Generation Interconnection

Feasibility Study Report

for

Queue Project AF2-183

“NELSON-LEE COUNTY 345 KV”

July 2020

1 Introduction

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

2 Preface

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

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

The 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.

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3 General

The Interconnection Customer (IC), has proposed a Storage generating facility located in Lee County, Illinois. The installed facilities will have a total capability of 80 MW with 32 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 01, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-183
Project Name	NELSON-LEE COUNTY 345 KV
State	Illinois
County	Lee
Transmission Owner	ComEd
MFO	80
MWE	80
MWC	32
Fuel	Storage
Basecase Study Year	2023

A new service customer with a generating facility that could be commercially operable prior to June 1st of the basecase study year is required to request an interim deliverability analysis from PJM.

4 Point of Interconnection

Queue Position AF2-183, a 80 MW battery storage facility, proposes to interconnect with the ComEd transmission system by tying to South Dixon Solar I (to be built under PJM queue AF1-280), South Dixon Battery Storage (AF1-281) and South Dixon Solar II (AF2-182), interconnected to a new Interconnection Substation on 345 kV line 15501. The proposed interconnection is behind the Point-OF-Interconnection between ComEd and South Dixon Solar.

5 Cost Summary

The AF2-183 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$200,000
Total System Network Upgrade Costs	$22,700,000
Total Costs	$22,900,000

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 88-129. If at a future date it is determined

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that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

6 Transmission Owner Scope of Work

Attachment Facilities

To accommodate interconnection of AF2-183; the relaying, SCADA, communication, and metering between South Dixon Solar II and the new Interconnection Substation on 345kV line 15501 would be reviewed and upgraded if needed.

It should be noted that if the AF1-280 project drops out, then scope of AF2-182 would change.

The total physical interconnection costs is given in the table below:

Description	Total Cost
The relaying, SCADA, communication, and metering between South Dixon Solar II and the new Interconnection Substation on 345kV line 15501 would be reviewed and upgraded if needed.	$200,000
Total Physical Interconnection Costs	$200,000

7 Schedule

ComEd would take approximately 18-months to review and possibly upgrade the relaying, SCADA, Communication and metering after the ISA / ICSA are signed.

8 Transmission Owner Analysis

See Section 6.

9 Interconnection Customer Requirements

The Interconnection Customer is responsible for all design and construction related activities on the Interconnection Customer's side of the Point of Interconnection.

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

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10.2 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

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

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

11 Summer Peak - Load Flow Analysis

The Queue Project AF2-183 was evaluated as an 80.0 MW (Capacity 32.0 MW) injection tapping the Nelson to Lee County 345 kV line in the ComEd area. Project AF2-183 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-183 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

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

None

11.2 Multiple Facility Contingency

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

None

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
96336456	270678	BYRON ; B	345.0	CE	270694	CHERRY VA; B	345.0	CE	1	COMED_P4_006-45-BT7-8__	breaker	1441.0	120.13	120.84	DC	22.13
96336384	957470	AF2-041 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_006-45-BT3-4__	breaker	1656.0	122.1	123.76	DC	27.4

11.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
96337022	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	Base Case	operation	1334.0	103.01	104.17	DC	16.18
96337061	274768	LEE CO EC;BP	345.0	CE	270678	BYRON ; B	345.0	CE	1	COMED_P1-2_345-L15502_B-R-B	operation	1726.0	108.28	109.3	DC	38.95
96336936	943410	AF1-012 TAP	345.0	CE	957470	AF2-041 TAP	345.0	CE	1	Base Case	operation	1334.0	108.5	109.7	DC	16.18
96337003	946160	AF1-281 TAP	345.0	CE	274768	LEE CO EC;BP	345.0	CE	1	COMED_P1-2_345-L15502_B-R-B	operation	1479.0	104.55	106.71	DC	39.25
96336879	957470	AF2-041 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	Base Case	operation	1334.0	119.79	120.99	DC	16.18
96336880	957470	AF2-041 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P1-2_345-L0627__B-R	operation	1656.0	121.5	123.15	DC	27.4

11.5 System Reinforcements - Summer Peak Load Flow

ID	Idx	Facility	Upgrade Description	Cost
96336456	1	**BYRON ; B 345.0 kV - CHERRY VA; B 345.0 kV Ckt 1**	**CE_NUN_L0621 (832) : ComEd 345kV l0621 SSTE rating is 1585 MVA. The upgrade will be to mitigate sag on the line and replace a 345kV circuit breaker at Cherry Valley. A preliminary estimate for the upgrade is $12.2 M with a estimated construction timeline of 24 months subject to outage coordination with Station 6 Byron Nuclear Station. Upon completion of the upgrade the ratings will be 1334/1726/1837/2084 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $12,200,000** **Time Estimate : 24.0 Months**	$12,200,000
96336384	2	**AF2-041 TAP 345.0 kV - ELECT JCT; B 345.0 kV Ckt 1**	**CE_NUN_L15502_4 (898) : ComEd 345kV L15502 SSTE rating is 1837 MVA. The upgrade is to perform sag mitigation on a portion of the line section along with re-conductoring on a different section, upgrade station conductor at both line terminals, replace both line motor operated disconnect witches and line current transformers, upgrade line relay schemes at both terminals as well. A preliminary estimate for the upgrade is $10.5M with a estimated construction timeline of 36 months. Upon completion of the upgrades the ratings will be 1683/2068/2367/2564 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $10,500,000** **Time Estimate : 36.0 Months**	$10,500,000
			Total System Network Upgrade Costs	**$22,700,000**

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Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

11.6 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

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11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
96336456	270678	BYRON ; B	CE	270694	CHERRY VA; B	CE	1	COMED_P4_006-45-BT7-8__	breaker	1441.0	120.13	120.84	DC	22.13

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274656	BYRON ;1U	100.3722	50/50	100.3722
274760	LEE CO EC;1U	4.2638	50/50	4.2638
274761	LEE CO EC;2U	4.2638	50/50	4.2638
274763	LEE CO EC;4U	4.2206	50/50	4.2206
274764	LEE CO EC;5U	4.2746	50/50	4.2746
274765	LEE CO EC;6U	4.2746	50/50	4.2746
274766	LEE CO EC;7U	4.2098	50/50	4.2098
274767	LEE CO EC;8U	4.2098	50/50	4.2098
274859	EASYR;U1 E	25.5645	Adder	30.08
274860	EASYR;U2 E	25.5645	Adder	30.08
276172	Z1-108 BAT	1.7706	Merchant Transmission	1.7706
293516	O-009 E1	8.6909	Adder	10.22
293517	O-009 E2	4.4143	Adder	5.19
293518	O-009 E3	4.8614	Adder	5.72
293715	O-029 E	9.2916	Adder	10.93
293716	O-029 E	5.0944	Adder	5.99
293717	O-029 E	4.6823	Adder	5.51
919581	AA2-030	25.6197	Adder	30.14
920273	AA2-123 BAT	2.9072	Merchant Transmission	2.9072
937531	AD2-214 C	4.6405	Adder	5.46
937532	AD2-214 E	3.0937	Adder	3.64
939051	AE1-134 1	1.9908	Adder	2.34
939061	AE1-134 2	1.9908	Adder	2.34
943401	AF1-011 C	1.1865	Adder	1.4
943402	AF1-011 E	1.9916	Adder	2.34
943411	AF1-012 C	14.3425	Adder	16.87
943412	AF1-012 E	9.5616	Adder	11.25
943803	AF1-048 BAT	7.7961	Merchant Transmission	7.7961
943922	AF1-060 BAT	1.2391	Merchant Transmission	1.2391
946151	AF1-280 C O1	32.2124	Adder	37.9
946152	AF1-280 E O1	14.8130	Adder	17.43
946161	AF1-281 C	0.7054	Adder	0.83
946162	AF1-281 E	3.9972	Adder	4.7
946321	AF1-296 C O1	3.8841	Adder	4.57
946322	AF1-296 E O1	18.1846	Adder	21.39
946531	AF1-317 C O1	2.7319	Adder	3.21
954792	J952 E	4.1796	PJM External (MISO)	4.1796
954901	J963	0.8465	PJM External (MISO)	0.8465
955051	J981 C	2.4139	PJM External (MISO)	2.4139
955052	J981 E	13.0601	PJM External (MISO)	13.0601
955971	J1084	19.5075	PJM External (MISO)	19.5075
956411	J1131	10.5060	PJM External (MISO)	10.5060

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957471	AF2-041 C	8.1390	Adder	18.07
957472	AF2-041 E	5.4260	Adder	12.04
958911	AF2-182	22.4311	Adder	49.79
958921	AF2-183 C	3.9878	Adder	8.85
958922	AF2-183 E	5.9816	Adder	13.28
959081	AF2-199 C	2.7130	Adder	6.02
959082	AF2-199 E	1.8087	Adder	4.01
959091	AF2-200 C	5.4260	Adder	12.04
959092	AF2-200 E	3.6173	Adder	8.03
960551	AF2-346 C	3.2578	Adder	7.23
960552	AF2-346 E	2.1719	Adder	4.82
961011	AF2-392 C O1	2.0347	Adder	4.52
961012	AF2-392 E O1	9.5260	Adder	21.15
961021	AF2-393 O1	3.4682	Adder	7.7
961031	AF2-394 O1	2.3121	Adder	5.13
CBM-W2	CBM-W2	6.9697	Confirmed LTF	6.9697
NY	NY	0.1803	Confirmed LTF	0.1803
TVA	TVA	0.7098	Confirmed LTF	0.7098
O-066	O-066	2.0966	Confirmed LTF	2.0966
CBM-S2	CBM-S2	0.1734	Confirmed LTF	0.1734
CBM-S1	CBM-S1	3.2632	Confirmed LTF	3.2632
G-007	G-007	0.3234	Confirmed LTF	0.3234
MADISON	MADISON	1.1834	Confirmed LTF	1.1834
MEC	MEC	6.4243	Confirmed LTF	6.4243
GIBSON	GIBSON	0.0202	Confirmed LTF	0.0202
BLUEG	BLUEG	0.3160	Confirmed LTF	0.3160
TRIMBLE	TRIMBLE	0.1107	Confirmed LTF	0.1107

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11.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
96336384	957470	AF2-041 TAP	CE	270730	ELECT JCT; B	CE	1	COMED_P4_006-45-BT3-4__	breaker	1656.0	122.1	123.76	DC	27.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274715	NELSON EC;1C	9.9439	50/50	9.9439
274716	NELSON EC;1S	7.2555	50/50	7.2555
274717	NELSON EC;2C	10.0207	50/50	10.0207
274718	NELSON EC;2S	7.3205	50/50	7.3205
274761	LEE CO EC;2U	4.6601	50/50	4.6601
274764	LEE CO EC;5U	4.6719	50/50	4.6719
274765	LEE CO EC;6U	4.6719	50/50	4.6719
274859	EASYR;U1 E	27.9407	Adder	32.87
274860	EASYR;U2 E	27.9407	Adder	32.87
293516	O-009 E1	17.3066	Adder	20.36
293517	O-009 E2	8.7904	Adder	10.34
293518	O-009 E3	9.6806	Adder	11.39
293715	O-029 E	18.5027	Adder	21.77
293716	O-029 E	10.1447	Adder	11.93
293717	O-029 E	9.3241	Adder	10.97
293771	O-035 E	4.9500	Adder	5.82
294401	BSHIL;1U E	8.1063	Adder	9.54
294410	BSHIL;2U E	8.1063	Adder	9.54
919221	AA1-146	9.2762	50/50	9.2762
919581	AA2-030	53.7772	50/50	53.7772
925581	AC1-033 C	1.3277	Adder	1.56
925582	AC1-033 E	8.8887	Adder	10.46
927201	AC1-214 C O1	1.5887	Adder	1.87
927202	AC1-214 E O1	5.0503	Adder	5.94
934051	AD1-031 C O1	2.6967	Adder	3.17
934052	AD1-031 E O1	4.3999	Adder	5.18
937531	AD2-214 C	9.0986	Adder	10.7
937532	AD2-214 E	6.0658	Adder	7.14
938861	AE1-114 C O1	4.1945	Adder	4.93
938862	AE1-114 E O1	14.3108	Adder	16.84
939051	AE1-134 1	4.1789	50/50	4.1789
939061	AE1-134 2	4.1789	50/50	4.1789
943401	AF1-011 C	2.3627	Adder	2.78
943402	AF1-011 E	3.9659	Adder	4.67
943411	AF1-012 C	44.9977	50/50	44.9977
943412	AF1-012 E	29.9985	50/50	29.9985
946151	AF1-280 C O1	46.9156	50/50	46.9156
946152	AF1-280 E O1	21.5743	50/50	21.5743
946161	AF1-281 C	1.0273	50/50	1.0273
946162	AF1-281 E	5.8216	50/50	5.8216
946321	AF1-296 C O1	7.6962	Adder	9.05

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946322	AF1-296 E O1	36.0319	Adder	42.39
946531	AF1-317 C O1	8.5710	50/50	8.5710
950471	J438 C	3.3717	PJM External (MISO)	3.3717
950472	J438 E	13.4869	PJM External (MISO)	13.4869
951381	J504	5.7865	PJM External (MISO)	5.7865
951421	J514	3.4599	PJM External (MISO)	3.4599
951511	J530 C	5.5045	PJM External (MISO)	5.5045
951512	J530 E	22.0180	PJM External (MISO)	22.0180
954091	J873 C	3.3038	PJM External (MISO)	3.3038
954092	J873 E	17.8742	PJM External (MISO)	17.8742
954702	J844 E	14.1620	PJM External (MISO)	14.1620
954792	J952 E	6.7954	PJM External (MISO)	6.7954
954861	J959 C	2.2974	PJM External (MISO)	2.2974
954862	J959 E	12.4296	PJM External (MISO)	12.4296
954901	J963	1.4067	PJM External (MISO)	1.4067
955051	J981 C	3.8638	PJM External (MISO)	3.8638
955052	J981 E	20.9042	PJM External (MISO)	20.9042
955971	J1084	31.5210	PJM External (MISO)	31.5210
956411	J1131	16.9080	PJM External (MISO)	16.9080
956831	J1181 C	3.0077	PJM External (MISO)	3.0077
956832	J1181 E	16.2723	PJM External (MISO)	16.2723
957471	AF2-041 C	107.0010	50/50	107.0010
957472	AF2-041 E	71.3340	50/50	71.3340
957751	AF2-069 C	0.0975	Adder	0.22
957752	AF2-069 E	0.3146	Adder	0.7
957761	AF2-070 C	0.1374	Adder	0.3
957762	AF2-070 E	0.6670	Adder	1.48
958911	AF2-182	61.6410	50/50	61.6410
958921	AF2-183 C	10.9584	50/50	10.9584
958922	AF2-183 E	16.4376	50/50	16.4376
959081	AF2-199 C	35.6670	50/50	35.6670
959082	AF2-199 E	23.7780	50/50	23.7780
959091	AF2-200 C	71.3340	50/50	71.3340
959092	AF2-200 E	47.5560	50/50	47.5560
960551	AF2-346 C	19.2848	50/50	19.2848
960552	AF2-346 E	12.8565	50/50	12.8565
961011	AF2-392 C O1	4.3215	Adder	9.59
961012	AF2-392 E O1	20.2325	Adder	44.91
961021	AF2-393 O1	7.3662	Adder	16.35
961031	AF2-394 O1	4.9108	Adder	10.9
990901	L-005 E	10.9007	Adder	12.82
LGEE	LGEE	0.0434	Confirmed LTF	0.0434
CPLE	CPLE	0.2633	Confirmed LTF	0.2633
CBM-W2	CBM-W2	21.4005	Confirmed LTF	21.4005
NY	NY	0.1637	Confirmed LTF	0.1637
CBM-W1	CBM-W1	45.5989	Confirmed LTF	45.5989
TVA	TVA	2.5326	Confirmed LTF	2.5326
O-066	O-066	1.8077	Confirmed LTF	1.8077
CBM-S2	CBM-S2	3.4911	Confirmed LTF	3.4911
CBM-S1	CBM-S1	12.6692	Confirmed LTF	12.6692
G-007	G-007	0.2787	Confirmed LTF	0.2787
MADISON	MADISON	14.5414	Confirmed LTF	14.5414

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MEC	MEC	18.1019	Confirmed LTF	18.1019
TRIMBLE	TRIMBLE	0.0134	Confirmed LTF	0.0134

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11.7 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA1-146	Nelson	Active
AA2-030	Nelson	Active
AA2-123	Marengo 34kV	In Service
AC1-033	Kewanee	Active
AC1-214	Crescent Ridge	Engineering and Procurement
AD1-031	Kewanee 138 kV	Active
AD2-214	Rock Falls-Garden Plains	Active
AE1-114	Maryland-Lancaster 138 kV	Active
AE1-134	Nelson 345 kV	Active
AF1-011	Schauff Road	Active
AF1-012	Electric Junc-Nelson	Active
AF1-048	Belvidere-Marengo	Active
AF1-060	Lena 138 kV	Active
AF1-280	Nelson-Lee County	Active
AF1-281	Nelson-Lee County	Active
AF1-296	Garden Plain 138 kV	Active
AF1-317	Electric Jct-Nelson	Active
AF2-041	Nelson-Electric Junction 345 kV	Active
AF2-069	Crescent Ridge 138 kV	Active
AF2-070	Crescent Ridge 138 kV	Active
AF2-182	Nelson-Lee County 345 kV II	Active
AF2-183	Nelson-Lee County 345 kV	Active
AF2-199	Nelson-Electric Junction 345 kV	Active
AF2-200	Nelson-Electric Junction 345 kV	Active
AF2-346	Electric Junction-Nelson 345 kV	Active
AF2-392	Nelson-Dixon 138 kV	Active
AF2-393	Nelson-Dixon 138 kV	Active
AF2-394	Nelson-Dixon 138 kV	Active
Z1-108	McHenry 34kV	In Service
J1084	MISO	MISO
J1131	MISO	MISO
J1181	MISO	MISO
J438	MISO	MISO
J504	MISO	MISO
J514	MISO	MISO
J530	MISO	MISO
J844	MISO	MISO
J873	MISO	MISO
J952	MISO	MISO
J959	MISO	MISO
J963	MISO	MISO

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Queue Number	Project Name	Status
J981	MISO	MISO

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11.8 Contingency Descriptions

Contingency Name	Contingency Definition
Base Case	
COMED_P4_006-45-BT3-4__	CONTINGENCY 'COMED_P4_006-45-BT3-4__' TRIP BRANCH FROM BUS 274768 TO BUS 270678 CKT 1 / LEECO;BP 345 BYRON; B 345 REMOVE UNIT 1 FROM BUS 274656 / BYRON;1U 25 END
COMED_P1-2_345-L0627__B-R	CONTINGENCY 'COMED_P1-2_345-L0627__B-R' TRIP BRANCH FROM BUS 274768 TO BUS 270678 CKT 1 / LEECO;BP 345 BYRON; B 345 END
COMED_P4_006-45-BT7-8__	CONTINGENCY 'COMED_P4_006-45-BT7-8__' TRIP BRANCH FROM BUS 270678 TO BUS 930480 CKT 1 / BYRON ; B 345 AB1-089 TAP 345 TRIP BRANCH FROM BUS 270678 TO BUS 270679 CKT 1 / BYRON ; B 345 BYRON ; R 345 END
COMED_P1-2_345-L15502_B-R-B	CONTINGENCY 'COMED_P1-2_345-L15502_B-R-B' TRIP BRANCH FROM BUS 957470 TO BUS 270730 CKT 1 / AF1-012 TAP 345 ELEC JUNC; B 345 END

12 Short Circuit Analysis

The following breakers are overdutied:

None

12.1 System Reinforcements - Short Circuit

None

13 Affected Systems

13.1 MISO

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

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