 0.0       |
| TILTON     | TILTON       | 0.02      |

| Bus #   | Bus     | MW Impact |
|---------|---------|-----------|
| TRIMBLE | TRIMBLE | 0.0       |
| WEC     | WEC     | 0.02      |

## Index 32

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|---------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830563 | 271835    | KEWANEE ;23 | CE            | 348962  | 4KEEMIN | AMIL        | 1      | COMED_P4_074-38-L7413__ | breaker | 214.0      | 196.26                | 247.63                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |
| O-066A     | O-066A       | 0.1       |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| TATANKA    | TATANKA    | 0.58      |
| UNIONPOWER | UNIONPOWER | 0.0       |
| VFT        | VFT        | 0.59      |
| Z1-043     | Z1-043     | 22.77     |

## Index 33

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830633 | 271836    | KEWANEE ;11 | CE            | 271018  | ANNAWAN; R | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 229.0      | 157.53                | 186.93                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |
| CBM-N      | CBM-N        | 0.08      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPLE</b>       | CPLE       | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 34

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830578 | 271837    | KEWANEE ;12 | CE            | 271836  | KEWANEE ;11 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 256.0      | 180.26                | 219.66                 | DC    | 100.86    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.15      |
| 274877     | BISHOP HL;1U | 0.87      |
| 274878     | BISHOP HL;2U | 0.87      |
| 293513     | O-009 C1     | 0.89      |
| 293514     | O-009 C2     | 0.45      |
| 293515     | O-009 C3     | 0.5       |
| 293516     | O-009 E1     | 23.17     |
| 293517     | O-009 E2     | 11.77     |
| 293518     | O-009 E3     | 12.96     |
| 294401     | BSHIL;1U E   | 22.64     |
| 294410     | BSHIL;2U E   | 22.64     |
| 919621     | AA2-039 C    | 5.52      |
| 919622     | AA2-039 E    | 36.94     |
| 925581     | AC1-033 C    | 3.72      |
| 925582     | AC1-033 E    | 24.91     |
| 926841     | AC1-171 C O1 | 1.32      |
| 926842     | AC1-171 E O1 | 8.81      |
| 934051     | AD1-031 C O1 | 7.52      |
| 934052     | AD1-031 E O1 | 12.26     |
| 939631     | AE1-193 C O1 | 18.36     |
| 939632     | AE1-193 E O1 | 122.9     |
| 939681     | AE1-198 C O1 | 54.53     |
| 939682     | AE1-198 E O1 | 46.33     |
| 954201     | J887 C       | 3.33      |
| 954202     | J887 E       | 18.0      |
| 990901     | L-005 E      | 30.02     |
| AB2-013    | AB2-013      | 6.15      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.52      |
| CBM-S2     | CBM-S2       | 0.2       |
| CBM-W2     | CBM-W2       | 7.47      |
| CIN        | CIN          | 0.55      |
| CPL        | CPL          | 0.08      |
| FARMERCITY | FARMERCITY   | 0.08      |
| G-007A     | G-007A       | 0.23      |
| IPL        | IPL          | 0.32      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.11      |
| NYISO      | NYISO        | 0.31      |
| O-066A     | O-066A       | 0.11      |
| TATANKA    | TATANKA      | 0.4       |

| Bus #  | Bus    | MW Impact |
|--------|--------|-----------|
| VFT    | VFT    | 0.61      |
| Z1-043 | Z1-043 | 13.07     |

## Index 35

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830559 | 271845    | KEWANEE ;21 | CE            | 271838  | KEWANEE ;13 | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 498.0      | 196.09                | 247.73                 | DC    | 257.17    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 2.91      |
| 274877     | BISHOP HL;1U | 2.21      |
| 274878     | BISHOP HL;2U | 2.21      |
| 293513     | O-009 C1     | 2.26      |
| 293514     | O-009 C2     | 1.15      |
| 293515     | O-009 C3     | 1.27      |
| 293516     | O-009 E1     | 59.09     |
| 293517     | O-009 E2     | 30.01     |
| 293518     | O-009 E3     | 33.05     |
| 294401     | BSHIL;1U E   | 57.74     |
| 294410     | BSHIL;2U E   | 57.74     |
| 919621     | AA2-039 C    | 14.07     |
| 919622     | AA2-039 E    | 94.19     |
| 926841     | AC1-171 C O1 | 3.11      |
| 926842     | AC1-171 E O1 | 20.77     |
| 934051     | AD1-031 C O1 | 19.16     |
| 934052     | AD1-031 E O1 | 31.26     |
| 939631     | AE1-193 C O1 | 46.82     |
| 939632     | AE1-193 E O1 | 313.36    |
| 939681     | AE1-198 C O1 | 139.03    |
| 939682     | AE1-198 E O1 | 118.14    |
| 990901     | L-005 E      | 75.92     |
| BAYOU      | BAYOU        | 0.08      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.09      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.18      |
| CBM-N      | CBM-N        | 0.04      |
| CBM-S1     | CBM-S1       | 0.15      |
| CBM-S2     | CBM-S2       | 0.08      |
| CBM-W2     | CBM-W2       | 3.07      |
| CHOCTAW    | CHOCTAW      | 0.02      |
| CIN        | CIN          | 0.58      |
| COTTONWOOD | COTTONWOOD   | 0.34      |
| CPL        | CPL          | 0.03      |
| FARMERCITY | FARMERCITY   | 0.27      |
| G-007A     | G-007A       | 0.14      |
| IPL        | IPL          | 0.32      |
| LGEE       | LGEE         | 0.09      |
| MECS       | MECS         | 0.06      |
| NYISO      | NYISO        | 0.19      |
| O-066A     | O-066A       | 0.07      |
| TATANKA    | TATANKA      | 0.67      |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| UNIONPOWER | UNIONPOWER | 0.04      |
| VFT        | VFT        | 0.37      |
| Z1-043     | Z1-043     | 16.91     |

## Index 36

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|--------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830711 | 272110    | NORMANDY ; B | CE            | 293710  | O29    | CE          | 1      | COMED_P4_133-38-BT1-2__ | breaker | 275.0      | 141.97                | 166.45                 | DC    | 67.33     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 35.97     |
| 274848     | CAMPGROVE;RU | 0.77      |
| 274849     | CRESCENT ;1U | 0.24      |
| 274851     | PROVIDENC;RU | 0.36      |
| 274877     | BISHOP HL;1U | 0.58      |
| 274878     | BISHOP HL;2U | 0.58      |
| 293513     | O-009 C1     | 0.59      |
| 293514     | O-009 C2     | 0.3       |
| 293515     | O-009 C3     | 0.33      |
| 293516     | O-009 E1     | 15.46     |
| 293517     | O-009 E2     | 7.85      |
| 293518     | O-009 E3     | 8.65      |
| 293771     | O-035 E      | 9.4       |
| 294401     | BSHIL;1U E   | 15.11     |
| 294410     | BSHIL;2U E   | 15.11     |
| 916211     | Z1-072 E     | 7.11      |
| 919621     | AA2-039 C    | 3.68      |
| 919622     | AA2-039 E    | 24.64     |
| 925581     | AC1-033 C    | 2.48      |
| 925582     | AC1-033 E    | 16.6      |
| 926821     | AC1-168 C O1 | 0.99      |
| 926822     | AC1-168 E O1 | 6.62      |
| 926841     | AC1-171 C O1 | 0.91      |
| 926842     | AC1-171 E O1 | 6.06      |
| 927201     | AC1-214 C O1 | 3.02      |
| 927202     | AC1-214 E O1 | 9.59      |
| 934051     | AD1-031 C O1 | 5.02      |
| 934052     | AD1-031 E O1 | 8.19      |
| 939631     | AE1-193 C O1 | 12.26     |
| 939632     | AE1-193 E O1 | 82.04     |
| 939681     | AE1-198 C O1 | 36.4      |
| 939682     | AE1-198 E O1 | 30.93     |
| 953201     | J715 C       | 1.57      |
| 953202     | J715 E       | 8.5       |
| 954201     | J887 C       | 2.25      |
| 954202     | J887 E       | 12.16     |
| 990901     | L-005 E      | 20.1      |
| AB2-013    | AB2-013      | 4.89      |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.01      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CBM-N</b>      | CBM-N      | 0.08             |
| <b>CBM-S1</b>     | CBM-S1     | 0.27             |
| <b>CBM-S2</b>     | CBM-S2     | 0.15             |
| <b>CBM-W2</b>     | CBM-W2     | 4.55             |
| <b>CIN</b>        | CIN        | 0.57             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.15             |
| <b>CPL</b>        | CPL        | 0.06             |
| <b>FARMERCITY</b> | FARMERCITY | 0.25             |
| <b>G-007A</b>     | G-007A     | 0.24             |
| <b>IPL</b>        | IPL        | 0.33             |
| <b>LGEE</b>       | LGEE       | 0.1              |
| <b>MECS</b>       | MECS       | 0.28             |
| <b>NYISO</b>      | NYISO      | 0.34             |
| <b>O-066A</b>     | O-066A     | 0.11             |
| <b>TATANKA</b>    | TATANKA    | 0.7              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.66             |
| <b>Z1-043</b>     | Z1-043     | 28.03            |

## Index 37

| ID     | FROM BUS# | FROM BUS    | FROM BUS AREA | TO BUS# | TO BUS      | TO BUS AREA | CKT ID | CONT NAME                                  | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------|---------------|---------|-------------|-------------|--------|--------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 832071 | 272189    | OGLESBY ; T | CE            | 348935  | 4OGLESBY MN | AMIL        | 1      | COMED_P7_138-L0903__R-S_+_138-L1206__R-S-A | tower | 202.0      | 128.1                 | 133.67                 | DC    | 24.98     |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274832     | U4-027       | 5.77      |
| 274849     | CRESCENT ;1U | 0.48      |
| 274851     | PROVIDENC;RU | 0.73      |
| 293771     | O-035 E      | 19.05     |
| 294401     | BSHIL;1U E   | 5.63      |
| 294410     | BSHIL;2U E   | 5.63      |
| 916211     | Z1-072 E     | 14.42     |
| 919621     | AA2-039 C    | 1.37      |
| 919622     | AA2-039 E    | 9.18      |
| 925581     | AC1-033 C    | 0.93      |
| 925582     | AC1-033 E    | 6.22      |
| 927201     | AC1-214 C O1 | 6.12      |
| 927202     | AC1-214 E O1 | 19.44     |
| 934051     | AD1-031 C O1 | 1.86      |
| 934052     | AD1-031 E O1 | 3.04      |
| 936511     | AD2-066 C O1 | 57.02     |
| 936512     | AD2-066 E O1 | 38.02     |
| 939631     | AE1-193 C O1 | 4.55      |
| 939632     | AE1-193 E O1 | 30.44     |
| 939681     | AE1-198 C O1 | 13.51     |
| 939682     | AE1-198 E O1 | 11.48     |
| 954201     | J887 C       | 0.81      |
| 954202     | J887 E       | 4.36      |
| 990901     | L-005 E      | 7.35      |
| BLUEG      | BLUEG        | 0.21      |
| CANNELTON  | CANNELTON    | 0.01      |
| CARR       | CARR         | 0.01      |
| CATAWBA    | CATAWBA      | 0.0       |
| CBM-S1     | CBM-S1       | 0.07      |
| CBM-W1     | CBM-W1       | 1.35      |
| CBM-W2     | CBM-W2       | 0.57      |
| COFFEEN    | COFFEEN      | 0.02      |
| DEARBORN   | DEARBORN     | 0.04      |
| ELMERSMITH | ELMERSMITH   | 0.01      |
| G-007      | G-007        | 0.03      |
| GIBSON     | GIBSON       | 0.01      |
| HAMLET     | HAMLET       | 0.01      |
| MEC        | MEC          | 2.28      |
| NEWTON     | NEWTON       | 0.05      |
| O-066      | O-066        | 0.11      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>RENSSELAER</b> | RENSSELAER | 0.01             |
| <b>TILTON</b>     | TILTON     | 0.12             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.02             |
| <b>WEC</b>        | WEC        | 0.17             |

## Index 38

| ID     | FROM BUS# | FROM BUS   | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|------------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830568 | 272269    | POWERTON ; | CE            | 272285  | POWERTON ;RT | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 185.89                | 235.95                 | DC    | 115.15    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.86      |
| 274877     | BISHOP HL;1U | 0.99      |
| 274878     | BISHOP HL;2U | 0.99      |
| 293513     | O-009 C1     | 0.38      |
| 293514     | O-009 C2     | 0.19      |
| 293515     | O-009 C3     | 0.21      |
| 293516     | O-009 E1     | 9.92      |
| 293517     | O-009 E2     | 5.04      |
| 293518     | O-009 E3     | 5.55      |
| 293771     | O-035 E      | 3.84      |
| 294401     | BSHIL;1U E   | 25.83     |
| 294410     | BSHIL;2U E   | 25.83     |
| 916211     | Z1-072 E     | 2.91      |
| 919621     | AA2-039 C    | 6.3       |
| 919622     | AA2-039 E    | 42.14     |
| 926821     | AC1-168 C O1 | 0.81      |
| 926822     | AC1-168 E O1 | 5.43      |
| 926841     | AC1-171 C O1 | 7.35      |
| 926842     | AC1-171 E O1 | 49.06     |
| 927201     | AC1-214 C O1 | 1.23      |
| 927202     | AC1-214 E O1 | 3.92      |
| 934051     | AD1-031 C O1 | 8.58      |
| 934052     | AD1-031 E O1 | 14.0      |
| 939631     | AE1-193 C O1 | 20.97     |
| 939632     | AE1-193 E O1 | 140.31    |
| 939681     | AE1-198 C O1 | 62.25     |
| 939682     | AE1-198 E O1 | 52.9      |
| 953201     | J715 C       | 1.0       |
| 953202     | J715 E       | 5.43      |
| 990901     | L-005 E      | 48.61     |
| BAYOU      | BAYOU        | 0.19      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.3       |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.61      |
| BLUEG      | BLUEG        | 0.9       |
| CALDERWOOD | CALDERWOOD   | 0.1       |
| CANNELTON  | CANNELTON    | 0.07      |
| CARR       | CARR         | 0.04      |
| CATAWBA    | CATAWBA      | 0.05      |
| CBM-W1     | CBM-W1       | 1.78      |
| CHEOAH     | CHEOAH       | 0.09      |
| CHILHOWEE  | CHILHOWEE    | 0.03      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>CHOCTAW</b>    | CHOCTAW    | 0.21             |
| <b>COFFEEN</b>    | COFFEEN    | 0.37             |
| <b>COTTONWOOD</b> | COTTONWOOD | 0.77             |
| <b>DEARBORN</b>   | DEARBORN   | 0.03             |
| <b>DUCKCREEK</b>  | DUCKCREEK  | 1.03             |
| <b>EDWARDS</b>    | EDWARDS    | 0.71             |
| <b>ELMERSMITH</b> | ELMERSMITH | 0.12             |
| <b>G-007</b>      | G-007      | 0.11             |
| <b>GIBSON</b>     | GIBSON     | 0.06             |
| <b>HAMLET</b>     | HAMLET     | 0.17             |
| <b>MEC</b>        | MEC        | 1.51             |
| <b>NEWTON</b>     | NEWTON     | 0.65             |
| <b>O-066</b>      | O-066      | 0.38             |
| <b>PRAIRIE</b>    | PRAIRIE    | 1.06             |
| <b>RENSSELAER</b> | RENSSELAER | 0.03             |
| <b>SANTEETLA</b>  | SANTEETLA  | 0.03             |
| <b>SMITHLAND</b>  | SMITHLAND  | 0.06             |
| <b>TILTON</b>     | TILTON     | 0.39             |
| <b>TRIMBLE</b>    | TRIMBLE    | 0.1              |
| <b>TVA</b>        | TVA        | 0.36             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.14             |
| <b>WEC</b>        | WEC        | 0.44             |
| <b>Z1-043</b>     | Z1-043     | 21.92            |

## Index 39

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830773 | 272366    | ROCK FALL; B | CE            | 272094  | NELSON ; B | CE          | 1      | COMED_P4_155-38-L15508_ | breaker | 426.0      | 136.64                | 152.43                 | DC    | 67.26     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 32.62     |
| 274848 | CAMPGROVE;RU | 0.77      |
| 274849 | CRESCENT ;1U | 0.24      |
| 274851 | PROVIDENC;RU | 0.36      |
| 274877 | BISHOP HL;1U | 0.58      |
| 274878 | BISHOP HL;2U | 0.58      |
| 293513 | O-009 C1     | 0.92      |
| 293514 | O-009 C2     | 0.46      |
| 293515 | O-009 C3     | 0.51      |
| 293516 | O-009 E1     | 23.89     |
| 293517 | O-009 E2     | 12.13     |
| 293518 | O-009 E3     | 13.36     |
| 293712 | O-029 C      | 2.51      |
| 293713 | O-029 C      | 1.38      |
| 293714 | O-029 C      | 1.27      |
| 293715 | O-029 E      | 65.59     |
| 293716 | O-029 E      | 35.96     |
| 293717 | O-029 E      | 33.05     |
| 293771 | O-035 E      | 9.37      |
| 294401 | BSHIL;1U E   | 15.08     |
| 294410 | BSHIL;2U E   | 15.08     |
| 916211 | Z1-072 E     | 7.09      |
| 919621 | AA2-039 C    | 3.68      |
| 919622 | AA2-039 E    | 24.6      |
| 925581 | AC1-033 C    | 2.47      |
| 925582 | AC1-033 E    | 16.56     |
| 926821 | AC1-168 C O1 | 0.98      |
| 926822 | AC1-168 E O1 | 6.58      |
| 926841 | AC1-171 C O1 | 0.93      |
| 926842 | AC1-171 E O1 | 6.19      |
| 927201 | AC1-214 C O1 | 3.01      |
| 927202 | AC1-214 E O1 | 9.56      |
| 934051 | AD1-031 C O1 | 5.01      |
| 934052 | AD1-031 E O1 | 8.18      |
| 937531 | AD2-214 C    | 20.52     |
| 937532 | AD2-214 E    | 9.66      |
| 939631 | AE1-193 C O1 | 12.25     |
| 939632 | AE1-193 E O1 | 81.96     |
| 939681 | AE1-198 C O1 | 36.36     |
| 939682 | AE1-198 E O1 | 30.9      |
| 953201 | J715 C       | 1.5       |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 953202       | J715 E     | 8.11             |
| 954201       | J887 C     | 2.19             |
| 954202       | J887 E     | 11.87            |
| 990901       | L-005 E    | 20.12            |
| AB2-013      | AB2-013    | 5.37             |
| CBM-N        | CBM-N      | 0.09             |
| CBM-S1       | CBM-S1     | 0.96             |
| CBM-S2       | CBM-S2     | 0.34             |
| CBM-W2       | CBM-W2     | 12.33            |
| CIN          | CIN        | 0.71             |
| CPLE         | CPLE       | 0.13             |
| G-007A       | G-007A     | 0.3              |
| IPL          | IPL        | 0.41             |
| LGEE         | LGEE       | 0.14             |
| MEC          | MEC        | 2.07             |
| MECS         | MECS       | 0.04             |
| NYISO        | NYISO      | 0.41             |
| O-066A       | O-066A     | 0.14             |
| VFT          | VFT        | 0.82             |
| Z1-043       | Z1-043     | 27.98            |

## Index 40

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830553 | 272367    | ROCK FALL; R | CE            | 272095  | NELSON ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 230.0      | 207.79                | 253.73                 | DC    | 105.66    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.2       |
| 274877     | BISHOP HL;1U | 0.91      |
| 274878     | BISHOP HL;2U | 0.91      |
| 293513     | O-009 C1     | 2.25      |
| 293514     | O-009 C2     | 1.14      |
| 293515     | O-009 C3     | 1.26      |
| 293516     | O-009 E1     | 58.62     |
| 293517     | O-009 E2     | 29.78     |
| 293518     | O-009 E3     | 32.79     |
| 293771     | O-035 E      | 3.98      |
| 294401     | BSHIL;1U E   | 23.67     |
| 294410     | BSHIL;2U E   | 23.67     |
| 916211     | Z1-072 E     | 3.01      |
| 919621     | AA2-039 C    | 5.77      |
| 919622     | AA2-039 E    | 38.61     |
| 926821     | AC1-168 C O1 | 0.8       |
| 926822     | AC1-168 E O1 | 5.34      |
| 926841     | AC1-171 C O1 | 1.33      |
| 926842     | AC1-171 E O1 | 8.89      |
| 927201     | AC1-214 C O1 | 1.28      |
| 927202     | AC1-214 E O1 | 4.06      |
| 934051     | AD1-031 C O1 | 7.87      |
| 934052     | AD1-031 E O1 | 12.85     |
| 939631     | AE1-193 C O1 | 19.24     |
| 939632     | AE1-193 E O1 | 128.75    |
| 939681     | AE1-198 C O1 | 57.12     |
| 939682     | AE1-198 E O1 | 48.54     |
| 953201     | J715 C       | 1.09      |
| 953202     | J715 E       | 5.92      |
| 990901     | L-005 E      | 31.29     |
| BAYOU      | BAYOU        | 0.03      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.02      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.05      |
| CBM-N      | CBM-N        | 0.05      |
| CBM-S1     | CBM-S1       | 0.2       |
| CBM-S2     | CBM-S2       | 0.1       |
| CBM-W2     | CBM-W2       | 3.54      |
| CIN        | CIN          | 0.47      |
| COTTONWOOD | COTTONWOOD   | 0.15      |
| CPL        | CPL          | 0.04      |
| FARMERCITY | FARMERCITY   | 0.2       |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>G-007A</b>     | G-007A     | 0.16             |
| <b>IPL</b>        | IPL        | 0.27             |
| <b>LGEE</b>       | LGEE       | 0.08             |
| <b>MECS</b>       | MECS       | 0.14             |
| <b>NYISO</b>      | NYISO      | 0.22             |
| <b>O-066A</b>     | O-066A     | 0.07             |
| <b>TATANKA</b>    | TATANKA    | 0.56             |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.01             |
| <b>VFT</b>        | VFT        | 0.43             |
| <b>Z1-043</b>     | Z1-043     | 21.86            |

## Index 41

| ID     | FROM BUS# | FROM BUS     | FROM BUS AREA | TO BUS# | TO BUS  | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|--------------|---------------|---------|---------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830793 | 274804    | UNIV PK N;RP | CE            | 243229  | 05OLIVE | AEP         | 1      | AEP_P4_#2978_05DUMONT 765_B | breaker | 971.0      | 137.32                | 138.36                 | DC    | 30.36     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 9.79      |
| 274722 | S-055 E      | 9.15      |
| 274808 | UNIV PK N;4U | 1.62      |
| 274809 | UNIV PK N;5U | 1.62      |
| 274811 | UNIV PK N;7U | 1.62      |
| 274812 | UNIV PK N;8U | 1.62      |
| 274814 | UNIV PK N;0U | 1.62      |
| 274815 | UNIV PK N;XU | 1.62      |
| 274832 | U4-027       | 8.61      |
| 274859 | EASYR;U1 E   | 8.84      |
| 274860 | EASYR;U2 E   | 8.84      |
| 274888 | PILOT HIL;1E | 14.86     |
| 274890 | CAYUG;1U E   | 10.7      |
| 274891 | CAYUG;2U E   | 10.7      |
| 275149 | KEMPTON ;1E  | 14.86     |
| 290021 | O50 E        | 15.62     |
| 290051 | GSG-6; E     | 8.43      |
| 290108 | LEEDK;1U E   | 19.61     |
| 293061 | N-015 E      | 12.6      |
| 293516 | O-009 E1     | 7.26      |
| 293517 | O-009 E2     | 3.69      |
| 293518 | O-009 E3     | 4.06      |
| 293644 | O22 E1       | 7.88      |
| 293645 | O22 E2       | 15.3      |
| 293715 | O-029 E      | 7.84      |
| 293716 | O-029 E      | 4.3       |
| 293717 | O-029 E      | 3.95      |
| 293771 | O-035 E      | 5.09      |
| 294392 | P-010 E      | 16.0      |
| 294401 | BSHIL;1U E   | 6.8       |
| 294410 | BSHIL;2U E   | 6.8       |
| 294763 | P-046 E      | 7.56      |
| 295109 | WESTBROOK E  | 4.51      |
| 295111 | SUBLETTE E   | 2.08      |
| 910542 | X3-005 E     | 0.51      |
| 914641 | Y2-103       | 36.59     |
| 915011 | Y3-013 1     | 3.05      |
| 915021 | Y3-013 2     | 3.05      |
| 915031 | Y3-013 3     | 3.05      |
| 916211 | Z1-072 E     | 3.85      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 916221 | Z1-073 E     | 4.35      |
| 916502 | Z1-106 E1    | 1.02      |
| 916504 | Z1-106 E2    | 1.02      |
| 916512 | Z1-107 E     | 2.17      |
| 916522 | Z1-108 E     | 2.02      |
| 918052 | AA1-018 E    | 14.29     |
| 919221 | AA1-146      | 14.12     |
| 919581 | AA2-030      | 14.12     |
| 919621 | AA2-039 C    | 1.66      |
| 919622 | AA2-039 E    | 11.1      |
| 920272 | AA2-123 E    | 1.98      |
| 924471 | AB2-096      | 34.27     |
| 925161 | AB2-173      | 2.52      |
| 925302 | AB2-191 E    | 1.12      |
| 925581 | AC1-033 C    | 1.11      |
| 925582 | AC1-033 E    | 7.46      |
| 925881 | AC1-067 O1   | 97.44     |
| 926311 | AC1-109 1    | 1.55      |
| 926321 | AC1-109 2    | 1.55      |
| 926331 | AC1-110 1    | 1.54      |
| 926341 | AC1-110 2    | 1.54      |
| 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 | 6.18      |
| 927091 | AC1-204 1    | 59.17     |
| 927101 | AC1-204 2    | 59.21     |
| 927201 | AC1-214 C O1 | 1.63      |
| 927202 | AC1-214 E O1 | 5.19      |
| 927451 | AC1-142A 1   | 3.45      |
| 927461 | AC1-142A 2   | 3.45      |
| 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      | 53.11     |
| 930501 | AB1-091 O1   | 57.12     |
| 930741 | AB1-122 1O1  | 58.21     |
| 930751 | AB1-122 2O1  | 59.68     |
| 932881 | AC2-115 1    | 1.92      |
| 932891 | AC2-115 2    | 1.92      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 932921 | AC2-116      | 0.67      |
| 932931 | AC2-117      | 10.39     |
| 933341 | AC2-147 C    | 0.7       |
| 933342 | AC2-147 E    | 1.15      |
| 933411 | AC2-154 C    | 2.02      |
| 933412 | AC2-154 E    | 3.29      |
| 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    | 1.23      |
| 934051 | AD1-031 C O1 | 2.26      |
| 934052 | AD1-031 E O1 | 3.69      |
| 934101 | AD1-039 1    | 5.7       |
| 934111 | AD1-039 2    | 5.85      |
| 934401 | AD1-064 C O1 | 2.59      |
| 934402 | AD1-064 E O1 | 12.13     |
| 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 | 5.55      |
| 934702 | AD1-098 E O1 | 4.05      |
| 934721 | AD1-100 C    | 15.58     |
| 934722 | AD1-100 E    | 72.69     |
| 934871 | AD1-116 C    | 0.83      |
| 934872 | AD1-116 E    | 1.36      |
| 934881 | AD1-117 C    | 4.32      |
| 934882 | AD1-117 E    | 2.88      |
| 934971 | AD1-129 C    | 0.73      |
| 934972 | AD1-129 E    | 0.49      |
| 935001 | AD1-133 C O1 | 16.67     |
| 935002 | AD1-133 E O1 | 11.11     |
| 936291 | AD2-038 C O1 | 1.97      |
| 936292 | AD2-038 E O1 | 13.19     |
| 936371 | AD2-047 C O1 | 1.8       |
| 936372 | AD2-047 E O1 | 19.42     |
| 936461 | AD2-060      | 2.12      |
| 936511 | AD2-066 C O1 | 6.83      |
| 936512 | AD2-066 E O1 | 4.55      |
| 936781 | AD2-101 C    | 3.51      |
| 936782 | AD2-101 E    | 16.41     |
| 936791 | AD2-102 C    | 9.71      |
| 936792 | AD2-102 E    | 9.33      |
| 936961 | AD2-130      | 0.46      |
| 937001 | AD2-134 C    | 2.2       |
| 937002 | AD2-134 E    | 9.1       |
| 937031 | AD2-137 C O1 | 2.69      |
| 937032 | AD2-137 E O1 | 12.6      |
| 937051 | AD2-140 C O1 | 2.69      |
| 937052 | AD2-140 E O1 | 12.61     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 937061 | AD2-141 C O1 | 2.68      |
| 937062 | AD2-141 E O1 | 12.63     |
| 937071 | AD2-142 C O1 | 5.39      |
| 937072 | AD2-142 E O1 | 25.22     |
| 937121 | AD2-148 C O1 | 2.74      |
| 937122 | AD2-148 E O1 | 12.83     |
| 937131 | AD2-149 C O1 | 2.74      |
| 937132 | AD2-149 E O1 | 12.83     |
| 937141 | AD2-150 C O1 | 2.74      |
| 937142 | AD2-150 E O1 | 12.83     |
| 937181 | AD2-155 C O1 | 2.74      |
| 937182 | AD2-155 E O1 | 12.83     |
| 937311 | AD2-172 C    | 1.98      |
| 937312 | AD2-172 E    | 2.74      |
| 937321 | AD2-175 C    | 12.77     |
| 937322 | AD2-175 E    | 8.51      |
| 937331 | AD2-176 C O1 | 5.94      |
| 937332 | AD2-176 E O1 | 3.96      |
| 937401 | AD2-194 1    | 6.36      |
| 937411 | AD2-194 2    | 6.37      |
| 937531 | AD2-214 C    | 3.53      |
| 937532 | AD2-214 E    | 1.66      |
| 938012 | AE1-002 E O1 | 5.4       |
| 938511 | AE1-070 1    | 7.48      |
| 938521 | AE1-070 2    | 6.84      |
| 938851 | AE1-113 C O1 | 7.32      |
| 938852 | AE1-113 E O1 | 23.0      |
| 938861 | AE1-114 C O1 | 2.87      |
| 938862 | AE1-114 E O1 | 10.98     |
| 939051 | AE1-134 1    | 1.1       |
| 939061 | AE1-134 2    | 1.1       |
| 939321 | AE1-163 C O1 | 4.63      |
| 939322 | AE1-163 E O1 | 28.42     |
| 939351 | AE1-166 C O1 | 8.28      |
| 939352 | AE1-166 E O1 | 7.64      |
| 939401 | AE1-172 C O1 | 4.91      |
| 939402 | AE1-172 E O1 | 22.97     |
| 939631 | AE1-193 C O1 | 5.53      |
| 939632 | AE1-193 E O1 | 37.0      |
| 939681 | AE1-198 C O1 | 16.41     |
| 939682 | AE1-198 E O1 | 13.95     |
| 939691 | AE1-199      | 1.93      |
| 939701 | AE1-201 C    | 1.62      |
| 939702 | AE1-201 E    | 0.36      |
| 939732 | AE1-204 E    | 0.24      |
| 939861 | AE1-222 1    | 64.28     |
| 939871 | AE1-222 2    | 65.91     |
| 939921 | AE1-228 C O1 | 8.11      |
| 939922 | AE1-228 E O1 | 5.4       |
| 939961 | AE1-233 C O1 | 1.88      |
| 939962 | AE1-233 E O1 | 7.77      |
| 940101 | AE1-252 C O1 | 8.02      |

| <b>Bus #</b>      | <b>Bus</b>   | <b>MW Impact</b> |
|-------------------|--------------|------------------|
| <b>940102</b>     | AE1-252 E O1 | 5.35             |
| <b>990901</b>     | L-005 E      | 5.05             |
| <b>AB2-013</b>    | AB2-013      | 12.84            |
| <b>AE1-033</b>    | AE1-033      | 14.59            |
| <b>BLUEG</b>      | BLUEG        | 4.41             |
| <b>CALDERWOOD</b> | CALDERWOOD   | 0.05             |
| <b>CANNELTON</b>  | CANNELTON    | 0.06             |
| <b>CARR</b>       | CARR         | 0.61             |
| <b>CATAWBA</b>    | CATAWBA      | 0.23             |
| <b>CBM-S1</b>     | CBM-S1       | 1.22             |
| <b>CBM-W1</b>     | CBM-W1       | 21.89            |
| <b>CBM-W2</b>     | CBM-W2       | 43.2             |
| <b>CHEOAH</b>     | CHEOAH       | 0.05             |
| <b>CHILHOWEE</b>  | CHILHOWEE    | 0.01             |
| <b>DEARBORN</b>   | DEARBORN     | 2.62             |
| <b>ELMERSMITH</b> | ELMERSMITH   | 0.06             |
| <b>G-007</b>      | G-007        | 1.71             |
| <b>GIBSON</b>     | GIBSON       | 0.02             |
| <b>HAMLET</b>     | HAMLET       | 0.88             |
| <b>MEC</b>        | MEC          | 30.08            |
| <b>O-066</b>      | O-066        | 5.77             |
| <b>RENSSELAER</b> | RENSSELAER   | 0.49             |
| <b>SANTEETLA</b>  | SANTEETLA    | 0.02             |
| <b>TRIMBLE</b>    | TRIMBLE      | 0.52             |
| <b>WEC</b>        | WEC          | 6.46             |
| <b>Z1-043</b>     | Z1-043       | 22.86            |

## Index 42

| ID     | FROM BUS# | FROM BUS          | FROM BUS AREA | TO BUS# | TO BUS          | TO BUS AREA | CKT ID | CONT NAME                   | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|-------------------|---------------|---------|-----------------|-------------|--------|-----------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830613 | 293510    | O09<br>OP1<br>138 | CE            | 272367  | ROCK<br>FALL; R | CE          | 1      | COMED_P4_074-<br>38-L7413__ | breaker | 331.0      | 162.03                | 195.21                 | DC    | 109.85    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293513     | O-009 C1     | 2.34      |
| 293514     | O-009 C2     | 1.18      |
| 293515     | O-009 C3     | 1.31      |
| 293516     | O-009 E1     | 60.95     |
| 293517     | O-009 E2     | 30.96     |
| 293518     | O-009 E3     | 34.09     |
| 293771     | O-035 E      | 4.14      |
| 294401     | BSHIL;1U E   | 24.6      |
| 294410     | BSHIL;2U E   | 24.6      |
| 916211     | Z1-072 E     | 3.13      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.13     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.55      |
| 926841     | AC1-171 C O1 | 1.38      |
| 926842     | AC1-171 E O1 | 9.24      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.22      |
| 934051     | AD1-031 C O1 | 8.18      |
| 934052     | AD1-031 E O1 | 13.35     |
| 939631     | AE1-193 C O1 | 20.0      |
| 939632     | AE1-193 E O1 | 133.85    |
| 939681     | AE1-198 C O1 | 59.38     |
| 939682     | AE1-198 E O1 | 50.46     |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 990901     | L-005 E      | 32.53     |
| BAYOU      | BAYOU        | 0.04      |
| BIG_CAJUN1 | BIG_CAJUN1   | 0.04      |
| BIG_CAJUN2 | BIG_CAJUN2   | 0.07      |
| CBM-N      | CBM-N        | 0.05      |
| CBM-S1     | CBM-S1       | 0.19      |
| CBM-S2     | CBM-S2       | 0.1       |
| CBM-W2     | CBM-W2       | 3.54      |
| CIN        | CIN          | 0.48      |
| COTTONWOOD | COTTONWOOD   | 0.18      |
| CPL        | CPL          | 0.04      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>FARMERCITY</b> | FARMERCITY | 0.22             |
| <b>G-007A</b>     | G-007A     | 0.17             |
| <b>IPL</b>        | IPL        | 0.28             |
| <b>LGEE</b>       | LGEE       | 0.08             |
| <b>MECS</b>       | MECS       | 0.15             |
| <b>NYISO</b>      | NYISO      | 0.23             |
| <b>O-066A</b>     | O-066A     | 0.08             |
| <b>TATANKA</b>    | TATANKA    | 0.6              |
| <b>UNIONPOWER</b> | UNIONPOWER | 0.02             |
| <b>VFT</b>        | VFT        | 0.45             |
| <b>Z1-043</b>     | Z1-043     | 22.72            |

## Index 43

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                                 | Type  | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|-------------------------------------------|-------|------------|-----------------------|------------------------|-------|-----------|
| 831896 | 293710    | O29      | CE            | 272097  | NELSON ;RT | CE          | 1      | COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | tower | 275.0      | 223.1                 | 250.88                 | DC    | 76.41     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 274832 | U4-027       | 31.91     |
| 274848 | CAMPGROVE;RU | 0.87      |
| 274849 | CRESCENT ;1U | 0.27      |
| 274851 | PROVIDENC;RU | 0.41      |
| 274877 | BISHOP HL;1U | 0.66      |
| 274878 | BISHOP HL;2U | 0.66      |
| 293513 | O-009 C1     | 1.66      |
| 293514 | O-009 C2     | 0.84      |
| 293515 | O-009 C3     | 0.93      |
| 293516 | O-009 E1     | 43.42     |
| 293517 | O-009 E2     | 22.06     |
| 293518 | O-009 E3     | 24.29     |
| 293712 | O-029 C      | 2.16      |
| 293713 | O-029 C      | 1.18      |
| 293714 | O-029 C      | 1.09      |
| 293715 | O-029 E      | 56.29     |
| 293716 | O-029 E      | 30.87     |
| 293717 | O-029 E      | 28.37     |
| 293771 | O-035 E      | 10.61     |
| 294401 | BSHIL;1U E   | 17.1      |
| 294410 | BSHIL;2U E   | 17.1      |
| 916211 | Z1-072 E     | 8.03      |
| 919621 | AA2-039 C    | 4.17      |
| 919622 | AA2-039 E    | 27.9      |
| 925581 | AC1-033 C    | 2.8       |
| 925582 | AC1-033 E    | 18.76     |
| 926821 | AC1-168 C O1 | 1.12      |
| 926822 | AC1-168 E O1 | 7.49      |
| 926841 | AC1-171 C O1 | 1.03      |
| 926842 | AC1-171 E O1 | 6.89      |
| 927201 | AC1-214 C O1 | 3.41      |
| 927202 | AC1-214 E O1 | 10.83     |
| 934051 | AD1-031 C O1 | 5.69      |
| 934052 | AD1-031 E O1 | 9.29      |
| 939631 | AE1-193 C O1 | 13.91     |
| 939632 | AE1-193 E O1 | 93.1      |
| 939681 | AE1-198 C O1 | 41.31     |
| 939682 | AE1-198 E O1 | 35.1      |
| 953201 | J715 C       | 1.77      |
| 953202 | J715 E       | 9.57      |

| <b>Bus #</b> | <b>Bus</b> | <b>MW Impact</b> |
|--------------|------------|------------------|
| 954201       | J887 C     | 2.54             |
| 954202       | J887 E     | 13.72            |
| 990901       | L-005 E    | 22.79            |
| AB2-013      | AB2-013    | 5.59             |
| CBM-N        | CBM-N      | 0.07             |
| CBM-S1       | CBM-S1     | 0.34             |
| CBM-S2       | CBM-S2     | 0.16             |
| CBM-W2       | CBM-W2     | 5.87             |
| CIN          | CIN        | 0.61             |
| CPLE         | CPLE       | 0.06             |
| FARMERCITY   | FARMERCITY | 0.22             |
| G-007A       | G-007A     | 0.23             |
| IPL          | IPL        | 0.35             |
| LGEE         | LGEE       | 0.11             |
| MECS         | MECS       | 0.2              |
| NYISO        | NYISO      | 0.32             |
| O-066A       | O-066A     | 0.11             |
| TATANKA      | TATANKA    | 0.7              |
| VFT          | VFT        | 0.62             |
| Z1-043       | Z1-043     | 31.71            |

## Index 44

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS     | TO BUS AREA | CKT ID | CONT NAME                       | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|------------|-------------|--------|---------------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 517670 | 346809    | 7CASEY   | AMIL          | 247712  | 05SULLIVAN | AEP         | 1      | AEP_P4_#3128_05EUGENE<br>345_A2 | breaker | 1466.0     | 145.72                | 146.7                  | DC    | 31.59     |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 270859 | PWR VTR EC;R | 6.24      |
| 274650 | KINCAID ;1U  | 14.71     |
| 274651 | KINCAID ;2U  | 14.73     |
| 274832 | U4-027       | 8.54      |
| 274853 | TWINGROVE;U1 | 0.74      |
| 274854 | TWINGROVE;U2 | 0.74      |
| 274859 | EASYR;U1 E   | 6.8       |
| 274860 | EASYR;U2 E   | 6.8       |
| 274890 | CAYUG;1U E   | 10.14     |
| 274891 | CAYUG;2U E   | 10.14     |
| 276150 | W2-048 E     | 2.05      |
| 290021 | O50 E        | 10.78     |
| 290051 | GSG-6; E     | 5.68      |
| 290108 | LEEDK;1U E   | 12.4      |
| 290261 | S-027 E      | 19.36     |
| 290265 | S-028 E      | 19.36     |
| 293516 | O-009 E1     | 6.47      |
| 293517 | O-009 E2     | 3.29      |
| 293518 | O-009 E3     | 3.62      |
| 293644 | O22 E1       | 4.9       |
| 293645 | O22 E2       | 9.51      |
| 293715 | O-029 E      | 6.65      |
| 293716 | O-029 E      | 3.65      |
| 293717 | O-029 E      | 3.35      |
| 293771 | O-035 E      | 5.18      |
| 294401 | BSHIL;1U E   | 7.08      |
| 294410 | BSHIL;2U E   | 7.08      |
| 294763 | P-046 E      | 5.38      |
| 295109 | WESTBROOK E  | 3.04      |
| 295111 | SUBLETTE E   | 1.65      |
| 296125 | R-030 C3     | 3.34      |
| 296128 | R-030 E3     | 13.34     |
| 296271 | R-030 C2     | 3.3       |
| 296272 | R-030 E2     | 13.18     |
| 296308 | R-030 C1     | 3.3       |
| 296309 | R-030 E1     | 13.18     |
| 905081 | W4-005 C     | 0.98      |
| 905082 | W4-005 E     | 42.62     |
| 909052 | X2-022 E     | 28.51     |
| 916211 | Z1-072 E     | 3.92      |
| 916221 | Z1-073 E     | 2.93      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 917502 | Z2-087 E     | 17.32     |
| 918052 | AA1-018 E    | 7.91      |
| 919221 | AA1-146      | 11.65     |
| 919581 | AA2-030      | 11.65     |
| 919621 | AA2-039 C    | 1.73      |
| 919622 | AA2-039 E    | 11.55     |
| 920272 | AA2-123 E    | 1.22      |
| 924041 | AB2-047 C O1 | 3.3       |
| 924042 | AB2-047 E O1 | 22.1      |
| 924261 | AB2-070 C O1 | 3.84      |
| 924262 | AB2-070 E O1 | 25.68     |
| 924471 | AB2-096      | 21.83     |
| 925161 | AB2-173      | 2.08      |
| 925302 | AB2-191 E    | 0.75      |
| 925581 | AC1-033 C    | 1.16      |
| 925582 | AC1-033 E    | 7.76      |
| 925771 | AC1-053 C    | 3.87      |
| 925772 | AC1-053 E    | 25.93     |
| 926431 | AC1-114      | 1.3       |
| 926821 | AC1-168 C O1 | 0.83      |
| 926822 | AC1-168 E O1 | 5.54      |
| 926841 | AC1-171 C O1 | 1.14      |
| 926842 | AC1-171 E O1 | 7.61      |
| 927201 | AC1-214 C O1 | 1.66      |
| 927202 | AC1-214 E O1 | 5.29      |
| 927511 | AC1-113 1    | 0.65      |
| 927521 | AC1-113 2    | 0.65      |
| 927531 | AC1-185 1    | 0.43      |
| 927541 | AC1-185 2    | 0.43      |
| 927551 | AC1-185 3    | 0.43      |
| 927561 | AC1-185 4    | 0.43      |
| 927571 | AC1-185 5    | 0.43      |
| 927581 | AC1-185 6    | 0.43      |
| 927591 | AC1-185 7    | 0.43      |
| 927601 | AC1-185 8    | 0.43      |
| 930481 | AB1-089      | 35.32     |
| 930741 | AB1-122 1O1  | 34.94     |
| 932881 | AC2-115 1    | 1.3       |
| 932891 | AC2-115 2    | 1.3       |
| 932921 | AC2-116      | 0.45      |
| 933341 | AC2-147 C    | 0.54      |
| 933342 | AC2-147 E    | 0.88      |
| 933911 | AD1-013 C    | 0.99      |
| 933912 | AD1-013 E    | 1.59      |
| 933931 | AD1-016 C    | 0.46      |
| 933932 | AD1-016 E    | 0.76      |
| 934051 | AD1-031 C O1 | 2.35      |
| 934052 | AD1-031 E O1 | 3.84      |
| 934101 | AD1-039 1    | 3.42      |
| 934401 | AD1-064 C O1 | 1.64      |
| 934402 | AD1-064 E O1 | 7.66      |
| 934431 | AD1-067 C    | 0.07      |

| Bus #  | Bus          | MW Impact |
|--------|--------------|-----------|
| 934432 | AD1-067 E    | 0.3       |
| 934651 | AD1-096 C    | 0.51      |
| 934652 | AD1-096 E    | 0.83      |
| 934701 | AD1-098 C O1 | 3.77      |
| 934702 | AD1-098 E O1 | 2.75      |
| 934871 | AD1-116 C    | 0.46      |
| 934872 | AD1-116 E    | 0.75      |
| 934881 | AD1-117 C    | 3.31      |
| 934882 | AD1-117 E    | 2.21      |
| 934971 | AD1-129 C    | 0.47      |
| 934972 | AD1-129 E    | 0.31      |
| 935001 | AD1-133 C O1 | 14.12     |
| 935002 | AD1-133 E O1 | 9.41      |
| 935141 | AD1-148      | 7.45      |
| 936291 | AD2-038 C O1 | 1.34      |
| 936292 | AD2-038 E O1 | 8.98      |
| 936511 | AD2-066 C O1 | 4.76      |
| 936512 | AD2-066 E O1 | 3.17      |
| 936771 | AD2-100 C O1 | 21.12     |
| 936772 | AD2-100 E O1 | 14.08     |
| 936791 | AD2-102 C    | 6.72      |
| 936792 | AD2-102 E    | 6.46      |
| 936972 | AD2-131 E O1 | 8.38      |
| 937001 | AD2-134 C    | 1.48      |
| 937002 | AD2-134 E    | 6.13      |
| 937161 | AD2-153 C O1 | 3.2       |
| 937162 | AD2-153 E O1 | 15.0      |
| 937171 | AD2-154 C O1 | 3.2       |
| 937172 | AD2-154 E O1 | 15.0      |
| 937211 | AD2-159 C    | 4.61      |
| 937212 | AD2-159 E    | 21.56     |
| 937311 | AD2-172 C    | 1.41      |
| 937312 | AD2-172 E    | 1.95      |
| 937331 | AD2-176 C O1 | 3.65      |
| 937332 | AD2-176 E O1 | 2.44      |
| 937531 | AD2-214 C    | 3.23      |
| 937532 | AD2-214 E    | 1.52      |
| 938851 | AE1-113 C O1 | 4.98      |
| 938852 | AE1-113 E O1 | 15.67     |
| 938861 | AE1-114 C O1 | 2.2       |
| 938862 | AE1-114 E O1 | 8.42      |
| 939051 | AE1-134 1    | 0.91      |
| 939061 | AE1-134 2    | 0.91      |
| 939321 | AE1-163 C O1 | 3.4       |
| 939322 | AE1-163 E O1 | 20.86     |
| 939401 | AE1-172 C O1 | 4.02      |
| 939402 | AE1-172 E O1 | 18.81     |
| 939631 | AE1-193 C O1 | 5.75      |
| 939632 | AE1-193 E O1 | 38.49     |
| 939681 | AE1-198 C O1 | 17.08     |
| 939682 | AE1-198 E O1 | 14.51     |
| 939691 | AE1-199      | 1.29      |

| Bus #   | Bus          | MW Impact |
|---------|--------------|-----------|
| 939701  | AE1-201 C    | 1.0       |
| 939702  | AE1-201 E    | 0.22      |
| 939741  | AE1-205 C O1 | 8.33      |
| 939742  | AE1-205 E O1 | 11.5      |
| 939861  | AE1-222 1    | 38.59     |
| 939921  | AE1-228 C O1 | 5.41      |
| 939922  | AE1-228 E O1 | 3.61      |
| 939961  | AE1-233 C O1 | 1.15      |
| 939962  | AE1-233 E O1 | 4.76      |
| 940101  | AE1-252 C O1 | 7.6       |
| 940102  | AE1-252 E O1 | 5.07      |
| 950291  | J291         | 3.2       |
| 950701  | J196 C       | 1.33      |
| 950702  | J196 E       | 5.3       |
| 951001  | J339         | 6.03      |
| 951741  | J474 C       | 2.02      |
| 951742  | J474 E       | 10.95     |
| 952251  | J641         | 10.35     |
| 952271  | J644         | 9.57      |
| 952321  | J734         | 5.07      |
| 952651  | J756 C       | 2.46      |
| 952652  | J756 E       | 13.33     |
| 952871  | J757 C       | 4.06      |
| 952872  | J757 E       | 21.98     |
| 953241  | J467 C       | 2.76      |
| 953242  | J467 E       | 14.91     |
| 953371  | J808         | 9.06      |
| 953401  | J811         | 17.76     |
| 953431  | J853         | 11.11     |
| 953641  | J813         | 43.81     |
| 953651  | J815         | 32.11     |
| 953671  | J817         | 10.67     |
| 953741  | J826 C       | 1.65      |
| 953742  | J826 E       | 8.94      |
| 953801  | J835 C       | 2.68      |
| 953802  | J835 E       | 14.48     |
| 953851  | J845 C       | 1.72      |
| 953852  | J845 E       | 9.32      |
| 953881  | J848 C       | 5.27      |
| 953882  | J848 E       | 28.51     |
| 953951  | J859         | 9.79      |
| 954081  | J872 C       | 4.44      |
| 954082  | J872 E       | 24.03     |
| 954181  | J884         | 7.67      |
| 954411  | J912         | 14.24     |
| 954681  | J949         | 38.92     |
| 954721  | J750 C       | 2.11      |
| 954722  | J750 E       | 11.4      |
| 954761  | J468 C       | 7.08      |
| 954762  | J468 E       | 28.32     |
| 990901  | L-005 E      | 11.18     |
| AB2-013 | AB2-013      | 13.3      |

| <b>Bus #</b>      | <b>Bus</b> | <b>MW Impact</b> |
|-------------------|------------|------------------|
| <b>AE1-033</b>    | AE1-033    | 10.55            |
| <b>AE1-042</b>    | AE1-042    | 10.08            |
| <b>BLUEG</b>      | BLUEG      | 10.38            |
| <b>CARR</b>       | CARR       | 0.29             |
| <b>CBM-S1</b>     | CBM-S1     | 13.17            |
| <b>CBM-S2</b>     | CBM-S2     | 2.35             |
| <b>CBM-W1</b>     | CBM-W1     | 28.23            |
| <b>CBM-W2</b>     | CBM-W2     | 199.79           |
| <b>CIN</b>        | CIN        | 3.85             |
| <b>CPL</b>        | CPL        | 0.56             |
| <b>DEARBORN</b>   | DEARBORN   | 0.69             |
| <b>G-007</b>      | G-007      | 0.8              |
| <b>GIBSON</b>     | GIBSON     | 0.02             |
| <b>MEC</b>        | MEC        | 45.61            |
| <b>O-066</b>      | O-066      | 2.69             |
| <b>RENSSELAER</b> | RENSSELAER | 0.23             |
| <b>TRIMBLE</b>    | TRIMBLE    | 1.31             |
| <b>WEC</b>        | WEC        | 4.13             |
| <b>Z1-043</b>     | Z1-043     | 21.97            |

## Index 45

| ID     | FROM BUS# | FROM BUS | FROM BUS AREA | TO BUS# | TO BUS       | TO BUS AREA | CKT ID | CONT NAME               | Type    | Rating MVA | PRE PROJECT LOADING % | POST PROJECT LOADING % | AC DC | MW IMPACT |
|--------|-----------|----------|---------------|---------|--------------|-------------|--------|-------------------------|---------|------------|-----------------------|------------------------|-------|-----------|
| 830573 | 348962    | 4KEEMIN  | AMIL          | 272111  | NORMANDY ; R | CE          | 1      | COMED_P4_074-38-L7413__ | breaker | 214.0      | 181.91                | 233.28                 | DC    | 109.93    |

| Bus #      | Bus          | MW Impact |
|------------|--------------|-----------|
| 274848     | CAMPGROVE;RU | 1.25      |
| 274877     | BISHOP HL;1U | 0.94      |
| 274878     | BISHOP HL;2U | 0.94      |
| 293771     | O-035 E      | 4.15      |
| 294401     | BSHIL;1U E   | 24.62     |
| 294410     | BSHIL;2U E   | 24.62     |
| 916211     | Z1-072 E     | 3.14      |
| 919621     | AA2-039 C    | 6.0       |
| 919622     | AA2-039 E    | 40.16     |
| 926821     | AC1-168 C O1 | 0.83      |
| 926822     | AC1-168 E O1 | 5.57      |
| 926841     | AC1-171 C O1 | 1.39      |
| 926842     | AC1-171 E O1 | 9.25      |
| 927201     | AC1-214 C O1 | 1.33      |
| 927202     | AC1-214 E O1 | 4.24      |
| 934051     | AD1-031 C O1 | 8.19      |
| 934052     | AD1-031 E O1 | 13.36     |
| 939631     | AE1-193 C O1 | 20.01     |
| 939632     | AE1-193 E O1 | 133.95    |
| 939681     | AE1-198 C O1 | 59.43     |
| 939682     | AE1-198 E O1 | 50.5      |
| 953201     | J715 C       | 1.14      |
| 953202     | J715 E       | 6.16      |
| 954201     | J887 C       | 0.59      |
| 954202     | J887 E       | 3.19      |
| 990901     | L-005 E      | 32.55     |
| BAYOU      | BAYOU        | 0.02      |
| CBM-N      | CBM-N        | 0.07      |
| CBM-S1     | CBM-S1       | 0.26      |
| CBM-S2     | CBM-S2       | 0.14      |
| CBM-W2     | CBM-W2       | 4.06      |
| CIN        | CIN          | 0.54      |
| COTTONWOOD | COTTONWOOD   | 0.09      |
| CPL        | CPL          | 0.06      |
| FARMERCITY | FARMERCITY   | 0.21      |
| G-007A     | G-007A       | 0.22      |
| IPL        | IPL          | 0.31      |
| LGEE       | LGEE         | 0.1       |
| MECS       | MECS         | 0.23      |
| NYISO      | NYISO        | 0.3       |
| O-066A     | O-066A       | 0.1       |

| Bus #      | Bus        | MW Impact |
|------------|------------|-----------|
| TATANKA    | TATANKA    | 0.58      |
| UNIONPOWER | UNIONPOWER | 0.0       |
| VFT        | VFT        | 0.59      |
| Z1-043     | Z1-043     | 22.77     |

# Affected Systems

## MISO

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

| Contingency Name                              | Contingency Definition                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMED_P2-1_981-L7713__                        | CONTINGENCY 'COMED_P2-1_981-L7713__'<br>TRIP BRANCH FROM BUS 271241 TO BUS 272189 CKT 1 / CRESCENT ; R 138 OGLESBY ; T 138<br>END                                                                                                                                                                                                                                           |
| COMED_P2-2_001_LA-138B__1                     | CONTINGENCY 'COMED_P2-2_001_LA-138B__1'<br>DISCONNECT BUS 271908 / LASCO STA; B 138<br>END                                                                                                                                                                                                                                                                                  |
| COMED_P7_345-L19601_B-S+_345-L9801__R-S_FSA   | CONTINGENCY 'COMED_P7_345-L19601_B-S+_345-L9801__R-S_FSA'<br>TRIP BRANCH FROM BUS 270790 TO BUS 270770 CKT 1 / KATYD; B 345 GOODI;4B 345<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>END                                                                                                                                               |
| COMED_P7_345-L0301__B-S+_345-L9801__R-S_FSA-B | CONTINGENCY 'COMED_P7_345-L0301__B-S+_345-L9801__R-S_FSA-B'<br>TRIP BRANCH FROM BUS 939320 TO BUS 270790 CKT 1 / AE1-163 TAP 345 KATYDID<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>END                                                                                                                                               |
| COMED_P2-2_074_KE-138__1_NO_FSA               | CONTINGENCY 'COMED_P2-2_074_KE-138__1_NO_FSA'<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>DISCONNECT BUS 271018 / ANNAWAN; R 138 / ADDED TO TAKE OUT FULL FSA<br>PATH<br>END                                                                                                                 |
| COMED_P4_112-65-BT3-4__                       | CONTINGENCY 'COMED_P4_112-65-BT3-4__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765<br>TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345<br>TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33<br>END         |
| COMED_P7_138-L93008_R-R+_138-L18706_R-R       | CONTINGENCY 'COMED_P7_138-L93008_R-R+_138-L18706_R-R'<br>TRIP BRANCH FROM BUS 271018 TO BUS 272110 CKT 1 / U4-027 NORMANDY<br>TRIP BRANCH FROM BUS 293710 TO BUS 272110 CKT 1 / O29 138 NORMA; B 138<br>TRIP BRANCH FROM BUS 293510 TO BUS 272111 CKT 1 / O09 OP1 138 NORMA; R 138<br>TRIP BRANCH FROM BUS 348962 TO BUS 272111 CKT 1 / 4KEEMIN 138 NORMANDY ; R 138<br>END |
| COMED_P4_001-38-TR81__                        | CONTINGENCY 'COMED_P4_001-38-TR81__'<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>TRIP BRANCH FROM BUS 270802 TO BUS 271908 CKT 1 / LASCO STA; B 345 LASCO STA; B 138<br>DISCONNECT BUS 271908 / LASCO STA; B 138<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>END                |
| COMED_P2-1_074-L6101__                        | CONTINGENCY 'COMED_P2-1_074-L6101__'<br>TRIP BRANCH FROM BUS 271835 TO BUS 271655 CKT 1 / KEWAN; 2 138 HENNE; T 138<br>END                                                                                                                                                                                                                                                  |

| Contingency Name                                    | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMED_P4_023-65-BT2-3__                             | CONTINGENCY 'COMED_P4_023-65-BT2-3__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765<br>END                                                                                                                                                                                                                                                                                                                                                                                               |
| COMED_P2-1_155-L15518__                             | CONTINGENCY 'COMED_P2-1_155-L15518__'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AEP_P1-2_#286                                       | CONTINGENCY 'AEP_P1-2_#286'<br>OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885<br>7BUNSONVILLE 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P2-2_155_NE-138B__4                           | CONTINGENCY 'COMED_P2-2_155_NE-138B__4'<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END                                                                                                                                                                                                                                                                                                        |
| COMED_P4_155-38-TR84__                              | CONTINGENCY 'COMED_P4_155-38-TR84__'<br>TRIP BRANCH FROM BUS 275204 TO BUS 270828 CKT 1 / NELSO;4M 138 NELSO; B 345<br>TRIP BRANCH FROM BUS 275204 TO BUS 272094 CKT 1 / NELSO;4M 138 NELSO; B 138<br>TRIP BRANCH FROM BUS 275204 TO BUS 275304 CKT 1 / NELSO;4M 138 NELSO;4C 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>END                                                                                                                                            |
| COMED_P7_138-L6101__-S_+_138-L7713__R-S-B           | CONTINGENCY 'COMED_P7_138-L6101__-S_+_138-L7713__R-S-B'<br>TRIP BRANCH FROM BUS 271655 TO BUS 271835 CKT 1 / HENNEEPIN; T 138 KEWANEE ;23 138<br>TRIP BRANCH FROM BUS 271655 TO BUS 348918 CKT 1 / HENNEEPIN; T 138 4HENNEPIN S 138<br>TRIP BRANCH FROM BUS 926820 TO BUS 271655 CKT 1 / AD2-066 TAP ; 138 HENNEEPIN; T 138<br>TRIP BRANCH FROM BUS 271241 TO BUS 272189 CKT 1 / CRESCENT ; R 138 OGLESBY ; T 138<br>TRIP BRANCH FROM BUS 272189 TO BUS 936510 CKT 1 / OGLESBY ; T 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272189 TO BUS 348935 CKT 1 / OGLESBY ; T 138 4OGLESBY MN 138<br>END |
| AEP_P1-2_#697A                                      | CONTINGENCY 'AEP_P1-2_#697A'<br>OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK<br>N;RP 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P7_138-L7411__R-R_+_138-L7408__R-R_U4-027-FSA | CONTINGENCY 'COMED_P7_138-L7411__R-R_+_138-L7408__R-R_U4-027-FSA'<br>TRIP BRANCH FROM BUS 348962 TO BUS 271835 CKT 1 / NORMA; R 138 KEWAN; 2 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 271836 CKT 1 / U4-027 KEWAN; 1 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 272110 CKT 1 / U4-027 NORMANDY<br>END                                                                                                                                                                                                                                                                                              |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AEP_P4_#3128_05EUGENE 345_A2              | CONTINGENCY 'AEP_P4_#3128_05EUGENE 345_A2'<br>OPEN BRANCH FROM BUS 243221 TO BUS 249504 CKT 1 / 243221 05EUGENE 345 249504<br>08CAYSUB 345 1<br>OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885<br>7BUNSONVILLE 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P2-2_116_GG-345R__2_NO_FSA          | CONTINGENCY 'COMED_P2-2_116_GG-345R__2_NO_FSA'<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COMED_P1-2_138-L15508_R-R                 | CONTINGENCY 'COMED_P1-2_138-L15508_R-R'<br>TRIP BRANCH FROM BUS 271331 TO BUS 271333 CKT 1 / DIXON;8R 138 DIXON; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 271331 CKT 1 / NELSO;RT 138 DIXON;8R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 272095 CKT 1 / NELSO;RT 138 NELSO; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 293710 CKT 1 / NELSO;RT 138 O29 138<br>MOVE 100 PERCENT LOAD FROM BUS 271331 TO BUS 271330 / DIXON;8R 138 DIXON;7B 138<br>END                                                                                                                                                                                                                                                                                                                       |
| COMED_P1-2_138-L15518GB-R-A               | CONTINGENCY 'COMED_P1-2_138-L15518GB-R-A'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / R FAL; B 138 H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / H71 ;BT 138 H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / H71 ; B 138 H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / R FAL; B 138 R FAL; R 138<br>END                                                                                                                                                                                                                                     |
| COMED_P7_138-L15509GR-R+_138-L15518GB-R-A | CONTINGENCY 'COMED_P7_138-L15509GR-R+_138-L15518GB-R-A'<br>TRIP BRANCH FROM BUS 272095 TO BUS 272367 CKT 1 / NELSON ; R 138 ROCK FALL; R 138<br>TRIP BRANCH FROM BUS 272367 TO BUS 274244 CKT 7 / ROCK FALL; R 138 ROCK FALL; 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSON ; B 138 ROCK FALL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / ROCK FALL; B 138 ESS H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / ESS H71 ;BT 138 AD2-214 TAP; 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / ESS H71 ;BT 138 ESS H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / ESS H71 ; B 138 ESS H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / ROCK FALL; B 138 ROCK FALL; R 138<br>END |
| COMED_P4_023-65-BT4-5__                   | CONTINGENCY 'COMED_P4_023-65-BT4-5__'<br>TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765<br>TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345<br>TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>END                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P4_001-38-L0108__                   | CONTINGENCY 'COMED_P4_001-38-L0108__'<br>TRIP BRANCH FROM BUS 271908 TO BUS 271986 CKT 1 / LASCO; B 138 MAZON; B 138<br>DISCONNECT BUS 271908 / LASCO; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Contingency Name             | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| COMED_P1-2_138-L1206__R-S-A  | CONTINGENCY 'COMED_P1-2_138-L1206__R-S-A'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>END |
| 271835                       | CONTINGENCY '271835'<br>OPEN BRANCH FROM BUS 271835 TO BUS 271839 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P2-2_074_KE-138__1_FSA | CONTINGENCY 'COMED_P2-2_074_KE-138__1_FSA'<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 271837                       | CONTINGENCY '271837'<br>OPEN BRANCH FROM BUS 271837 TO BUS 271838 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| COMED_P1-2_345-L1202__B-S-A  | CONTINGENCY 'COMED_P1-2_345-L1202__B-S-A'<br>TRIP BRANCH FROM BUS 270716 TO BUS 930750 CKT 1 / DRESDEN ; B 345 AB1-122 TAP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COMED_P4_112-65-BT4-5__      | CONTINGENCY 'COMED_P4_112-65-BT4-5__'<br>TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765<br>TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765<br>TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345<br>TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 271838                       | CONTINGENCY '271838'<br>OPEN BRANCH FROM BUS 271838 TO BUS 271845 CKT 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| AEP_P1-2_#8907               | CONTINGENCY 'AEP_P1-2_#8907'<br>OPEN BRANCH FROM BUS 247712 TO BUS 346809 CKT 1 / 247712 05SULLIVAN 345 346809<br>7CASEY 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Contingency Name                        | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| COMED_P4_155-45-BT6-7__                 | CONTINGENCY 'COMED_P4_155-45-BT6-7__'<br>TRIP BRANCH FROM BUS 275204 TO BUS 270828 CKT 1 / NELSO;4M 138 NELSO; B 345<br>TRIP BRANCH FROM BUS 275204 TO BUS 272094 CKT 1 / NELSO;4M 138 NELSO; B 138<br>TRIP BRANCH FROM BUS 275204 TO BUS 275304 CKT 1 / NELSO;4M 138 NELSO;4C 34.5<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P7_345-L6607__B-S+_345-L97008_R-S | CONTINGENCY 'COMED_P7_345-L6607__B-S+_345-L97008_R-S'<br>TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRANKFO; B 345 CRETE EC ;BP 345<br>TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UNIV PK N;RP 345 05OLIVE 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| COMED_P1-2_138-L13304_R-R               | CONTINGENCY 'COMED_P1-2_138-L13304_R-R'<br>TRIP BRANCH FROM BUS 272367 TO BUS 293510 CKT 1 / R FAL; R 138 O9 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P7_138-L7411__R-R+_138-L7408_R-R  | CONTINGENCY 'COMED_P7_138-L7411__R-R+_138-L7408_R-R'<br>TRIP BRANCH FROM BUS 348962 TO BUS 271835 CKT 1 / NORMA; R 138 KEWAN; 2 138<br>TRIP BRANCH FROM BUS 271018 TO BUS 271836 CKT 1 / U4-027 KEWAN; 1 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P4_074-38-L7413__                 | CONTINGENCY 'COMED_P4_074-38-L7413__'<br>TRIP BRANCH FROM BUS 271836 TO BUS 271241 CKT 1 / KEWAN; 1 138 CRESC; R 138<br>DISCONNECT BUS 271836 / KEWAN; 1 138<br>DISCONNECT BUS 271837 / KEWAN; 5 138<br>DISCONNECT BUS 271838 / KEWAN; 4 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| COMED_P1-2_138-L0112__B-S               | CONTINGENCY 'COMED_P1-2_138-L0112__B-S'<br>TRIP BRANCH FROM BUS 271844 TO BUS 271908 CKT 1 / KICKA; B 138 LASCO; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| COMED_P4_116-45-L9801_FSA               | CONTINGENCY 'COMED_P4_116-45-L9801_FSA'<br>TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P7_138-L1206__R-S+_345-L2311__R-S | CONTINGENCY 'COMED_P7_138-L1206__R-S+_345-L2311__R-S'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B<br>138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R<br>138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>TRIP BRANCH FROM BUS 270697 TO BUS 270717 CKT 1 / COLLINS ; R 345 DRESDEN ; R 345<br>END |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| COMED_P4_937-45-BT1-2__                   | CONTINGENCY 'COMED_P4_937-45-BT1-2__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>TRIP BRANCH FROM BUS 274768 TO BUS 270678 CKT 1 / LEECO;BP 345 BYRON; B 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COMED_P4_116-45-L11614__                  | CONTINGENCY 'COMED_P4_116-45-L11614__'<br>TRIP BRANCH FROM BUS 270667 TO BUS 270665 CKT 1 / B ISL;RT 345 B ISL; R 345<br>TRIP BRANCH FROM BUS 270667 TO BUS 270927 CKT 1 / B ISL;RT 345 WILTO; R 345<br>TRIP BRANCH FROM BUS 270769 TO BUS 270667 CKT 1 / GOODI;2R 345 B ISL;RT 345<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| COMED_P7_138-L1205__B-S+_138-L1206__R-S-A | CONTINGENCY 'COMED_P7_138-L1205__B-S+_138-L1206__R-S-A'<br>TRIP BRANCH FROM BUS 271336 TO BUS 272124 CKT 1 / DRESDEN ; B 138 ESS J339 ; B 138<br>TRIP BRANCH FROM BUS 271986 TO BUS 271908 CKT 1 / MAZON ; B 138 LASCO STA; B 138<br>TRIP BRANCH FROM BUS 272318 TO BUS 271986 CKT 1 / ESS J375 ; B 138 MAZON ; B 138<br>TRIP BRANCH FROM BUS 272318 TO BUS 272124 CKT 1 / ESS J375 ; B 138 ESS J339 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272124 TO BUS 272125 / ESS J339 ; B 138 ESS J339 ; R 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274837 / EQUISTAR ; B 13.8<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>END |
| Base Case                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| COMED_P4_012-38-L1206__                   | CONTINGENCY 'COMED_P4_012-38-L1206__'<br>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138<br>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138 /*<br>CONTINGENCY LINE ADDED FOR AE1 BUILD<br>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138<br>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138<br>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138<br>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138<br>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8<br>TRIP BRANCH FROM BUS 271337 TO BUS 271336 CKT 1 / DRESDEN ; R 138 DRESDEN ; B 138<br>TRIP BRANCH FROM BUS 271337 TO BUS 271567 CKT 1 / DRESDEN ; R 138 GOOSE LK ; R 138<br>END                                                                                                                                                                                                                                                                                                                                                                          |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| COMED_P7_345-L94507_B-S+_345-L97008_R-S   | CONTINGENCY 'COMED_P7_345-L94507_B-S+_345-L97008_R-S'<br>TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345<br>TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UPNOR;RP 345 05OLIVE 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| COMED_P4_155-38-L15518_                   | CONTINGENCY 'COMED_P4_155-38-L15518_'<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / R FAL; B 138 H71 ;BT 138<br>TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138 /*<br>CONTINGENCY LINE ADDED FOR AE1 BUILD<br>TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / H71 ;BT 138 H71 ; B 138<br>MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / H71 ; B 138 H71 ; R 138<br>CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / R FAL; B 138 R FAL; R 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END |
| COMED_P1-2_345-L11613AB-S                 | CONTINGENCY 'COMED_P1-2_345-L11613AB-S'<br>TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / B ISL;BT 345 B ISL; B 345<br>TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / B ISL;BT 345 WILTO; B 345<br>TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 / GOODI;4B 345 B ISL;BT 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| AEP_P1-2_#695A                            | CONTINGENCY 'AEP_P1-2_#695A'<br>OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644<br>WILTON ; 765 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| COMED_P1-2_345-L15501_B-R                 | CONTINGENCY 'COMED_P1-2_345-L15501_B-R'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| COMED_P7_345-L1202__B-S+_345-L1227__R-S-A | CONTINGENCY 'COMED_P7_345-L1202__B-S+_345-L1227__R-S-A'<br>TRIP BRANCH FROM BUS 270716 TO BUS 930750 CKT 1 / DRESDEN ; B 345 AB1-122 TAP 345<br>TRIP BRANCH FROM BUS 930740 TO BUS 270717 CKT 1 / AB1-122 TAP 345 DRESDEN ; R 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P1-2_345-L19601_B-S                 | CONTINGENCY 'COMED_P1-2_345-L19601_B-S'<br>TRIP BRANCH FROM BUS 270790 TO BUS 270770 CKT 1 / KATYD; B 345 GOODI;4B 345<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| COMED_P1-3_TR81_LASCO_B-S                 | CONTINGENCY 'COMED_P1-3_TR81_LASCO_B-S'<br>TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345<br>TRIP BRANCH FROM BUS 270802 TO BUS 271908 CKT 1 / LASCO STA; B 345 LASCO STA; B 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| AEP_P4_#8805_05OLIVE 345_D                | CONTINGENCY 'AEP_P4_#8805_05OLIVE 345_D'<br>OPEN BRANCH FROM BUS 243229 TO BUS 932600 CKT 1 / 243229 05OLIVE 345 932600 AC2-080<br>TAP 345 1 /* CONTINGENCY LINE ADDED FOR AE1 BUILD<br>OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK<br>N;RP 345 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Contingency Name              | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| COMED_P2-2_116_GG-345R__2_FSA | CONTINGENCY 'COMED_P2-2_116_GG-345R__2_FSA'<br>DISCONNECT BUS 270769 / GOODI;2R 345<br>DISCONNECT BUS 918050 / AA1-018 TAP /ADDED FOR NO FSA CASE<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P4_937-45-BT1-4__       | CONTINGENCY 'COMED_P4_937-45-BT1-4__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 274768 CKT 1 / NELSO; B 345 LEECO;BP 345<br>TRIP BRANCH FROM BUS 271421 TO BUS 274450 CKT 1 / EASYR; B 138 EASYR;1 34.5<br>TRIP BRANCH FROM BUS 271421 TO BUS 274451 CKT 1 / EASYR; B 138 EASYR;2 34.5<br>TRIP BRANCH FROM BUS 272528 TO BUS 271421 CKT 1 / S DIX; B 138 EASYR; B 138<br>TRIP BRANCH FROM BUS 274420 TO BUS 274857 CKT 1 / EASYR;1H 34.5 EASYR;U1 0.69<br>TRIP BRANCH FROM BUS 274421 TO BUS 274858 CKT 1 / EASYR;2H 34.5 EASYR;U2 0.69<br>TRIP BRANCH FROM BUS 274450 TO BUS 274420 CKT 1 / EASYR;1 34.5 EASYR;1H 34.5<br>TRIP BRANCH FROM BUS 274451 TO BUS 274421 CKT 1 / EASYR;2 34.5 EASYR;2H 34.5<br>TRIP BRANCH FROM BUS 274768 TO BUS 272528 CKT 1 / LEECO;BP 345 S DIX; B 138<br>REMOVE UNIT W1 FROM BUS 274857 / EASYR;U1 0.69<br>REMOVE UNIT W2 FROM BUS 274858 / EASYR;U2 0.69<br>END |
| COMED_P4_133-38-BT1-2__       | CONTINGENCY 'COMED_P4_133-38-BT1-2__'<br>TRIP BRANCH FROM BUS 272367 TO BUS 272515 CKT 1 / R FAL; R 138 H71 ; R 138<br>MOVE 100 PERCENT LOAD FROM BUS 272515 TO BUS 272514 / H71 ; R 138 H71 ; B 138<br>TRIP BRANCH FROM BUS 272095 TO BUS 272367 CKT 1 / NELSO; R 138 R FAL; R 138<br>TRIP BRANCH FROM BUS 272367 TO BUS 274244 CKT 7 / R FAL; R 138 R FAL; 34.5<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COMED_P4_155-38-L15508__      | CONTINGENCY 'COMED_P4_155-38-L15508__'<br>TRIP BRANCH FROM BUS 271331 TO BUS 271333 CKT 1 / DIXON;8R 138 DIXON; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 271331 CKT 1 / NELSO;RT 138 DIXON;8R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 272095 CKT 1 / NELSO;RT 138 NELSO; R 138<br>TRIP BRANCH FROM BUS 272097 TO BUS 293710 CKT 1 / NELSO;RT 138 O29 138<br>MOVE 100 PERCENT LOAD FROM BUS 271331 TO BUS 271330 / DIXON;8R 138 DIXON;7B 138<br>DISCONNECT BUS 272095 / NELSO; R 138<br>END                                                                                                                                                                                                                                                                                                                                                                                               |
| COMED_P4_155-38-TR81__        | CONTINGENCY 'COMED_P4_155-38-TR81__'<br>TRIP BRANCH FROM BUS 270828 TO BUS 272094 TO BUS 275341 CKT 1 / NELSO; B 345 NELSO; B 138<br>NELSO;1C 34.5<br>TRIP BRANCH FROM BUS 272094 TO BUS 271330 CKT 1 / NELSO; B 138 DIXON;7B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138<br>TRIP BRANCH FROM BUS 272094 TO BUS 275204 CKT 1 / NELSO; B 138 NELSO;4M 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMED_P1-2_138-L1352__-S      | CONTINGENCY 'COMED_P1-2_138-L1352__-S'<br>TRIP BRANCH FROM BUS 272269 TO BUS 272285 CKT 1 / POWERTON ; 138 POWERTON ;RT 138<br>TRIP BRANCH FROM BUS 272285 TO BUS 348908 CKT 1 / POWERTON ;RT 138 4HAVANA E 138<br>TRIP BRANCH FROM BUS 272285 TO BUS 349505 CKT 1 / POWERTON ;RT 138 4HUFF 138<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AEP_P4_#2978_05DUMONT 765_B   | CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B'<br>OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207<br>05GRNTWN 765 1<br>OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644<br>WILTON ; 765 1<br>END                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Contingency Name                          | Contingency Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| COMED_P7_138-L0903__R-S+_138-L1206__R-S-A | <p>CONTINGENCY 'COMED_P7_138-L0903__R-S+_138-L1206__R-S-A'</p> <p>TRIP BRANCH FROM BUS 271567 TO BUS 271337 CKT 1 / GOOSE LK ; R 138 DRESDEN ; R 138</p> <p>TRIP BRANCH FROM BUS 271567 TO BUS 274190 CKT 7 / GOOSE LK ; R 138 GOOSE LK ; 34.5</p> <p>TRIP BRANCH FROM BUS 271725 TO BUS 271723 CKT 1 / ESS J370 ;RT 138 ESS J370 ; R 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 271181 TO BUS 271180 / ESS J326 ; R 138 ESS J326 ; B 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 271783 TO BUS 271416 / JOLIET374; R 138 ESS J390 ; B 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 272019 TO BUS 272018 / MINOOKA ; R 138 MINOOKA ; B 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 272318 TO BUS 272319 / ESS J375 ; B 138 ESS J375 ; R 138</p> <p>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138</p> <p>DISCONNECT BUS 271185 / ESS J326 ;RT 138</p> <p>DISCONNECT BUS 271417 / ESS J390 ; R 138</p> <p>DISCONNECT BUS 271473 / ESS J305 ;RT 138</p> <p>TRIP BRANCH FROM BUS 271187 TO BUS 271987 CKT 1 / CHANNAHON; R 138 MAZON ; R 138</p> <p>TRIP BRANCH FROM BUS 271337 TO BUS 272125 CKT 1 / DRESDEN ; R 138 ESS J339 ; R 138</p> <p>TRIP BRANCH FROM BUS 271987 TO BUS 936510 CKT 1 / MAZON ; R 138 AD2-066 TAP 138</p> <p>TRIP BRANCH FROM BUS 272319 TO BUS 271187 CKT 1 / ESS J375 ; R 138 CHANNAHON; R 138</p> <p>TRIP BRANCH FROM BUS 272319 TO BUS 272125 CKT 1 / ESS J375 ; R 138 ESS J339 ; R 138</p> <p>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271566 / CHANNAHON; R 138 GOOSE LK ; B 138</p> <p>MOVE 50 PERCENT LOAD FROM BUS 271187 TO BUS 271567 / CHANNAHON; R 138 GOOSE LK ; R 138</p> <p>MOVE 100 PERCENT LOAD FROM BUS 272125 TO BUS 272124 / ESS J339 ; R 138 ESS J339 ; B 138</p> <p>CLOSE LINE FROM BUS 271986 TO BUS 271987 CKT 1 / MAZON ; B 138 MAZON ; R 138</p> <p>DISCONNECT BUS 274836 / EQUISTAR ; R 13.8</p> <p>END</p> |

## Short Circuit

No issues identified.