



**Generation Interconnection
Feasibility Study Report
for
Queue Project AF2-348
NORTH CLARK-SPURLOCK 345 KV
150 MW Capacity / 250 MW Energy**

July 2020

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1 Introduction

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

2 Preface

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

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Madison County, Kentucky. The installed facilities will have a total capability of 250 MW with 150 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is July 01, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-348
Project Name	NORTH CLARK-SPURLOCK 345 KV
State	Kentucky
County	Madison
Transmission Owner	EKPC
MFO	250
MWE	250
MWC	150
Fuel	Solar
Basecase Study Year	2023

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AF2-348 will interconnect with the EKPC transmission system tapping the North Clark to Spurlock 345 kV line.

5 Cost Summary

The AF2-348 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$10,725,000
Total System Network Upgrade Costs	177,223,155
Total Costs	\$187,948,155

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

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

6 Transmission Owner Scope of Work

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

6.1 Attachment Facilities

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

	Total Cost
Install necessary equipment (a 345 kV isolation switch structure and associated switch, plus interconnection metering, fiber-optic connection and telecommunications equipment, circuit breaker and associated switches, and relay panels) at the new South Mason County substation to accept the IC generator lead line/bus (Estimated time to implement is 24 months)	\$920,000
Total Attachment Facility Costs	\$920,000

6.2 Direct Connection Cost Estimate

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

Description	Total Cost
Construct a new 345 kV switching station ("South Mason County") to facilitate connection of the IC solar generation project to the existing Spurlock-North Clark 345 kV line (Estimated time to implement is 24 months)	\$7,450,000
Total Direct Connection Facility Costs	\$7,450,000

6.3 Non-Direct Connection Cost Estimate

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

Description	Total Cost
Construct facilities to loop the existing Spurlock-North Clark 345 kV line into the new South Mason County switching station (Estimated time to implement is 24 months)	\$465,000
Modify relays and/or settings at Spurlock substation for the existing line to the new South Mason County switching station (Estimated time to implement is 9 months)	\$95,000

Description	Total Cost
Modify relays and/or settings at North Clark substation for the existing line to the new South Mason County switching station (Estimated time to implement is 9 months)	\$95,000
Install OPGW on the South Mason County-Spurlock 345 kV line (14.6 miles) (Estimated time to implement is 24 months)	\$1,700,000
Total Non-Direct Connection Facility Costs	\$2,355,000

7 Incremental Capacity Transfer Rights (ICTRs)

Will be determined at a later study phase

8 Interconnection Customer Requirements

It is understood that the Interconnection Customer (IC) is responsible for all costs associated with this interconnection. The costs above are reimbursable to the Transmission Owner. The cost of the IC's generating plant and the costs for the line connecting the generating plant to the Point of Interconnection are not included in this report; these are assumed to be the IC's responsibility.

The Generation Interconnection Agreement does not in or by itself establish a requirement for the Transmission Owner to provide power for consumption at the developer's facilities. A separate agreement may be reached with the local utility that provides service in the area to ensure that infrastructure is in place to meet this demand and proper metering equipment is installed. It is the responsibility of the developer to contact the local service provider to determine if a local service agreement is required.

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.
2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

9 Revenue Metering and SCADA Requirements

9.1 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.

9.2 Meteorological Data Reporting Requirements

Solar generation facilities shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit)
- Irradiance (Watts/meter²)
- Ambient air temperature (Fahrenheit) – (Accepted, not required)
- Wind speed (meters/second) – (Accepted, not required)
- Wind direction (decimal degrees from true north) – (Accepted, not required)

9.3 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:

<http://www.pjm.com/planning/design-engineering/to-tech-standards/>

10 Summer Peak - Load Flow Analysis

The Queue Project AF2-348 was evaluated as a 250.0 MW (Capacity 150.0 MW) injection tapping the North Clark to Spurlock 345 kV line in the EKPC area. Project AF2-348 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-348 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

10.1 Generation Deliverability

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

None

10.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
98895995	249581	08MELDA L	345.0	DEO &K	249577	08ZIMER	345.0	DEO &K	1	EKPC_P2-3_SPUR N39-1474	bus	1509.0	93.24	100.51	DC	111.06
98896173	249581	08MELDA L	345.0	DEO &K	249577	08ZIMER	345.0	DEO &K	1	DAY_P4_L34553-1	breaker	1509.0	93.3	100.51	DC	110.28
98896174	249581	08MELDA L	345.0	DEO &K	249577	08ZIMER	345.0	DEO &K	1	EKPC_P4-2_SPUR N39-1474	breaker	1509.0	93.24	100.51	DC	111.06
98896166	253100	09ATLNTA	345.0	DAY	253110	09ADKINS	345.0	DAY	1	AEP_P4_#6774_05M ARQUI 345_D	breaker	1195.0	99.08	101.53	DC	29.21
101987168	342571	4CRANSTON	138.0	EKPC	342649	4ROWAN CO	138.0	EKPC	1	DAY_P734541 34553	tower	255.0	99.29	101.79	DC	14.19
101987167	342589	4GODDARD	138.0	EKPC	342571	4CRANSTON	138.0	EKPC	1	DAY_P734541 34553	tower	255.0	99.41	101.91	DC	14.19
98896150	342838	7SPURLOCK	345.0	EKPC	249581	08MELDA L	345.0	DEO &K	1	DAY_P4_L34553-1	breaker	1421.0	93.92	101.7	DC	110.43

10.3 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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
95490252	243453	05BEATTY	345.0	AEP	243454	05BIXBY	345.0	AEP	1	AEP_P4_#3196_05BEATTY 345_302E	breaker	120.3.0	127.96	129.0	DC	27.48
95490253	243453	05BEATTY	345.0	AEP	243454	05BIXBY	345.0	AEP	1	AEP_P4_#10715_05COLE 345_C	breaker	120.3.0	126.75	127.75	DC	26.44
95490305	243453	05BEATTY	345.0	AEP	244022	05COLE	345.0	AEP	1	AEP_P4_#8094_05BIXBY 345_C	breaker	120.3.0	112.49	113.35	DC	22.88
95490306	243453	05BEATTY	345.0	AEP	244022	05COLE	345.0	AEP	1	AEP_P4_#3195_05BEATTY 345_304E	breaker	120.3.0	113.15	114.03	DC	23.29
95490341	243454	05BIXBY	345.0	AEP	243459	05KIRK	345.0	AEP	1	AEP_P4_#10715_05COLE 345_C	breaker	140.9.0	105.12	105.93	DC	25.1
95490342	243454	05BIXBY	345.0	AEP	243459	05KIRK	345.0	AEP	1	AEP_P4_#3196_05BEATTY 345_302E	breaker	140.9.0	103.85	104.67	DC	25.65
95922819	246800		138.0	AEP	247034	05EMERSS	138.0	AEP	1	DAY_P734541 34553	tower	185.0	126.85	131.26	DC	18.1
95922783	246946	05WLDCA T	138.0	AEP	243019	05HILLS B	138.0	AEP	1	DAY_P734541 34553	tower	185.0	179.6	184.0	DC	18.1
95922827	247034	05EMERSS	138.0	AEP	246946	05WLDCA T	138.0	AEP	1	DAY_P734541 34553	tower	185.0	125.61	130.02	DC	18.1
100774679	250054	08LONG BR	138.0	DEO &K	250077	08MTZIO N	138.0	DEO &K	1	DAY_P734541 34553	tower	284.0	137.38	146.66	DC	26.32
100774680	250077	08MTZIO N	138.0	DEO &K	249991	08BUFT N1	138.0	DEO &K	1	DAY_P734541 34553	tower	298.0	126.63	135.48	DC	26.32
98896786	253014	09CLINTO	345.0	DAY	253027	09GREENE	345.0	DAY	1	DAY_P734569 34598 34524	tower	137.4.0	100.37	101.18	DC	24.5
98896779	253100	09ATLNTA	345.0	DAY	253110	09ADKINS	345.0	DAY	1	DAY_P7_495	tower	119.5.0	101.23	103.42	DC	26.12

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADING %	POST PROJE CT LOADING %	ACDC	MW IMPACT
95490295	253110	09ADKINS	345.0	DAY	243453	05BEATY	345.0	AEP	1	DAY_P4_L34526-3	breaker	1372.0	114.86	115.7	DC	24.96
95490578	253110	09ADKINS	345.0	DAY	243453	05BEATY	345.0	AEP	1	DAY_P1_AC1-085_ST_FSA-B	single	1372.0	102.53	103.58	DC	14.93
95490963	253110	09ADKINS	345.0	DAY	243453	05BEATY	345.0	AEP	1	DAY_P7_495	tower	1372.0	117.91	118.76	DC	25.49
95490932	324267	4KENTON	138.0	LGEE	246800		138.0	AEP	1	DAY_P734541 34553	tower	185.0	129.88	134.29	DC	18.1
101985738	342541	4AVON	138.0	EKPC	342631	4PARIST	138.0	EKPC	1	EKPC_P2-4_SPUR N39-150T-A	bus	220.0	109.46	122.37	DC	28.42
101985739	342541	4AVON	138.0	EKPC	342631	4PARIST	138.0	EKPC	1	EKPC_P2-3_SPUR N39-1444	bus	220.0	105.33	118.2	DC	28.32
101987124	342541	4AVON	138.0	EKPC	342631	4PARIST	138.0	EKPC	1	EKPC_P7-1_SPUR 345&138-B	tower	220.0	105.07	118.04	DC	28.53
100289058	342544	4AVON-R	138.0	EKPC	324275	4LOUDON AVE	138.0	LGEE	1	DAY_P734541 34553	tower	203.0	124.21	128.15	DC	17.77
98896705	342559	4BOONE CO	138.0	EKPC	250054	08LONGBR	138.0	DEO&K	1	DAY_P734541 34553	tower	284.0	144.74	154.02	DC	26.32
100289005	342661	4SPUR-KENT-R	138.0	EKPC	324267	4KENTON	138.0	LGEE	1	DAY_P734541 34553	tower	281.0	132.46	142.47	DC	28.12
101987093	342664	4SPURLOCK	138.0	EKPC	342661	4SPUR-KENT-R	138.0	EKPC	1	DAY_P734541 34553	tower	291.0	128.01	137.67	DC	28.12
98895933	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-2_C1 SILVER GROVE 345 BUS	bus	1532.0	141.77	149.56	DC	118.52
98896050	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 816_SILVERGROVE	breaker	1532.0	141.96	149.74	DC	118.56
98896051	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 1493_RED BANK	breaker	1532.0	141.84	149.63	DC	118.52
98896267	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	Base Case	single	1240.0	134.11	139.44	DC	65.74
98896268	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	single	1532.0	126.9	131.56	DC	71.11
98896711	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSIL GRVZIMMER	tower	1532.0	141.79	149.57	DC	118.53
98896770	926060	AC1-085 TAP	345.0	DAY	942090	AE2-221 TAP	345.0	DAY	1	DAY_P734569 34598 34524	tower	1374.0	101.98	103.9	DC	26.27
98896142	942090	AE2-221 TAP	345.0	DAY	253014	09CLINTO	345.0	DAY	1	DEOK_P5-5_FOSTER345 BUS1+RELAYFAIL	breaker	1374.0	102.27	104.12	DC	25.29
98896143	942090	AE2-221 TAP	345.0	DAY	253014	09CLINTO	345.0	DAY	1	DEOK_P2-3_C2 1349_FOSTER	breaker	1374.0	101.73	103.58	DC	25.25
98896742	942090	AE2-221 TAP	345.0	DAY	253014	09CLINTO	345.0	DAY	1	DAY_P734569 34598 34524	tower	1374.0	114.17	116.09	DC	26.27
98896743	942090	AE2-221 TAP	345.0	DAY	253014	09CLINTO	345.0	DAY	1	DEOK_P7-1_C5 4524FOSTRSUGRCRK34598FOSTERBATH	tower	1374.0	107.66	108.44	DC	23.74

10.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	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
95490547	243453	05BEATTY	345.0	AEP	243454	05BIXBY	345.0	AEP	1	AEP_P1-2_#10137	operation	1203.0	119.91	120.91	DC	26.44
95490619	243453	05BEATTY	345.0	AEP	244022	05COLE	345.0	AEP	1	AEP_P1-2_#713	operation	1203.0	104.85	105.69	DC	22.13
95490630	243454	05BIXBY	345.0	AEP	243459	05KIRK	345.0	AEP	1	AEP_P1-2_#10137	operation	1409.0	100.15	100.96	DC	25.1
98896426	249581	08MELDA L	345.0	DEO&K	249577	08ZIMER	345.0	DEO&K	1	DAY-P1-STU SPUR	operation	1509.0	93.29	100.5	DC	110.28
95490572	253110	09ADKINS	345.0	DAY	243453	05BEATTY	345.0	AEP	1	DAY_P1_AC1-085_ST_FS A-B	operation	1372.0	114.67	115.5	DC	24.88
95490574	253110	09ADKINS	345.0	DAY	243453	05BEATTY	345.0	AEP	1	Base Case	operation	1233.0	112.24	113.07	DC	22.12
98896264	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	Base Case	operation	1240.0	148.35	157.08	DC	109.56
98896265	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	operation	1532.0	141.74	149.52	DC	118.52
98896412	342838	7SPURLOCK	345.0	EKPC	249581	08MELD AL	345.0	DEO&K	1	DAY-P1-STU SPUR	operation	1421.0	93.91	101.69	DC	110.43
98896408	941510	AE2-148 TAP	345.0	DAY	945630	AF1-228 TAP	345.0	DAY	1	DAY_P1-2_#762	operation	1374.0	103.39	104.12	DC	22.11
98896414	942090	AE2-221 TAP	345.0	DAY	253014	09CLINT O	345.0	DAY	1	DAY_P1-2_#762	operation	1374.0	102.07	102.87	DC	24.2
95490602	945630	AF1-228 TAP	345.0	DAY	243453	05BEATTY	345.0	AEP	1	DAY_P1-2_#762	operation	1374.0	110.99	111.72	DC	22.11

10.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
98896770	23	AC1-085 TAP 345.0 kV - AE2- 221 TAP 345.0 kV Ckt 1	<u>DAY</u> DAYr190050 (970) : Replace 2000A wave traps with 3000A at AC1-085 sub Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months DAYr190051 (971) : Replace AC1-085 riser conductor with 2500AAC (parallel) Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months	\$400,000
95922819	9	138.0 kV - 05EMERSS 138.0 kV Ckt 1	<u>AEP</u> AEPO0039a (494) : A Sag Study will be required on the 4.5 miles of ACSR ~ 477 ~ 26/7 ~ HAWK- Conductor to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between \$18,000 (no remediations required, just sag study) and \$6.75 million (complete line reconductor/rebuild). New rating after sag study: S/N: 185 S/E: 257. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$18,000 Time Estimate : Sag Study : 6 - 12 Months	\$18,000
95922783	10	05WLDCAT 138.0 kV - 05HILLSB 138.0 kV Ckt 1	<u>AEP</u> N5857 (516) : Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK- Conductor Section 1. Estimated cost: \$15 million. Project Type : FAC Cost : \$15,040,000 Time Estimate : 24-36 Months	\$15,040,000
98896786	14	09CLINTO 345.0 kV - 09GREENE 345.0 kV Ckt 1	<u>DAY</u> r190005 (977) : Replace Clinton 2000A wave trap with 3000A Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months r190007 (978) : Replace Greene 2000A wave trap with 3000A Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months	\$200,000

ID	Idx	Facility	Upgrade Description	Cost
101987168	3	4CRANSTON 138.0 kV - 4ROWAN CO 138.0 kV Ckt 1	<u>EKPC</u> r0059 (1432) : Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Cranston-Rowan County 138 kV line section to 275 degrees F (7.5 miles) Project Type : FAC Cost : \$680,000 Time Estimate : 9.0 Months	\$680,000
100774680	13	08MTZION 138.0 kV - 08BUFTN1 138.0 kV Ckt 1	<u>DEOK</u> n6785c (1011) : Rebuild the line, replace switch at Mt. Zion, replace bus conductor at Buffington Project Type : FAC Cost : \$5,472,876 Time Estimate : 30.0 Months	\$5,472,876
98896743,9889 6742,98896143, 98896142	24	AE2-221 TAP 345.0 kV - 09CLINTO 345.0 kV Ckt 1	<u>DAY</u> DAYr190046 (966) : Replace Clinton 2000A wave trap with 3000A Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months DAYr190047 (967) : Reconductor AE2-221 Tap to Clinton line with twin bundle 1351 ACSR Project Type : FAC Cost : \$15,000,000 Time Estimate : 18.0 Months	\$15,100,000

ID	Idx	Facility	Upgrade Description	Cost
98896051,98896050,98896267,98896268,98895933,98896711	22	7SPURLOCK 345.0 kV - 09STUART 345.0 kV Ckt 1	<u>DAY</u> DAYr190039 (959) : Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor Project Type : FAC Cost : \$17,000,000 Time Estimate : 18.0 Months DAYr190040 (960) : Replace Stuart substation riser conductor with 2500AAC (parallel) Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months DAYr190041 (961) : Reconductor Stuart substation conductor with twin bundle 1033 Curlew ACCR conductor Project Type : FAC Cost : \$250,000 Time Estimate : 12.0 Months DAYr20011 (995) : Replace wavetrap on Stuart-Spurlock line Project Type : FAC Cost : \$300,000 Time Estimate : 18.0 Months <u>EKPC</u> r0042 (1415) : Construct a new 345 kV circuit (Id 2) between the EKPC Spurlock and DP&L Stuart substations (circuit length approximately 8.5 miles) Project Type : CON Cost : \$30,000,000 Time Estimate : 48.0 Months	\$47,650,000

ID	Idx	Facility	Upgrade Description	Cost
95490341,95490342	8	05BIXBY 345.0 kV - 05KIRK 345.0 kV Ckt 1	<u>AEP</u> AEPO0038d (489) : Sag Study will be required on 37.9 miles of line between Bixby and Kirk .The cost is expected to be 151,600.New Ratings after sag study : S/N: 1409MVA S/E: 1887 MVA. Rebuild/Reconductor, cost : \$ 75.8 million Project Type : FAC Cost : \$151,600 Time Estimate : Sag Study : 6 - 12 Months AEPO0038e (490) : An engineering study will need to be conducted to determine if the Kirk Compliance Thermal limits 2396 Amps settings can be adjusted to mitigate the overload, Estimated Cost \$25,000. New relay packages will be required if the settings cannot be adjusted. Estimated Cost: \$600,000. Project Type : FAC Cost : \$25,000 Time Estimate : 12-18 Months s1510.1 (532) : PJM solution at Kirk, Install 4-345kV 3,000A CBs & end bus and complete the 345kV breaker and a half configuration. Replace 345/138kV XF with 675 MVA unit. Connect in different 345kV bay and on new 138kV string before removing old unit. SN: 870 SE: 1017) and are necessary. Project Type : FAC Cost : \$0 Time Estimate : Months s1510.2 (533) : PJM solution at Bixby, replace Kirk 345kV line risers and line switch and upgrade relaying. SN: 1409, SE: 1409 Project Type : FAC Cost : \$0 Time Estimate : Months	\$176,600
98896166,98896779	2	09ATLNTA 345.0 kV - 09ADKINS 345.0 kV Ckt 1	<u>DAY</u> r190011 (982) : Replace metering equipment to increase thermal line rating Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months	\$100,000

ID	Idx	Facility	Upgrade Description	Cost
95490295,9549 0963,95490578	15	09ADKINS 345.0 kV - 05BEATTY 345.0 kV Ckt 1	<u>AEP</u> AEPO0004a (398) : Rebuild 13.0 miles of 2-983.1 ACAR 30/7 Rail 5 conductor on Beatty-Adkins circuit (3.7 miles of double circuit construction). Bare minimum conductor is 2-1024.5 ACAR 30/7 Rail1 which provide no additional margin. Upgrade other elements previously rated by DP&L. Ratings validation of this equipment is currently underway. This will require relay upgrades at Beatty and Adkins. Project Type : FAC Cost : \$55,000,000 Time Estimate : 24-36 Months AEPO0004b (399) : Replace equipment at Adkins station formerly owned by DP&L that is now owned by AEP. Further investigation is required to see exactly what equipment is to be replaced and whether it can be simply re-rated according to AEP's standards. Project Type : FAC Cost : \$1,000,000 Time Estimate : 36-48 Months	\$56,000,000

ID	Idx	Facility	Upgrade Description	Cost
98896705	19	4BOONE CO 138.0 kV - 08LONGBR 138.0 kV Ckt 1	<u>EKPC</u> r0052 (1425) : Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 954 MCM ACSS conductor (2.3 miles) Project Type : FAC Cost : \$2,590,000 Time Estimate : 14.0 Months r0010 (1472) : upgrade jumpers associated with Boone 138kV bus using 2-500 MCM 37 CU conductor or equivalent Project Type : FAC Cost : \$20,000 Time Estimate : 6 Months EKPC-r0094a (1492) : Replace the 1200A disconnect switches N15-813 and N15-815 at the Boone County substation with 1600A equipment Project Type : FAC Cost : \$200,000 Time Estimate : 9.0 Months EKPC-r0094b (1493) : Replace the 750 MCM copper substation jumpers at the Boone County substation with bundled 500 MCM copper or equivalent equipment Project Type : FAC Cost : \$15,000 Time Estimate : 9.0 Months EKPC-r0094c (1494) : Replace the 750 MCM copper substation bus and jumpers at the Longbranch substation with bundled 500 MCM copper or equivalent equipment Project Type : FAC Cost : \$190,000 Time Estimate : 9.0 Months EKPC-r0094d (1495) : Change the current transformer setting at Boone County substation associated with circuit breaker N15-814 from 1200A to 1600A. Project Type : FAC Cost : \$0 Time Estimate : 6.0 Months EKPC-r0094e (1496) : Change the Zone 3 relay setting at Boone County substation associated with the line protection to at least 456 MVA LTE rating. Project Type : FAC Cost : \$0 Time Estimate : 6.0 Months EKPC-r0094f (1497) : Upgrade the limiting relay at Boone County substation Project Type : FAC Cost : \$50,000 Time Estimate : 9.0 Months	\$3,065,000

ID	Idx	Facility	Upgrade Description	Cost
100289005	20	4SPUR-KENT-R 138.0 kV - 4KENTON 138.0 kV Ckt 1	<u>EKPC</u> EKPC-r0098 (1511) : Replace the 795 MCM ACSR line conductor in the Spurlock-Kenton 138 kV line with 954 MCM ACSS conductor (4.4 miles) Project Type : FAC Cost : \$5,030,000 Time Estimate : 25.0 Months EKPC-r0098b (1512) : LGEE violation (non PJM area). EKPC emergency rating at 450 MVA The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months <u>LGEE</u> NonPJMArea (1630) : The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$5,030,000
100289058	18	4AVON-R 138.0 kV - 4LOUDON AVE 138.0 kV Ckt 1	<u>EKPC</u> r0020 (1393) : LGEE violation (non PJM area). EKPC emergency rating is 281 MVA. The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months <u>LGEE</u> NonPJMArea (1630) : The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
95922827	11	05EMERSS 138.0 kV - 05WLDCAT 138.0 kV Ckt 1	<u>AEP</u> AEPO0006a (401) : Perform sag study on AEP's portion of Wildcat-Kenton 138kV circuit, , 1.3 miles of 477 ACSR 26/7 Hawk conductor to mitigate the overload. The new ratings after sag study will be: S/N: 185 MVA, S/E 257MVA: MVA, Depending on the sag study results, the cost for this upgrade is expected to be between \$20,000 (no remediation required, just sag study) and \$1.95 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$20,000 Time Estimate : 6-12 Months	\$20,000

ID	Idx	Facility	Upgrade Description	Cost
101987167	4	4GODDARD 138.0 kV - 4CRANSTON 138.0 kV Ckt 1	<u>EKPC</u> r0057 (1430) : Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Goddard-Cranston 138 kV line section to 275 degrees F (12.7 miles) Project Type : FAC Cost : \$1,150,000 Time Estimate : 12.0 Months	\$1,150,000
101987124,101985739,101985738	17	4AVON 138.0 kV - 4PARIS T 138.0 kV Ckt 1	<u>EKPC</u> r0030 (1403) : Increase the maximum operating temperature of the 636 MCM ACSR conductor in the Avon-Paris Tap 138 kV line section to 293 degrees F (6.9 miles) Project Type : FAC Cost : \$625,000 Time Estimate : 8.0 Months	\$625,000
95490932	16	4KENTON 138.0 kV - 138.0 kV Ckt 1	<u>AEP</u> AEPO0040a (495) : A Sag Study will be required on the 24 miles of ACSR ~ 477 ~ 26/7 ~ HAWK- Conductor section 1 to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between \$96,000 (no remediations required, just sag study) and \$36 million (complete line reconductor/rebuild). New rating after sag study: S/N: 185 S/E: 257. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$96,000 Time Estimate : Sag Study : 6 - 12 Months <u>LGEE</u> NonPJMArea (1630) : The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$96,000
98896174,98895995,98896173	1	08MELDAL 345.0 kV - 08ZIMER 345.0 kV Ckt 1	<u>DEOK</u> n34576 (1009) : Rebuild the line Project Type : FAC Cost : \$15,934,149 Time Estimate : 24.0 Months	\$15,934,149

ID	Idx	Facility	Upgrade Description	Cost
95490252,95490253	6	05BEATTY 345.0 kV - 05BIXBY 345.0 kV Ckt 1	<u>AEP</u> AEPO0003a (394) : Upgrade/Replace Three 345kV 1600A switches at Beatty station Project Type : FAC Cost : \$1,500,000 Time Estimate : 12-18 Months AEPO0003b (395) : 1) A sag study will be required on the 9.5 miles of ACSR ~ 954 ~ 45/7 ~ Bundled - Conductor Section 1 to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between \$38,000 (no remediation required, just sag study) and \$19 million (complete line reconductor/rebuild). New rating after sag study: S/N: 1409 S/E: 1887. Time Estimate: a) Sag Study: 6-12 months. b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$38,000 Time Estimate : 12-18 Months AEPO0003c (396) : Upgrade/Replace four 345kV 2000A Bixby switches Project Type : FAC Cost : \$1,500,000 Time Estimate : 12-18 Months	\$3,038,000
95490305,95490306	7	05BEATTY 345.0 kV - 05COLE 345.0 kV Ckt 1	<u>AEP</u> AEPO0001a (389) : Upgrade/Replace 3-345kV 1600A switches at Beatty station Project Type : FAC Cost : \$1,500,000 Time Estimate : 12-18 Months	\$1,500,000
100774679	12	08LONGBR 138.0 kV - 08MTZION 138.0 kV Ckt 1	<u>DEOK</u> n30581 (1002) : Rebuild the line Project Type : FAC Cost : \$3,047,530 Time Estimate : 30.0 Months	\$3,047,530

ID	Idx	Facility	Upgrade Description	Cost
101987093	21	4SPURLOCK 138.0 kV - 4SPUR-KENT-R 138.0 kV Ckt 1	<u>EKPC</u> n6041 (1385) : Replace the 5% 1200A reactor at Spurlock with a 7.5% 1600A reactor Project Type : FAC Cost : \$600,000 Time Estimate : 9.0 Months EKPC-r0100a (1514) : Replace the 1200A wave trap at Spurlock substation with 2000A equipment. Project Type : FAC Cost : \$110,000 Time Estimate : 9.0 Months EKPC-r0100b (1515) : Replace the 1600A series reactors at Spurlock with 2000A reactors Project Type : FAC Cost : \$670,000 Time Estimate : 9.0 Months	\$1,380,000
98896150	5	7SPURLOCK 345.0 kV - 08MELDAL 345.0 kV Ckt 1	<u>EKPC</u> EKPC-r0101 (1516) : Increase the maximum operating temperature of the 954 MCM ACSR conductor in the Spurlock-Mehldahl Dam 345 kV line section to 275 degrees F 3.81 miles) Project Type : FAC Cost : \$1,500,000 Time Estimate : 24.0 Months	\$1,500,000
			TOTAL COST	\$177,223,155

10.6 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".

10.6.1 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
98896174	249581	08MELDAL	DEO&K	249577	08ZIMER	DEO&K	1	EKPC_P4-2_SPUR N39-1474	breaker	1509.0	93.24	100.51	DC	111.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251970	08MELDL1	4.5429	50/50	4.5429
251971	08MELDL2	4.5429	50/50	4.5429
251972	08MELDL3	4.5551	50/50	4.5551
342939	1JKCT 9G	3.2547	50/50	3.2547
342942	1JKCT 10G	3.2547	50/50	3.2547
342957	1SPURLK1G	22.5275	50/50	22.5275
342960	1SPURLK2G	44.8392	50/50	44.8392
342963	1SPURLK3G	23.5625	50/50	23.5625
342966	1SPURLK4G	23.5625	50/50	23.5625
925981	AC1-074 C O1	13.5514	50/50	13.5514
925982	AC1-074 E O1	5.8078	50/50	5.8078
932551	AC2-075 C	3.2185	50/50	3.2185
932552	AC2-075 E	1.6213	50/50	1.6213
936381	AD2-048 C	10.9656	50/50	10.9656
936382	AD2-048 E	5.4711	50/50	5.4711
936571	AD2-072 C O1	6.9837	Adder	8.22
936572	AD2-072 E O1	3.4242	Adder	4.03
939131	AE1-143 C	5.1323	Adder	6.04
939132	AE1-143 E	2.5422	Adder	2.99
939141	AE1-144 C O1	29.5802	50/50	29.5802
939142	AE1-144 E O1	14.6794	50/50	14.6794
940531	AE2-038 C O1	19.7324	50/50	19.7324
940532	AE2-038 E O1	9.7740	50/50	9.7740
941411	AE2-138 C	57.6442	50/50	57.6442
941412	AE2-138 E	21.3204	50/50	21.3204
941981	AE2-210 C O1	19.8626	50/50	19.8626
941982	AE2-210 E O1	7.4713	50/50	7.4713
942411	AE2-254 C O1	3.6248	Adder	4.26
942412	AE2-254 E O1	2.4165	Adder	2.84
942591	AE2-275 C O1	11.9674	Adder	14.08
942592	AE2-275 E O1	4.5015	Adder	5.3
942891	AE2-308 C O1	20.0137	Adder	23.55
942892	AE2-308 E O1	7.2777	Adder	8.56
943111	AE2-339 C	6.6303	50/50	6.6303
943112	AE2-339 E	3.2657	50/50	3.2657
944511	AF1-116 C	5.7559	Adder	6.77
944512	AF1-116 E	3.8372	Adder	4.51
944621	AF1-127 C O1	15.7241	50/50	15.7241
944622	AF1-127 E O1	7.7447	50/50	7.7447
945541	AF1-219 C O1	2.2844	Adder	2.69
945542	AF1-219 E O1	1.0750	Adder	1.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945681	AF1-233 C	56.7777	50/50	56.7777
945682	AF1-233 E	28.0495	50/50	28.0495
945861	AF1-251 C	39.4390	50/50	39.4390
945862	AF1-251 E	26.2926	50/50	26.2926
945911	AF1-256 C	18.2208	50/50	18.2208
945912	AF1-256 E	12.1472	50/50	12.1472
946021	AF1-267 C	6.5944	Adder	7.76
946022	AF1-267 E	3.0299	Adder	3.56
958171	AF2-111 C	68.1060	50/50	68.1060
958172	AF2-111 E	45.4040	50/50	45.4040
959541	AF2-245 C	32.9060	50/50	32.9060
959542	AF2-245 E	21.9373	50/50	21.9373
960151	AF2-306	6.3263	50/50	6.3263
960161	AF2-307 C	9.6355	50/50	9.6355
960162	AF2-307 E	6.4236	50/50	6.4236
960571	AF2-348 C	66.6360	50/50	66.6360
960572	AF2-348 E	44.4240	50/50	44.4240
960641	AF2-355 C O1	13.0338	Adder	28.93
960642	AF2-355 E O1	11.5856	Adder	25.72
961281	AF2-419 C	0.7569	Adder	1.68
961282	AF2-419 E	0.5046	Adder	1.12
961291	AF2-420 C	0.7569	Adder	1.68
961292	AF2-420 E	0.5046	Adder	1.12
LGEE	LGEE	2.8114	Confirmed LTF	2.8114
CPL	CPL	0.7759	Confirmed LTF	0.7759
LGE-0012019	LGE-0012019	7.0279	LTF	7.0279
CBM-W2	CBM-W2	12.7764	Confirmed LTF	12.7764
NY	NY	0.1471	Confirmed LTF	0.1471
TVA	TVA	3.9550	Confirmed LTF	3.9550
O-066	O-066	1.3574	Confirmed LTF	1.3574
CBM-S2	CBM-S2	8.9359	Confirmed LTF	8.9359
CBM-S1	CBM-S1	27.4003	Confirmed LTF	27.4003
G-007	G-007	0.2070	Confirmed LTF	0.2070
MADISON	MADISON	12.6766	Confirmed LTF	12.6766
MEC	MEC	0.8962	Confirmed LTF	0.8962

10.6.2 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
98896779	253100	09ATLNTA	DAY	253110	09ADKINS	DAY	1	DAY_P7_495	tower	1195.0	101.23	103.42	DC	26.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251830	BIOENGRY	0.0862	50/50	0.0862
342957	1SPURLK1G	5.5386	50/50	5.5386
342960	1SPURLK2G	10.2549	50/50	10.2549
342963	1SPURLK3G	5.3888	50/50	5.3888
342966	1SPURLK4G	5.3888	50/50	5.3888
923522	AB1-169 C OP	162.9870	50/50	162.9870
925921	AC1-068 C	18.8380	50/50	18.8380
925922	AC1-068 E	8.8096	50/50	8.8096
925931	AC1-069 C	18.8380	50/50	18.8380
925932	AC1-069 E	8.8096	50/50	8.8096
925981	AC1-074 C O1	3.4148	Adder	4.02
925982	AC1-074 E O1	1.4635	Adder	1.72
926061	AC1-085 C	22.5218	50/50	22.5218
926062	AC1-085 E	36.7462	50/50	36.7462
926791	AC1-165 C	18.6164	50/50	18.6164
926792	AC1-165 E	9.0312	50/50	9.0312
926801	AC1-166 C	18.6164	50/50	18.6164
926802	AC1-166 E	9.0312	50/50	9.0312
930062	AB1-014 E	5.9413	Adder	6.99
932381	AC2-055 C	1.8225	50/50	1.8225
932382	AC2-055 E	2.9736	50/50	2.9736
932421	AC2-060 C	6.4621	50/50	6.4621
932422	AC2-060 E	3.6349	50/50	3.6349
932462	AC2-066 E	3.5648	Adder	4.19
932551	AC2-075 C	0.8110	Adder	0.95
932552	AC2-075 E	0.4086	Adder	0.48
932661	AC2-088 C O1	3.9986	50/50	3.9986
932662	AC2-088 E O1	3.2905	50/50	3.2905
934491	AD1-073 C	1.3328	50/50	1.3328
934492	AD1-073 E	0.6866	50/50	0.6866
935031	AD1-136 C	0.5623	50/50	0.5623
935032	AD1-136 E	0.4790	50/50	0.4790
936251	AD2-031 C O1	1.4579	Adder	1.72
936252	AD2-031 E O1	2.3786	Adder	2.8
936381	AD2-048 C	2.7906	Adder	3.28
936382	AD2-048 E	1.3923	Adder	1.64
938271	AE1-040 C O1	4.1118	50/50	4.1118
938272	AE1-040 E O1	2.0689	50/50	2.0689
938921	AE1-120	3.3731	Adder	3.97
939141	AE1-144 C O1	6.3978	Adder	7.53
939142	AE1-144 E O1	3.1749	Adder	3.74
940531	AE2-038 C O1	4.2678	Adder	5.02
940532	AE2-038 E O1	2.1140	Adder	2.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941411	AE2-138 C	12.6789	Adder	14.92
941412	AE2-138 E	4.6895	Adder	5.52
941981	AE2-210 C O1	4.3688	Adder	5.14
941982	AE2-210 E O1	1.6433	Adder	1.93
942091	AE2-221 C	26.6706	50/50	26.6706
942092	AE2-221 E	17.7804	50/50	17.7804
942981	AE2-320 C O1	37.0666	50/50	37.0666
942982	AE2-320 E O1	18.3394	50/50	18.3394
943111	AE2-339 C	1.5736	Adder	1.85
943112	AE2-339 E	0.7751	Adder	0.91
943191	AE2-319 C O1	37.0666	50/50	37.0666
943192	AE2-319 E O1	18.3394	50/50	18.3394
943201	AE2-318 C	4.3845	Adder	5.16
943202	AE2-318 E	2.1401	Adder	2.52
943771	AF1-045	2.0422	Adder	2.4
943773	AF1-045 E	1.3636	Adder	1.6
944521	AF1-117 C	81.7770	50/50	81.7770
944522	AF1-117 E	25.1910	50/50	25.1910
944621	AF1-127 C O1	3.5008	Adder	4.12
944622	AF1-127 E O1	1.7243	Adder	2.03
944941	AF1-159	0.8440	Adder	0.99
945681	AF1-233 C	12.1994	Adder	14.35
945682	AF1-233 E	6.0268	Adder	7.09
945861	AF1-251 C	8.7247	Adder	10.26
945862	AF1-251 E	5.8164	Adder	6.84
945911	AF1-256 C	3.9095	Adder	4.6
945912	AF1-256 E	2.6063	Adder	3.07
946102	AF1-275 BAT	3.6640	Merchant Transmission	3.6640
946171	AF1-282 C	8.8902	50/50	8.8902
946172	AF1-282 E	5.9268	50/50	5.9268
946181	AF1-283 C	11.5573	50/50	11.5573
946182	AF1-283 E	7.7048	50/50	7.7048
946511	AF1-315 C O1	2.4140	Adder	2.84
946512	AF1-315 E O1	1.6094	Adder	1.89
958171	AF2-111 C	15.9420	50/50	15.9420
958172	AF2-111 E	10.6280	50/50	10.6280
959541	AF2-245 C	8.1608	50/50	8.1608
959542	AF2-245 E	5.4405	50/50	5.4405
960151	AF2-306	0.7830	Adder	1.74
960161	AF2-307 C	1.1926	Adder	2.65
960162	AF2-307 E	0.7951	Adder	1.76
960571	AF2-348 C	15.6705	50/50	15.6705
960572	AF2-348 E	10.4470	50/50	10.4470
961491	AF2-440 C	0.9093	Adder	2.02
961492	AF2-440 E	0.9093	Adder	2.02
WEC	WEC	0.2889	Confirmed LTF	0.2889
LGEE	LGEE	1.9779	Confirmed LTF	1.9779
CPL	CPL	0.3883	Confirmed LTF	0.3883
CBM-W2	CBM-W2	13.5135	Confirmed LTF	13.5135
NY	NY	0.3639	Confirmed LTF	0.3639
CBM-W1	CBM-W1	7.7187	Confirmed LTF	7.7187
TVA	TVA	2.3912	Confirmed LTF	2.3912

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
O-066	O-066	4.1866	Confirmed LTF	4.1866
CBM-S2	CBM-S2	4.8147	Confirmed LTF	4.8147
CBM-S1	CBM-S1	17.3382	Confirmed LTF	17.3382
G-007	G-007	0.6448	Confirmed LTF	0.6448
MEC	MEC	1.8957	Confirmed LTF	1.8957

10.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101987168	342571	4CRANSTON	EKPC	342649	4ROWAN CO	EKPC	1	DAY_P734541 34553	tower	255.0	99.29	101.79	DC	14.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939141	AE1-144 C O1	17.3056	50/50	17.3056
939142	AE1-144 E O1	8.5880	50/50	8.5880
940531	AE2-038 C O1	11.5442	50/50	11.5442
940532	AE2-038 E O1	5.7182	50/50	5.7182
945681	AF1-233 C	33.7299	50/50	33.7299
945682	AF1-233 E	16.6634	50/50	16.6634
945911	AF1-256 C	10.4491	50/50	10.4491
945912	AF1-256 E	6.9661	50/50	6.9661
958171	AF2-111 C	3.9565	Adder	8.78
958172	AF2-111 E	2.6377	Adder	5.86
959541	AF2-245 C	10.3340	50/50	10.3340
959542	AF2-245 E	6.8893	50/50	6.8893
960571	AF2-348 C	3.8349	Adder	8.51
960572	AF2-348 E	2.5566	Adder	5.68
WEC	WEC	0.0258	Confirmed LTF	0.0258
LGEE	LGEE	0.2442	Confirmed LTF	0.2442
CBM-W2	CBM-W2	0.9828	Confirmed LTF	0.9828
NY	NY	0.0520	Confirmed LTF	0.0520
CBM-W1	CBM-W1	0.8132	Confirmed LTF	0.8132
TVA	TVA	0.1344	Confirmed LTF	0.1344
O-066	O-066	0.6451	Confirmed LTF	0.6451
CBM-S1	CBM-S1	1.3376	Confirmed LTF	1.3376
G-007	G-007	0.0998	Confirmed LTF	0.0998
MEC	MEC	0.1510	Confirmed LTF	0.1510
CATAWBA	CATAWBA	0.0175	Confirmed LTF	0.0175

10.6.4 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
101987167	342589	4GODDARD	EKPC	342571	4CRANSTON	EKPC	1	DAY_P734541 34553	tower	255.0	99.41	101.91	DC	14.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939141	AE1-144 C O1	17.3056	50/50	17.3056
939142	AE1-144 E O1	8.5880	50/50	8.5880
940531	AE2-038 C O1	11.5442	50/50	11.5442
940532	AE2-038 E O1	5.7182	50/50	5.7182
945681	AF1-233 C	33.7299	50/50	33.7299
945682	AF1-233 E	16.6634	50/50	16.6634
945911	AF1-256 C	10.4491	50/50	10.4491
945912	AF1-256 E	6.9661	50/50	6.9661
958171	AF2-111 C	3.9565	Adder	8.78
958172	AF2-111 E	2.6377	Adder	5.86
959541	AF2-245 C	10.3340	50/50	10.3340
959542	AF2-245 E	6.8893	50/50	6.8893
960571	AF2-348 C	3.8349	Adder	8.51
960572	AF2-348 E	2.5566	Adder	5.68
WEC	WEC	0.0258	Confirmed LTF	0.0258
LGEE	LGEE	0.2442	Confirmed LTF	0.2442
CBM-W2	CBM-W2	0.9828	Confirmed LTF	0.9828
NY	NY	0.0520	Confirmed LTF	0.0520
CBM-W1	CBM-W1	0.8132	Confirmed LTF	0.8132
TVA	TVA	0.1344	Confirmed LTF	0.1344
O-066	O-066	0.6451	Confirmed LTF	0.6451
CBM-S1	CBM-S1	1.3376	Confirmed LTF	1.3376
G-007	G-007	0.0998	Confirmed LTF	0.0998
MEC	MEC	0.1510	Confirmed LTF	0.1510
CATAWBA	CATAWBA	0.0175	Confirmed LTF	0.0175

10.6.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
98896150	342838	7SPURLOCK	EKPC	249581	08MELDAL	DEO&K	1	DAY_P4_L34553-1	breaker	1421.0	93.92	101.7	DC	110.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342918	1JKCT 1G	4.4184	50/50	4.4184
342921	1JKCT 2G	3.2048	50/50	3.2048
342924	1JKCT 3G	4.4184	50/50	4.4184
342939	1JKCT 9G	3.2527	50/50	3.2527
342942	1JKCT 10G	3.2527	50/50	3.2527
342957	1SPURLK1G	23.2349	50/50	23.2349
342960	1SPURLK2G	44.5392	50/50	44.5392
342963	1SPURLK3G	23.4049	50/50	23.4049
342966	1SPURLK4G	23.4049	50/50	23.4049
925981	AC1-074 C O1	13.7547	50/50	13.7547
925982	AC1-074 E O1	5.8949	50/50	5.8949
926101	AC1-089 C O1 (Suspended)	3.8813	Adder	4.57
926102	AC1-089 E O1 (Suspended)	6.3327	Adder	7.45
932551	AC2-075 C	3.2667	50/50	3.2667
932552	AC2-075 E	1.6457	50/50	1.6457
936381	AD2-048 C	11.1725	50/50	11.1725
936382	AD2-048 E	5.5743	50/50	5.5743
936571	AD2-072 C O1	7.0232	Adder	8.26
936572	AD2-072 E O1	3.4436	Adder	4.05
939131	AE1-143 C	5.1678	Adder	6.08
939132	AE1-143 E	2.5597	Adder	3.01
939141	AE1-144 C O1	30.4543	50/50	30.4543
939142	AE1-144 E O1	15.1133	50/50	15.1133
940531	AE2-038 C O1	20.3156	50/50	20.3156
940532	AE2-038 E O1	10.0628	50/50	10.0628
941411	AE2-138 C	57.5208	50/50	57.5208
941412	AE2-138 E	21.2748	50/50	21.2748
941981	AE2-210 C O1	19.8201	50/50	19.8201
941982	AE2-210 E O1	7.4553	50/50	7.4553
942411	AE2-254 C O1	3.6424	Adder	4.29
942412	AE2-254 E O1	2.4283	Adder	2.86
942591	AE2-275 C O1	12.0024	Adder	14.12
942592	AE2-275 E O1	4.5147	Adder	5.31
942891	AE2-308 C O1	20.0829	Adder	23.63
942892	AE2-308 E O1	7.3029	Adder	8.59
943111	AE2-339 C	6.6464	50/50	6.6464
943112	AE2-339 E	3.2736	50/50	3.2736
943701	AF1-038 C	2.6350	Adder	3.1
943702	AF1-038 E	1.7566	Adder	2.07
944151	AF1-083 C O1	2.3913	Adder	2.81

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944152	AF1-083 E O1	1.5942	Adder	1.88
944511	AF1-116 C	5.7956	Adder	6.82
944512	AF1-116 E	3.8638	Adder	4.55
944621	AF1-127 C O1	15.7010	50/50	15.7010
944622	AF1-127 E O1	7.7334	50/50	7.7334
945541	AF1-219 C O1	2.2969	Adder	2.7
945542	AF1-219 E O1	1.0809	Adder	1.27
945681	AF1-233 C	58.4705	50/50	58.4705
945682	AF1-233 E	28.8858	50/50	28.8858
945861	AF1-251 C	39.3677	50/50	39.3677
945862	AF1-251 E	26.2451	50/50	26.2451
945911	AF1-256 C	18.7651	50/50	18.7651
945912	AF1-256 E	12.5101	50/50	12.5101
946021	AF1-267 C	6.6146	Adder	7.78
946022	AF1-267 E	3.0391	Adder	3.58
958171	AF2-111 C	67.7040	50/50	67.7040
958172	AF2-111 E	45.1360	50/50	45.1360
959541	AF2-245 C	33.9229	50/50	33.9229
959542	AF2-245 E	22.6153	50/50	22.6153
960151	AF2-306	6.4397	50/50	6.4397
960161	AF2-307 C	9.8081	50/50	9.8081
960162	AF2-307 E	6.5388	50/50	6.5388
960571	AF2-348 C	66.2550	50/50	66.2550
960572	AF2-348 E	44.1700	50/50	44.1700
960641	AF2-355 C O1	13.0362	Adder	28.94
960642	AF2-355 E O1	11.5878	Adder	25.72
961281	AF2-419 C	0.7607	Adder	1.69
961282	AF2-419 E	0.5072	Adder	1.13
961291	AF2-420 C	0.7607	Adder	1.69
961292	AF2-420 E	0.5072	Adder	1.13
LGEE	LGEE	2.8519	Confirmed LTF	2.8519
CPL	CPL	0.8176	Confirmed LTF	0.8176
LGE-0012019	LGE-0012019	7.0246	LTF	7.0246
CBM-W2	CBM-W2	13.2596	Confirmed LTF	13.2596
NY	NY	0.1128	Confirmed LTF	0.1128
TVA	TVA	4.0404	Confirmed LTF	4.0404
O-066	O-066	0.9408	Confirmed LTF	0.9408
CBM-S2	CBM-S2	9.3000	Confirmed LTF	9.3000
CBM-S1	CBM-S1	27.9371	Confirmed LTF	27.9371
G-007	G-007	0.1425	Confirmed LTF	0.1425
MADISON	MADISON	12.7391	Confirmed LTF	12.7391
MEC	MEC	0.9868	Confirmed LTF	0.9868

10.6.6 Index 6

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
95490252	243453	05BEATTY	AEP	243454	05BIXBY	AEP	1	AEP_P4_#3196_05BEATTY 345_302E	breaker	1203.0	127.96	129.0	DC	27.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
250164	08BKJDB1	0.1468	Adder	0.17
250165	08BKJDB2	0.1468	Adder	0.17
251827	WILLYESP	0.4708	Adder	0.55
251828	CLNTESP1	0.4765	Adder	0.56
251829	CLNTESP2	0.3177	Adder	0.37
253110	09ADKINS	37.2264	50/50	37.2264
253261	09MON D	0.3207	50/50	0.3207
904722	V4-073 E	0.2007	Adder	0.24
913222	Y1-054 E	1.5349	Adder	1.81
918802	AA1-099 E	0.3177	Adder	0.37
923522	AB1-169 C OP	128.9926	Adder	151.76
925921	AC1-068 C	12.4590	50/50	12.4590
925922	AC1-068 E	5.8264	50/50	5.8264
925931	AC1-069 C	12.4590	50/50	12.4590
925932	AC1-069 E	5.8264	50/50	5.8264
925981	AC1-074 C O1	4.1012	Adder	4.82
925982	AC1-074 E O1	1.7577	Adder	2.07
926011	AC1-078 C O1	7.8983	Adder	9.29
926012	AC1-078 E O1	13.1639	Adder	15.49
926061	AC1-085 C	23.9871	50/50	23.9871
926062	AC1-085 E	39.1369	50/50	39.1369
926101	AC1-089 C O1 (Suspended)	4.2244	Adder	4.97
926102	AC1-089 E O1 (Suspended)	6.8924	Adder	8.11
926791	AC1-165 C	12.3124	50/50	12.3124
926792	AC1-165 E	5.9730	50/50	5.9730
926801	AC1-166 C	12.3124	50/50	12.3124
926802	AC1-166 E	5.9730	50/50	5.9730
927181	AC1-212 C	0.1257	Adder	0.15
927182	AC1-212 E	1.1911	Adder	1.4
930062	AB1-014 E	8.0690	Adder	9.49
932381	AC2-055 C	1.8552	Adder	2.18
932382	AC2-055 E	3.0269	Adder	3.56
932421	AC2-060 C	6.5780	Adder	7.74
932422	AC2-060 E	3.7002	Adder	4.35
932431	AC2-061 C	4.2930	Adder	5.05
932432	AC2-061 E	4.3522	Adder	5.12
932462	AC2-066 E	4.8414	Adder	5.7
932481	AC2-068 C	3.1039	Adder	3.65
932482	AC2-068 E	5.0834	Adder	5.98
932551	AC2-075 C	0.9740	Adder	1.15

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932552	AC2-075 E	0.4907	Adder	0.58
932661	AC2-088 C O1	4.0523	Adder	4.77
932662	AC2-088 E O1	3.3347	Adder	3.92
932841	AC2-111 C O1	2.0610	Adder	2.42
932842	AC2-111 E O1	3.3627	Adder	3.96
934491	AD1-073 C	1.3567	Adder	1.6
934492	AD1-073 E	0.6989	Adder	0.82
934561	AD1-081 C	1.5797	Adder	1.86
934562	AD1-081 E	0.8138	Adder	0.96
935031	AD1-136 C	0.5698	Adder	0.67
935032	AD1-136 E	0.4854	Adder	0.57
935041	AD1-140 C O1	11.5394	Adder	13.58
935042	AD1-140 E O1	9.5399	Adder	11.22
936251	AD2-031 C O1	2.4091	Adder	2.83
936252	AD2-031 E O1	3.9306	Adder	4.62
936381	AD2-048 C	3.3733	Adder	3.97
936382	AD2-048 E	1.6830	Adder	1.98
938051	AE1-007 C	0.8902	Adder	1.05
938052	AE1-007 E	1.4524	Adder	1.71
938271	AE1-040 C O1	4.0663	Adder	4.78
938272	AE1-040 E O1	2.0460	Adder	2.41
938921	AE1-120	4.5811	Adder	5.39
939141	AE1-144 C O1	6.9356	Adder	8.16
939142	AE1-144 E O1	3.4419	Adder	4.05
940531	AE2-038 C O1	4.6266	Adder	5.44
940532	AE2-038 E O1	2.2917	Adder	2.7
941411	AE2-138 C	14.2309	Adder	16.74
941412	AE2-138 E	5.2635	Adder	6.19
941511	AE2-148 C	184.4823	50/50	184.4823
941512	AE2-148 E	83.4419	50/50	83.4419
941941	AE2-206 C O1	2.6832	Adder	3.16
941942	AE2-206 E O1	3.7054	Adder	4.36
941981	AE2-210 C O1	4.9036	Adder	5.77
941982	AE2-210 E O1	1.8445	Adder	2.17
942051	AE2-217 C	9.8153	Adder	11.55
942052	AE2-217 E	6.5435	Adder	7.7
942061	AE2-218 C	10.6318	Adder	12.51
942062	AE2-218 E	7.2216	Adder	8.5
942091	AE2-221 C	30.1338	50/50	30.1338
942092	AE2-221 E	20.0892	50/50	20.0892
942521	AE2-267 C O1	2.7171	Adder	3.2
942522	AE2-267 E O1	1.6795	Adder	1.98
942621	AE2-278 C	6.7957	Adder	7.99
942622	AE2-278 E	4.5330	Adder	5.33
942951	AE2-315	3.0422	Adder	3.58
942981	AE2-320 C O1	24.5148	50/50	24.5148
942982	AE2-320 E O1	12.1292	50/50	12.1292
943111	AE2-339 C	1.8463	Adder	2.17
943112	AE2-339 E	0.9094	Adder	1.07
943191	AE2-319 C O1	24.5148	50/50	24.5148
943192	AE2-319 E O1	12.1292	50/50	12.1292
943201	AE2-318 C	6.6259	Adder	7.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943202	AE2-318 E	3.2341	Adder	3.8
943771	AF1-045	3.0862	Adder	3.63
943773	AF1-045 E	2.0607	Adder	2.42
943943	AF1-062 BAT	20.4820	Merchant Transmission	20.4820
944031	AF1-071 C	0.5152	Adder	0.61
944032	AF1-071 E	0.8407	Adder	0.99
944101	AF1-078 C	1.2197	Adder	1.43
944102	AF1-078 E	1.6843	Adder	1.98
944521	AF1-117 C	52.2383	50/50	52.2383
944522	AF1-117 E	16.0917	50/50	16.0917
944621	AF1-127 C O1	3.9587	Adder	4.66
944622	AF1-127 E O1	1.9498	Adder	2.29
944941	AF1-159	1.3947	Adder	1.64
945561	AF1-221 C O1	9.2959	Adder	10.94
945562	AF1-221 E O1	2.7941	Adder	3.29
945631	AF1-228 C	45.6146	50/50	45.6146
945632	AF1-228 E	30.4098	50/50	30.4098
945681	AF1-233 C	13.1581	Adder	15.48
945682	AF1-233 E	6.5004	Adder	7.65
945841	AF1-249 C	1.2131	Adder	1.43
945842	AF1-249 E	0.4506	Adder	0.53
945861	AF1-251 C	9.8265	Adder	11.56
945862	AF1-251 E	6.5510	Adder	7.71
945911	AF1-256 C	4.2126	Adder	4.96
945912	AF1-256 E	2.8084	Adder	3.3
946171	AF1-282 C	9.4686	50/50	9.4686
946172	AF1-282 E	6.3124	50/50	6.3124
946181	AF1-283 C	12.3092	50/50	12.3092
946182	AF1-283 E	8.2061	50/50	8.2061
946511	AF1-315 C O1	3.5741	Adder	4.2
946512	AF1-315 E O1	2.3827	Adder	2.8
957171	AF2-011 O1	1.3358	Adder	2.97
957181	AF2-012 O1	6.9463	Adder	15.42
957391	AF2-033 C	0.4850	Adder	1.08
957392	AF2-033 E	0.7275	Adder	1.61
957401	AF2-034 C	0.4103	Adder	0.91
957402	AF2-034 E	0.3495	Adder	0.78
957721	AF2-066 C O1	2.7880	Adder	6.19
957722	AF2-066 E O1	1.8587	Adder	4.13
957731	AF2-067 C O1	1.4163	Adder	3.14
957732	AF2-067 E O1	0.9442	Adder	2.1
957851	AF2-079 C O1	5.3769	Adder	11.94
957852	AF2-079 E O1	3.5846	Adder	7.96
958171	AF2-111 C	7.5312	Adder	16.72
958172	AF2-111 E	5.0208	Adder	11.14
958291	AF2-123 C O1	1.0327	Adder	2.29
958292	AF2-123 E O1	1.4237	Adder	3.16
959073	AF2-198 BAT	1.2101	Merchant Transmission	1.2101
959191	AF2-210 C	6.0450	Adder	13.42
959192	AF2-210 E	4.0300	Adder	8.95
959201	AF2-211 C	2.1559	Adder	4.79
959202	AF2-211 E	1.4373	Adder	3.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959211	AF2-212 C O1	3.3470	Adder	7.43
959212	AF2-212 E O1	2.2313	Adder	4.95
959271	AF2-218 C O1	1.5520	Adder	3.45
959272	AF2-218 E O1	1.0350	Adder	2.3
959541	AF2-245 C	3.9144	Adder	8.69
959542	AF2-245 E	2.6096	Adder	5.79
959721	AF2-263 C	2.1867	Adder	4.85
959722	AF2-263 E	1.4578	Adder	3.24
960071	AF2-298 C O1	1.8836	Adder	4.18
960072	AF2-298 E O1	1.2600	Adder	2.8
960151	AF2-306	0.8891	Adder	1.97
960161	AF2-307 C	1.3542	Adder	3.01
960162	AF2-307 E	0.9028	Adder	2.0
960571	AF2-348 C	7.4285	Adder	16.49
960572	AF2-348 E	4.9523	Adder	10.99
961491	AF2-440 C	1.4760	Adder	3.28
961492	AF2-440 E	1.4760	Adder	3.28
WEC	WEC	0.7396	Confirmed LTF	0.7396
LGEE	LGEE	3.2313	Confirmed LTF	3.2313
CPL	CPL	0.2335	Confirmed LTF	0.2335
CBM-W2	CBM-W2	24.2260	Confirmed LTF	24.2260
NY	NY	0.9335	Confirmed LTF	0.9335
CBM-W1	CBM-W1	22.9058	Confirmed LTF	22.9058
TVA	TVA	3.5392	Confirmed LTF	3.5392
O-066	O-066	11.0746	Confirmed LTF	11.0746
CBM-S2	CBM-S2	4.5315	Confirmed LTF	4.5315
CBM-S1	CBM-S1	26.5057	Confirmed LTF	26.5057
G-007	G-007	1.7087	Confirmed LTF	1.7087
MEC	MEC	4.0726	Confirmed LTF	4.0726

10.6.7 Index 7

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
95490306	243453	05BEATTY	AEP	244022	05COL E	AEP	1	AEP_P4_#3195_05BEATTY 345_304E	breaker	1203.0	113.15	114.03	DC	23.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247964	Y1-063 BAT	0.3052	Merchant Transmission	0.3052
250164	08BKJDB1	0.1226	Adder	0.14
250165	08BKJDB2	0.1226	Adder	0.14
251827	WILLYESP	0.3878	Adder	0.46
251828	CLNTESP1	0.4057	Adder	0.48
251829	CLNTESP2	0.2704	Adder	0.32
253110	09ADKINS	31.2953	50/50	31.2953
253261	09MON D	0.2539	50/50	0.2539
904722	V4-073 E	0.1614	Adder	0.19
913222	Y1-054 E	1.2706	Adder	1.49
918802	AA1-099 E	0.2704	Adder	0.32
923522	AB1-169 C OP	110.0869	Adder	129.51
925921	AC1-068 C	10.4948	50/50	10.4948
925922	AC1-068 E	4.9079	50/50	4.9079
925931	AC1-069 C	10.4948	50/50	10.4948
925932	AC1-069 E	4.9079	50/50	4.9079
925981	AC1-074 C O1	3.4524	Adder	4.06
925982	AC1-074 E O1	1.4796	Adder	1.74
926011	AC1-078 C O1	4.7724	Adder	5.61
926012	AC1-078 E O1	7.9540	Adder	9.36
926061	AC1-085 C	20.0503	50/50	20.0503
926062	AC1-085 E	32.7137	50/50	32.7137
926101	AC1-089 C O1 (Suspended)	3.6749	Adder	4.32
926102	AC1-089 E O1 (Suspended)	5.9959	Adder	7.05
926791	AC1-165 C	10.3713	50/50	10.3713
926792	AC1-165 E	5.0313	50/50	5.0313
926801	AC1-166 C	10.3713	50/50	10.3713
926802	AC1-166 E	5.0313	50/50	5.0313
930062	AB1-014 E	6.7785	Adder	7.97
932381	AC2-055 C	1.7406	Adder	2.05
932382	AC2-055 E	2.8399	Adder	3.34
932421	AC2-060 C	6.1717	Adder	7.26
932422	AC2-060 E	3.4716	Adder	4.08
932431	AC2-061 C	3.7370	Adder	4.4
932432	AC2-061 E	3.7884	Adder	4.46
932462	AC2-066 E	4.0671	Adder	4.78
932481	AC2-068 C	2.4618	Adder	2.9
932482	AC2-068 E	4.0317	Adder	4.74
932551	AC2-075 C	0.8200	Adder	0.96
932552	AC2-075 E	0.4131	Adder	0.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932661	AC2-088 C O1	3.4275	Adder	4.03
932662	AC2-088 E O1	2.8206	Adder	3.32
932841	AC2-111 C O1	1.6279	Adder	1.92
932842	AC2-111 E O1	2.6561	Adder	3.12
934491	AD1-073 C	1.2729	Adder	1.5
934492	AD1-073 E	0.6557	Adder	0.77
934561	AD1-081 C	0.9545	Adder	1.12
934562	AD1-081 E	0.4917	Adder	0.58
935031	AD1-136 C	0.4820	Adder	0.57
935032	AD1-136 E	0.4106	Adder	0.48
935041	AD1-140 C O1	8.4174	Adder	9.9
935042	AD1-140 E O1	6.9589	Adder	8.19
936251	AD2-031 C O1	2.3927	50/50	2.3927
936252	AD2-031 E O1	3.9038	50/50	3.9038
936381	AD2-048 C	2.8441	Adder	3.35
936382	AD2-048 E	1.4190	Adder	1.67
938051	AE1-007 C	0.7060	Adder	0.83
938052	AE1-007 E	1.1519	Adder	1.36
938271	AE1-040 C O1	4.3159	50/50	4.3159
938272	AE1-040 E O1	2.1716	50/50	2.1716
938921	AE1-120	3.8485	Adder	4.53
939141	AE1-144 C O1	5.8953	Adder	6.94
939142	AE1-144 E O1	2.9256	Adder	3.44
940531	AE2-038 C O1	3.9327	Adder	4.63
940532	AE2-038 E O1	1.9480	Adder	2.29
941411	AE2-138 C	12.0013	Adder	14.12
941412	AE2-138 E	4.4389	Adder	5.22
941511	AE2-148 C	154.5298	50/50	154.5298
941512	AE2-148 E	69.8943	50/50	69.8943
941981	AE2-210 C O1	4.1353	Adder	4.87
941982	AE2-210 E O1	1.5555	Adder	1.83
942061	AE2-218 C	8.0099	Adder	9.42
942062	AE2-218 E	5.4407	Adder	6.4
942091	AE2-221 C	24.9786	50/50	24.9786
942092	AE2-221 E	16.6524	50/50	16.6524
942521	AE2-267 C O1	2.2359	Adder	2.63
942522	AE2-267 E O1	1.3821	Adder	1.63
942951	AE2-315	2.4471	Adder	2.88
942981	AE2-320 C O1	20.6500	50/50	20.6500
942982	AE2-320 E O1	10.2170	50/50	10.2170
943111	AE2-339 C	1.5527	Adder	1.83
943112	AE2-339 E	0.7648	Adder	0.9
943191	AE2-319 C O1	20.6500	50/50	20.6500
943192	AE2-319 E O1	10.2170	50/50	10.2170
943201	AE2-318 C	5.5475	Adder	6.53
943202	AE2-318 E	2.7077	Adder	3.19
943771	AF1-045	2.5839	Adder	3.04
943773	AF1-045 E	1.7253	Adder	2.03
944031	AF1-071 C	0.4070	Adder	0.48
944032	AF1-071 E	0.6640	Adder	0.78
944521	AF1-117 C	44.0077	50/50	44.0077
944522	AF1-117 E	13.5563	50/50	13.5563

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944621	AF1-127 C O1	3.3373	Adder	3.93
944622	AF1-127 E O1	1.6437	Adder	1.93
944941	AF1-159	1.3852	50/50	1.3852
945631	AF1-228 C	38.2453	50/50	38.2453
945632	AF1-228 E	25.4969	50/50	25.4969
945681	AF1-233 C	11.1855	Adder	13.16
945682	AF1-233 E	5.5259	Adder	6.5
945841	AF1-249 C	1.0038	Adder	1.18
945842	AF1-249 E	0.3728	Adder	0.44
945861	AF1-251 C	8.2860	Adder	9.75
945862	AF1-251 E	5.5240	Adder	6.5
945911	AF1-256 C	3.5810	Adder	4.21
945912	AF1-256 E	2.3873	Adder	2.81
946102	AF1-275 BAT	18.6570	50/50	18.6570
946171	AF1-282 C	7.9146	50/50	7.9146
946172	AF1-282 E	5.2764	50/50	5.2764
946181	AF1-283 C	10.2890	50/50	10.2890
946182	AF1-283 E	6.8593	50/50	6.8593
946511	AF1-315 C O1	2.9945	Adder	3.52
946512	AF1-315 E O1	1.9963	Adder	2.35
957171	AF2-011 O1	1.0647	Adder	2.36
957181	AF2-012 O1	5.5365	Adder	12.29
957391	AF2-033 C	0.3768	Adder	0.84
957392	AF2-033 E	0.5651	Adder	1.25
957401	AF2-034 C	0.3359	Adder	0.75
957402	AF2-034 E	0.2861	Adder	0.64
957721	AF2-066 C O1	2.1771	Adder	4.83
957722	AF2-066 E O1	1.4514	Adder	3.22
957731	AF2-067 C O1	1.1092	Adder	2.46
957732	AF2-067 E O1	0.7395	Adder	1.64
957851	AF2-079 C O1	4.1272	Adder	9.16
957852	AF2-079 E O1	2.7515	Adder	6.11
958171	AF2-111 C	6.3852	Adder	14.17
958172	AF2-111 E	4.2568	Adder	9.45
959191	AF2-210 C	4.9887	Adder	11.07
959192	AF2-210 E	3.3258	Adder	7.38
959201	AF2-211 C	1.7029	Adder	3.78
959202	AF2-211 E	1.1353	Adder	2.52
959271	AF2-218 C O1	1.1765	Adder	2.61
959272	AF2-218 E O1	0.7846	Adder	1.74
959541	AF2-245 C	3.3243	Adder	7.38
959542	AF2-245 E	2.2162	Adder	4.92
960071	AF2-298 C O1	1.4929	Adder	3.31
960072	AF2-298 E O1	0.9986	Adder	2.22
960151	AF2-306	0.7563	Adder	1.68
960161	AF2-307 C	1.1519	Adder	2.56
960162	AF2-307 E	0.7679	Adder	1.7
960571	AF2-348 C	6.2960	Adder	13.98
960572	AF2-348 E	4.1973	Adder	9.32
961491	AF2-440 C	1.2678	Adder	2.81
961492	AF2-440 E	1.2678	Adder	2.81
WEC	WEC	0.4237	Confirmed LTF	0.4237

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LGEE	LGEE	2.6306	Confirmed LTF	2.6306
CPL	CPL	0.2739	Confirmed LTF	0.2739
CBM-W2	CBM-W2	18.1490	Confirmed LTF	18.1490
NY	NY	0.6890	Confirmed LTF	0.6890
CBM-W1	CBM-W1	11.8845	Confirmed LTF	11.8845
TVA	TVA	2.8350	Confirmed LTF	2.8350
O-066	O-066	8.1514	Confirmed LTF	8.1514
CBM-S2	CBM-S2	4.3350	Confirmed LTF	4.3350
CBM-S1	CBM-S1	21.3426	Confirmed LTF	21.3426
G-007	G-007	1.2574	Confirmed LTF	1.2574
MEC	MEC	2.6457	Confirmed LTF	2.6457

10.6.8 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
95490341	243454	05BIXBY	AEP	243459	05KIRK	AEP	1	AEP_P4_#10715_05COLE 345_C	breaker	1409.0	105.12	105.93	DC	25.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
250164	08BKJDB1	0.1380	Adder	0.16
250165	08BKJDB2	0.1380	Adder	0.16
251827	WILLYESP	0.4202	Adder	0.49
251828	CLNTESP1	0.4828	Adder	0.57
251829	CLNTESP2	0.3219	Adder	0.38
253110	09ADKINS	25.0515	50/50	25.0515
904722	V4-073 E	0.1537	Adder	0.18
913222	Y1-054 E	1.3952	Adder	1.64
918802	AA1-099 E	0.3219	Adder	0.38
923522	AB1-169 C OP	136.4660	50/50	136.4660
924351	AB2-083 C O1	4.9493	50/50	4.9493
924352	AB2-083 E O1	2.3291	50/50	2.3291
924371	AB2-085 C O1	5.1460	Adder	6.05
924372	AB2-085 E O1	2.4217	Adder	2.85
925341	AC1-001 C O1	9.8986	50/50	9.8986
925342	AC1-001 E O1	4.6582	50/50	4.6582
925921	AC1-068 C	8.7577	50/50	8.7577
925922	AC1-068 E	4.0955	50/50	4.0955
925931	AC1-069 C	8.7577	50/50	8.7577
925932	AC1-069 E	4.0955	50/50	4.0955
925981	AC1-074 C O1	3.8566	Adder	4.54
925982	AC1-074 E O1	1.6528	Adder	1.94
926011	AC1-078 C O1	8.9239	50/50	8.9239
926012	AC1-078 E O1	14.8731	50/50	14.8731
926061	AC1-085 C	19.7934	50/50	19.7934
926062	AC1-085 E	32.2946	50/50	32.2946
926101	AC1-089 C O1 (Suspended)	4.6609	Adder	5.48
926102	AC1-089 E O1 (Suspended)	7.6046	Adder	8.95
926791	AC1-165 C	8.6547	50/50	8.6547
926792	AC1-165 E	4.1986	50/50	4.1986
926801	AC1-166 C	8.6547	50/50	8.6547
926802	AC1-166 E	4.1986	50/50	4.1986
927061	AC1-194 C O1	2.8836	Adder	3.39
927062	AC1-194 E O1	4.7048	Adder	5.54
930062	AB1-014 E	7.1198	Adder	8.38
932201	AC2-029 C	5.2453	50/50	5.2453
932202	AC2-029 E	8.5580	50/50	8.5580
932381	AC2-055 C	3.1634	50/50	3.1634
932382	AC2-055 E	5.1614	50/50	5.1614
932411	AC2-059 C	13.4469	50/50	13.4469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932412	AC2-059 E	13.8772	50/50	13.8772
932421	AC2-060 C	11.2166	50/50	11.2166
932422	AC2-060 E	6.3094	50/50	6.3094
932431	AC2-061 C	4.7948	Adder	5.64
932432	AC2-061 E	4.8608	Adder	5.72
932462	AC2-066 E	4.2719	Adder	5.03
932481	AC2-068 C	2.3694	Adder	2.79
932482	AC2-068 E	3.8805	Adder	4.57
932551	AC2-075 C	0.9159	Adder	1.08
932552	AC2-075 E	0.4614	Adder	0.54
932661	AC2-088 C O1	3.6488	Adder	4.29
932662	AC2-088 E O1	3.0027	Adder	3.53
934481	AD1-072 C	2.9540	50/50	2.9540
934482	AD1-072 E	1.3490	50/50	1.3490
934491	AD1-073 C	2.3134	50/50	2.3134
934492	AD1-073 E	1.1918	50/50	1.1918
934561	AD1-081 C	1.7848	50/50	1.7848
934562	AD1-081 E	0.9194	50/50	0.9194
935031	AD1-136 C	0.5131	Adder	0.6
935032	AD1-136 E	0.4371	Adder	0.51
935041	AD1-140 C O1	8.4695	Adder	9.96
935042	AD1-140 E O1	7.0020	Adder	8.24
936111	AD2-016 C	13.4469	50/50	13.4469
936112	AD2-016 E	13.8772	50/50	13.8772
936251	AD2-031 C O1	2.5401	50/50	2.5401
936252	AD2-031 E O1	4.1444	50/50	4.1444
936381	AD2-048 C	3.2002	Adder	3.76
936382	AD2-048 E	1.5967	Adder	1.88
937231	AD2-162 C	15.4728	50/50	15.4728
937232	AD2-162 E	7.5865	50/50	7.5865
938051	AE1-007 C	0.6795	Adder	0.8
938052	AE1-007 E	1.1087	Adder	1.3
938271	AE1-040 C O1	5.7108	50/50	5.7108
938272	AE1-040 E O1	2.8734	50/50	2.8734
938711	AE1-093	2.5497	Adder	3.0
938921	AE1-120	4.0422	Adder	4.76
939141	AE1-144 C O1	6.4823	Adder	7.63
939142	AE1-144 E O1	3.2169	Adder	3.78
940531	AE2-038 C O1	4.3242	Adder	5.09
940532	AE2-038 E O1	2.1419	Adder	2.52
941411	AE2-138 C	13.2984	Adder	15.65
941412	AE2-138 E	4.9186	Adder	5.79
941511	AE2-148 C	122.0585	50/50	122.0585
941512	AE2-148 E	55.2074	50/50	55.2074
941521	AE2-149 C	100.8098	50/50	100.8098
941522	AE2-149 E	37.5702	50/50	37.5702
941981	AE2-210 C O1	4.5823	Adder	5.39
941982	AE2-210 E O1	1.7236	Adder	2.03
942021	AE2-214 C	42.0312	50/50	42.0312
942022	AE2-214 E	28.0208	50/50	28.0208
942051	AE2-217 C	7.9747	Adder	9.38
942052	AE2-217 E	5.3164	Adder	6.25

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942061	AE2-218 C	7.7117	Adder	9.07
942062	AE2-218 E	5.2381	Adder	6.16
942091	AE2-221 C	23.9778	50/50	23.9778
942092	AE2-221 E	15.9852	50/50	15.9852
942521	AE2-267 C O1	2.3552	Adder	2.77
942522	AE2-267 E O1	1.4558	Adder	1.71
942831	AE2-302 C O1	2.7532	Adder	3.24
942832	AE2-302 E O1	1.8355	Adder	2.16
942951	AE2-315	2.3299	Adder	2.74
942981	AE2-320 C O1	17.2321	50/50	17.2321
942982	AE2-320 E O1	8.5259	50/50	8.5259
943111	AE2-339 C	1.7436	Adder	2.05
943112	AE2-339 E	0.8588	Adder	1.01
943191	AE2-319 C O1	17.2321	50/50	17.2321
943192	AE2-319 E O1	8.5259	50/50	8.5259
943201	AE2-318 C	5.8708	Adder	6.91
943202	AE2-318 E	2.8655	Adder	3.37
943771	AF1-045	2.7345	Adder	3.22
943773	AF1-045 E	1.8259	Adder	2.15
943943	AF1-062 BAT	42.9460	50/50	42.9460
944521	AF1-117 C	36.7786	50/50	36.7786
944522	AF1-117 E	11.3294	50/50	11.3294
944621	AF1-127 C O1	3.7063	Adder	4.36
944622	AF1-127 E O1	1.8255	Adder	2.15
944941	AF1-159	1.4706	50/50	1.4706
945631	AF1-228 C	30.0530	50/50	30.0530
945632	AF1-228 E	20.0353	50/50	20.0353
945681	AF1-233 C	12.2749	Adder	14.44
945682	AF1-233 E	6.0641	Adder	7.13
945841	AF1-249 C	1.0766	Adder	1.27
945842	AF1-249 E	0.3999	Adder	0.47
945861	AF1-251 C	9.1914	Adder	10.81
945862	AF1-251 E	6.1276	Adder	7.21
945911	AF1-256 C	3.9266	Adder	4.62
945912	AF1-256 E	2.6177	Adder	3.08
946101	AF1-275	17.5130	50/50	17.5130
946171	AF1-282 C	7.8132	50/50	7.8132
946172	AF1-282 E	5.2088	50/50	5.2088
946181	AF1-283 C	10.1572	50/50	10.1572
946182	AF1-283 E	6.7714	50/50	6.7714
946511	AF1-315 C O1	3.1683	Adder	3.73
946512	AF1-315 E O1	2.1122	Adder	2.48
957171	AF2-011 O1	1.0125	Adder	2.25
957181	AF2-012 O1	5.2648	Adder	11.69
957391	AF2-033 C	0.3574	Adder	0.79
957392	AF2-033 E	0.5362	Adder	1.19
957401	AF2-034 C	0.3690	Adder	0.82
957402	AF2-034 E	0.3143	Adder	0.7
957721	AF2-066 C O1	2.0962	Adder	4.65
957722	AF2-066 E O1	1.3975	Adder	3.1
957731	AF2-067 C O1	1.0671	Adder	2.37
957732	AF2-067 E O1	0.7114	Adder	1.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957851	AF2-079 C O1	3.9752	Adder	8.82
957852	AF2-079 E O1	2.6501	Adder	5.88
958171	AF2-111 C	6.8710	Adder	15.25
958172	AF2-111 E	4.5807	Adder	10.17
958291	AF2-123 C O1	0.8921	Adder	1.98
958292	AF2-123 E O1	1.2299	Adder	2.73
959073	AF2-198 BAT	3.6062	50/50	3.6062
959191	AF2-210 C	5.1730	Adder	11.48
959192	AF2-210 E	3.4487	Adder	7.66
959271	AF2-218 C O1	1.1393	Adder	2.53
959272	AF2-218 E O1	0.7598	Adder	1.69
959541	AF2-245 C	3.6058	Adder	8.0
959542	AF2-245 E	2.4039	Adder	5.34
960071	AF2-298 C O1	1.4312	Adder	3.18
960072	AF2-298 E O1	0.9573	Adder	2.12
960151	AF2-306	0.8696	Adder	1.93
960161	AF2-307 C	1.3244	Adder	2.94
960162	AF2-307 E	0.8830	Adder	1.96
960571	AF2-348 C	6.7859	Adder	15.06
960572	AF2-348 E	4.5239	Adder	10.04
960801	AF2-371 C	7.9360	50/50	7.9360
960802	AF2-371 E	5.2907	50/50	5.2907
961491	AF2-440 C	3.2527	50/50	3.2527
961492	AF2-440 E	3.2527	50/50	3.2527
WEC	WEC	0.5960	Confirmed LTF	0.5960
LGEE	LGEE	3.1440	Confirmed LTF	3.1440
CPL	CPL	0.6522	Confirmed LTF	0.6522
CBM-W2	CBM-W2	24.2588	Confirmed LTF	24.2588
NY	NY	0.8820	Confirmed LTF	0.8820
CBM-W1	CBM-W1	19.8158	Confirmed LTF	19.8158
TVA	TVA	3.9802	Confirmed LTF	3.9802
O-066	O-066	10.4563	Confirmed LTF	10.4563
CBM-S2	CBM-S2	8.3059	Confirmed LTF	8.3059
CBM-S1	CBM-S1	28.4483	Confirmed LTF	28.4483
G-007	G-007	1.6110	Confirmed LTF	1.6110
MEC	MEC	3.6452	Confirmed LTF	3.6452

10.6.9 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
95922819	246800		AEP	247034	05EMERSS	AEP	1	DAY_P734541 34553	tower	185.0	126.85	131.26	DC	18.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1511	Adder	1.35
943112	AE2-339 E	0.5669	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7219	Adder	13.79
945682	AF1-233 E	5.7909	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7320	Adder	4.39
945912	AF1-256 E	2.4880	Adder	2.93
958171	AF2-111 C	4.9735	Adder	11.04
958172	AF2-111 E	3.3157	Adder	7.36
959541	AF2-245 C	3.2133	Adder	7.13
959542	AF2-245 E	2.1422	Adder	4.76
960151	AF2-306	0.7520	Adder	1.67
960161	AF2-307 C	1.1453	Adder	2.54
960162	AF2-307 E	0.7635	Adder	1.69
960571	AF2-348 C	4.8924	Adder	10.86
960572	AF2-348 E	3.2616	Adder	7.24
WEC	WEC	0.0627	Confirmed LTF	0.0627
LGEE	LGEE	0.9242	Confirmed LTF	0.9242
CPL	CPL	0.1402	Confirmed LTF	0.1402
CBM-W2	CBM-W2	4.5045	Confirmed LTF	4.5045
NY	NY	0.0769	Confirmed LTF	0.0769
CBM-W1	CBM-W1	1.7639	Confirmed LTF	1.7639
TVA	TVA	1.0150	Confirmed LTF	1.0150

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
O-066	O-066	0.8669	Confirmed LTF	0.8669
CBM-S2	CBM-S2	1.8091	Confirmed LTF	1.8091
CBM-S1	CBM-S1	7.5913	Confirmed LTF	7.5913
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5291	Confirmed LTF	0.5291

10.6.10 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
95922783	246946	05WLDCAT	AEP	243019	05HILLSB	AEP	1	DAY_P734541 34553	tower	185.0	179.6	184.0	DC	18.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
926101	AC1-089 C O1 (Suspended)	40.2722	50/50	40.2722
926102	AC1-089 E O1 (Suspended)	65.7073	50/50	65.7073
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1511	Adder	1.35
943112	AE2-339 E	0.5669	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7219	Adder	13.79
945682	AF1-233 E	5.7909	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7320	Adder	4.39
945912	AF1-256 E	2.4880	Adder	2.93
958171	AF2-111 C	4.9735	Adder	11.04
958172	AF2-111 E	3.3157	Adder	7.36
959541	AF2-245 C	3.2133	Adder	7.13
959542	AF2-245 E	2.1422	Adder	4.76
960151	AF2-306	0.7520	Adder	1.67
960161	AF2-307 C	1.1453	Adder	2.54
960162	AF2-307 E	0.7635	Adder	1.69
960571	AF2-348 C	4.8924	Adder	10.86
960572	AF2-348 E	3.2616	Adder	7.24
WEC	WEC	0.0627	Confirmed LTF	0.0627
LGEE	LGEE	0.9242	Confirmed LTF	0.9242
CPL	CPL	0.1402	Confirmed LTF	0.1402

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-W2	CBM-W2	4.5045	Confirmed LTF	4.5045
NY	NY	0.0769	Confirmed LTF	0.0769
CBM-W1	CBM-W1	1.7639	Confirmed LTF	1.7639
TVA	TVA	1.0150	Confirmed LTF	1.0150
O-066	O-066	0.8669	Confirmed LTF	0.8669
CBM-S2	CBM-S2	1.8091	Confirmed LTF	1.8091
CBM-S1	CBM-S1	7.5913	Confirmed LTF	7.5913
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5291	Confirmed LTF	0.5291

10.6.11 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
95922827	247034	05EMERSS	AEP	246946	05WLDCAT	AEP	1	DAY_P734541 34553	tower	185.0	125.61	130.02	DC	18.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1511	Adder	1.35
943112	AE2-339 E	0.5669	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7219	Adder	13.79
945682	AF1-233 E	5.7909	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7320	Adder	4.39
945912	AF1-256 E	2.4880	Adder	2.93
958171	AF2-111 C	4.9735	Adder	11.04
958172	AF2-111 E	3.3157	Adder	7.36
959541	AF2-245 C	3.2133	Adder	7.13
959542	AF2-245 E	2.1422	Adder	4.76
960151	AF2-306	0.7520	Adder	1.67
960161	AF2-307 C	1.1453	Adder	2.54
960162	AF2-307 E	0.7635	Adder	1.69
960571	AF2-348 C	4.8924	Adder	10.86
960572	AF2-348 E	3.2616	Adder	7.24
WEC	WEC	0.0627	Confirmed LTF	0.0627
LGEE	LGEE	0.9242	Confirmed LTF	0.9242
CPL	CPL	0.1402	Confirmed LTF	0.1402
CBM-W2	CBM-W2	4.5045	Confirmed LTF	4.5045
NY	NY	0.0769	Confirmed LTF	0.0769
CBM-W1	CBM-W1	1.7639	Confirmed LTF	1.7639
TVA	TVA	1.0150	Confirmed LTF	1.0150

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
O-066	O-066	0.8669	Confirmed LTF	0.8669
CBM-S2	CBM-S2	1.8091	Confirmed LTF	1.8091
CBM-S1	CBM-S1	7.5913	Confirmed LTF	7.5913
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5291	Confirmed LTF	0.5291

10.6.12 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
100774679	250054	08LONGBR	DEO&K	250077	08MTZION	DEO&K	1	DAY_P734541 34553	tower	284.0	137.38	146.66	DC	26.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	6.3712	50/50	6.3712
342960	1SPURLK2G	10.0059	50/50	10.0059
342963	1SPURLK3G	5.2580	50/50	5.2580
342966	1SPURLK4G	5.2580	50/50	5.2580
925981	AC1-074 C O1	9.2590	50/50	9.2590
925982	AC1-074 E O1	3.9682	50/50	3.9682
932551	AC2-075 C	2.1990	50/50	2.1990
932552	AC2-075 E	1.1078	50/50	1.1078
936381	AD2-048 C	6.0757	50/50	6.0757
936382	AD2-048 E	3.0313	50/50	3.0313
936571	AD2-072 C O1	2.9492	Adder	3.47
936572	AD2-072 E O1	1.4460	Adder	1.7
939141	AE1-144 C O1	8.7939	50/50	8.7939
939142	AE1-144 E O1	4.3641	50/50	4.3641
940531	AE2-038 C O1	5.8663	50/50	5.8663
940532	AE2-038 E O1	2.9057	50/50	2.9057
941411	AE2-138 C	14.2422	Adder	16.76
941412	AE2-138 E	5.2677	Adder	6.2
941981	AE2-210 C O1	4.9075	Adder	5.77
941982	AE2-210 E O1	1.8459	Adder	2.17
942411	AE2-254 C O1	1.4107	Adder	1.66
942412	AE2-254 E O1	0.9404	Adder	1.11
942591	AE2-275 C O1	4.0281	Adder	4.74
942592	AE2-275 E O1	1.5151	Adder	1.78
942891	AE2-308 C O1	6.9293	Adder	8.15
942892	AE2-308 E O1	2.5197	Adder	2.96
943111	AE2-339 C	2.1010	Adder	2.47
943112	AE2-339 E	1.0348	Adder	1.22
944621	AF1-127 C O1	4.0548	Adder	4.77
944622	AF1-127 E O1	1.9972	Adder	2.35
945541	AF1-219 C O1	0.9336	Adder	1.1
945542	AF1-219 E O1	0.4393	Adder	0.52
945681	AF1-233 C	16.6052	50/50	16.6052
945682	AF1-233 E	8.2033	50/50	8.2033
945861	AF1-251 C	9.9432	Adder	11.7
945862	AF1-251 E	6.6288	Adder	7.8
945911	AF1-256 C	5.3198	50/50	5.3198
945912	AF1-256 E	3.5466	50/50	3.5466
946021	AF1-267 C	2.2204	Adder	2.61
946022	AF1-267 E	1.0202	Adder	1.2
958171	AF2-111 C	15.9840	50/50	15.9840
958172	AF2-111 E	10.6560	50/50	10.6560

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959541	AF2-245 C	9.4050	50/50	9.4050
959542	AF2-245 E	6.2700	50/50	6.2700
960151	AF2-306	0.9028	Adder	2.0
960161	AF2-307 C	1.3751	Adder	3.05
960162	AF2-307 E	0.9167	Adder	2.03
960571	AF2-348 C	15.7935	50/50	15.7935
960572	AF2-348 E	10.5290	50/50	10.5290
960641	AF2-355 C O1	4.1776	Adder	9.27
960642	AF2-355 E O1	3.7134	Adder	8.24
961281	AF2-419 C	0.3026	Adder	0.67
961282	AF2-419 E	0.2017	Adder	0.45
961291	AF2-420 C	0.3026	Adder	0.67
961292	AF2-420 E	0.2017	Adder	0.45
WEC	WEC	0.0362	Confirmed LTF	0.0362
LGEE	LGEE	1.7092	Confirmed LTF	1.7092
CPL	CPL	0.2831	Confirmed LTF	0.2831
CBM-W2	CBM-W2	6.3063	Confirmed LTF	6.3063
NY	NY	0.0658	Confirmed LTF	0.0658
CBM-W1	CBM-W1	0.7381	Confirmed LTF	0.7381
TVA	TVA	1.6226	Confirmed LTF	1.6226
O-066	O-066	0.6250	Confirmed LTF	0.6250
CBM-S2	CBM-S2	3.3408	Confirmed LTF	3.3408
CBM-S1	CBM-S1	12.7885	Confirmed LTF	12.7885
G-007	G-007	0.0957	Confirmed LTF	0.0957
MADISON	MADISON	3.7780	Confirmed LTF	3.7780
MEC	MEC	0.5752	Confirmed LTF	0.5752

10.6.13 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
100774680	250077	08MTZION	DEO&K	249991	08BUFTN1	DEO&K	1	DAY_P734541 34553	tower	298.0	126.63	135.48	DC	26.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	6.3712	50/50	6.3712
342960	1SPURLK2G	10.0059	50/50	10.0059
342963	1SPURLK3G	5.2580	50/50	5.2580
342966	1SPURLK4G	5.2580	50/50	5.2580
925981	AC1-074 C O1	9.2590	50/50	9.2590
925982	AC1-074 E O1	3.9682	50/50	3.9682
932551	AC2-075 C	2.1990	50/50	2.1990
932552	AC2-075 E	1.1078	50/50	1.1078
936381	AD2-048 C	6.0757	50/50	6.0757
936382	AD2-048 E	3.0313	50/50	3.0313
936571	AD2-072 C O1	2.9492	Adder	3.47
936572	AD2-072 E O1	1.4460	Adder	1.7
939141	AE1-144 C O1	8.7939	50/50	8.7939
939142	AE1-144 E O1	4.3641	50/50	4.3641
940531	AE2-038 C O1	5.8663	50/50	5.8663
940532	AE2-038 E O1	2.9057	50/50	2.9057
941411	AE2-138 C	14.2422	Adder	16.76
941412	AE2-138 E	5.2677	Adder	6.2
941981	AE2-210 C O1	4.9075	Adder	5.77
941982	AE2-210 E O1	1.8459	Adder	2.17
942411	AE2-254 C O1	1.4107	Adder	1.66
942412	AE2-254 E O1	0.9404	Adder	1.11
942591	AE2-275 C O1	4.0281	Adder	4.74
942592	AE2-275 E O1	1.5151	Adder	1.78
942891	AE2-308 C O1	6.9293	Adder	8.15
942892	AE2-308 E O1	2.5197	Adder	2.96
943111	AE2-339 C	2.1010	Adder	2.47
943112	AE2-339 E	1.0348	Adder	1.22
944621	AF1-127 C O1	4.0548	Adder	4.77
944622	AF1-127 E O1	1.9972	Adder	2.35
945541	AF1-219 C O1	0.9336	Adder	1.1
945542	AF1-219 E O1	0.4393	Adder	0.52
945681	AF1-233 C	16.6052	50/50	16.6052
945682	AF1-233 E	8.2033	50/50	8.2033
945861	AF1-251 C	9.9432	Adder	11.7
945862	AF1-251 E	6.6288	Adder	7.8
945911	AF1-256 C	5.3198	50/50	5.3198
945912	AF1-256 E	3.5466	50/50	3.5466
946021	AF1-267 C	2.2204	Adder	2.61
946022	AF1-267 E	1.0202	Adder	1.2
958171	AF2-111 C	15.9840	50/50	15.9840
958172	AF2-111 E	10.6560	50/50	10.6560

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959541	AF2-245 C	9.4050	50/50	9.4050
959542	AF2-245 E	6.2700	50/50	6.2700
960151	AF2-306	0.9028	Adder	2.0
960161	AF2-307 C	1.3751	Adder	3.05
960162	AF2-307 E	0.9167	Adder	2.03
960571	AF2-348 C	15.7935	50/50	15.7935
960572	AF2-348 E	10.5290	50/50	10.5290
960641	AF2-355 C O1	4.1776	Adder	9.27
960642	AF2-355 E O1	3.7134	Adder	8.24
961281	AF2-419 C	0.3026	Adder	0.67
961282	AF2-419 E	0.2017	Adder	0.45
961291	AF2-420 C	0.3026	Adder	0.67
961292	AF2-420 E	0.2017	Adder	0.45
WEC	WEC	0.0362	Confirmed LTF	0.0362
LGEE	LGEE	1.7092	Confirmed LTF	1.7092
CPL	CPL	0.2831	Confirmed LTF	0.2831
CBM-W2	CBM-W2	6.3063	Confirmed LTF	6.3063
NY	NY	0.0658	Confirmed LTF	0.0658
CBM-W1	CBM-W1	0.7381	Confirmed LTF	0.7381
TVA	TVA	1.6226	Confirmed LTF	1.6226
O-066	O-066	0.6250	Confirmed LTF	0.6250
CBM-S2	CBM-S2	3.3408	Confirmed LTF	3.3408
CBM-S1	CBM-S1	12.7885	Confirmed LTF	12.7885
G-007	G-007	0.0957	Confirmed LTF	0.0957
MADISON	MADISON	3.7780	Confirmed LTF	3.7780
MEC	MEC	0.5752	Confirmed LTF	0.5752

10.6.14 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
98896786	253014	09CLINTO	DAY	253027	09GREENE	DAY	1	DAY_P734569 34598 34524	tower	1374.0	100.37	101.18	DC	24.5

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
250166	HLCRST AB114	1.0066	50/50	1.0066
251830	BIOENGRY	0.0963	50/50	0.0963
342957	1SPURLK1G	5.1919	50/50	5.1919
342960	1SPURLK2G	9.7262	50/50	9.7262
342963	1SPURLK3G	5.1110	50/50	5.1110
342966	1SPURLK4G	5.1110	50/50	5.1110
923522	AB1-169 C OP	161.0510	50/50	161.0510
925981	AC1-074 C O1	2.9793	Adder	3.51
925982	AC1-074 E O1	1.2768	Adder	1.5
926061	AC1-085 C	59.0991	50/50	59.0991
926062	AC1-085 E	96.4249	50/50	96.4249
927181	AC1-212 C	-0.1250	Adder	-0.15
927183	AC1-212 BAT	1.5397	Merchant Transmission	1.5397
930062	AB1-014 E	9.5216	50/50	9.5216
932381	AC2-055 C	1.2076	Adder	1.42
932382	AC2-055 E	1.9703	Adder	2.32
932421	AC2-060 C	4.2818	Adder	5.04
932422	AC2-060 E	2.4085	Adder	2.83
932461	AC2-066 C	0.6040	50/50	0.6040
932462	AC2-066 E	5.7130	50/50	5.7130
932481	AC2-068 C	-2.6185	Adder	-3.08
932551	AC2-075 C	0.7076	Adder	0.83
932552	AC2-075 E	0.3565	Adder	0.42
932661	AC2-088 C O1	4.4655	50/50	4.4655
932662	AC2-088 E O1	3.6748	50/50	3.6748
934491	AD1-073 C	0.8831	Adder	1.04
934492	AD1-073 E	0.4549	Adder	0.54
935031	AD1-136 C	0.6280	50/50	0.6280
935032	AD1-136 E	0.5349	50/50	0.5349
936251	AD2-031 C O1	6.1756	50/50	6.1756
936252	AD2-031 E O1	10.0759	50/50	10.0759
936381	AD2-048 C	2.4313	Adder	2.86
936382	AD2-048 E	1.2131	Adder	1.43
938271	AE1-040 C O1	2.2237	Adder	2.62
938272	AE1-040 E O1	1.1189	Adder	1.32
938921	AE1-120	5.4058	50/50	5.4058
939141	AE1-144 C O1	5.9322	Adder	6.98
939142	AE1-144 E O1	2.9439	Adder	3.46
940531	AE2-038 C O1	3.9572	Adder	4.66
940532	AE2-038 E O1	1.9601	Adder	2.31
941411	AE2-138 C	11.4673	Adder	13.49
941412	AE2-138 E	4.2413	Adder	4.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941981	AE2-210 C O1	3.9513	Adder	4.65
941982	AE2-210 E O1	1.4863	Adder	1.75
942091	AE2-221 C	91.0890	50/50	91.0890
942092	AE2-221 E	60.7260	50/50	60.7260
942591	AE2-275 C O1	2.9996	Adder	3.53
942592	AE2-275 E O1	1.1283	Adder	1.33
942891	AE2-308 C O1	5.0331	Adder	5.92
942892	AE2-308 E O1	1.8302	Adder	2.15
943111	AE2-339 C	1.3864	Adder	1.63
943112	AE2-339 E	0.6828	Adder	0.8
943201	AE2-318 C	4.7889	Adder	5.63
943202	AE2-318 E	2.3375	Adder	2.75
943771	AF1-045	2.2306	Adder	2.62
943773	AF1-045 E	1.4894	Adder	1.75
943863	AF1-053 BAT	3.1392	Merchant Transmission	3.1392
944521	AF1-117 C	7.0298	Adder	8.27
944522	AF1-117 E	2.1655	Adder	2.55
944621	AF1-127 C O1	3.1528	Adder	3.71
944622	AF1-127 E O1	1.5528	Adder	1.83
944941	AF1-159	3.5753	50/50	3.5753
945681	AF1-233 C	11.3378	Adder	13.34
945682	AF1-233 E	5.6012	Adder	6.59
945861	AF1-251 C	7.8742	Adder	9.26
945862	AF1-251 E	5.2495	Adder	6.18
945911	AF1-256 C	3.6349	Adder	4.28
945912	AF1-256 E	2.4232	Adder	2.85
946021	AF1-267 C	1.6587	Adder	1.95
946022	AF1-267 E	0.7621	Adder	0.9
946171	AF1-282 C	23.3286	50/50	23.3286
946172	AF1-282 E	15.5524	50/50	15.5524
946181	AF1-283 C	30.3272	50/50	30.3272
946182	AF1-283 E	20.2181	50/50	20.2181
946511	AF1-315 C O1	2.6900	Adder	3.16
946512	AF1-315 E O1	1.7934	Adder	2.11
957393	AF2-033 BAT	2.5640	50/50	2.5640
958171	AF2-111 C	6.7487	Adder	14.98
958172	AF2-111 E	4.4991	Adder	9.99
959541	AF2-245 C	3.4370	Adder	7.63
959542	AF2-245 E	2.2913	Adder	5.09
960151	AF2-306	0.7058	Adder	1.57
960161	AF2-307 C	1.0750	Adder	2.39
960162	AF2-307 E	0.7167	Adder	1.59
960571	AF2-348 C	6.6217	Adder	14.7
960572	AF2-348 E	4.4144	Adder	9.8
960641	AF2-355 C O1	3.2525	Adder	7.22
960642	AF2-355 E O1	2.8911	Adder	6.42
961491	AF2-440 C	5.9358	50/50	5.9358
961492	AF2-440 E	5.9358	50/50	5.9358
WEC	WEC	0.0205	Confirmed LTF	0.0205
LGEE	LGEE	1.2990	Confirmed LTF	1.2990
CPLE	CPLE	0.3995	Confirmed LTF	0.3995
CBM-W2	CBM-W2	7.1335	Confirmed LTF	7.1335

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
NY	NY	0.1587	Confirmed LTF	0.1587
TVA	TVA	1.6576	Confirmed LTF	1.6576
O-066	O-066	1.6666	Confirmed LTF	1.6666
CBM-S2	CBM-S2	4.3812	Confirmed LTF	4.3812
CBM-S1	CBM-S1	11.8172	Confirmed LTF	11.8172
G-007	G-007	0.2548	Confirmed LTF	0.2548
MEC	MEC	0.5975	Confirmed LTF	0.5975

10.6.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
95490963	253110	09ADKINS	DAY	243453	05BEATTY	AEP	1	DAY_P7_495	tower	1372.0	117.91	118.76	DC	25.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
253110	09ADKINS	61.1369	50/50	61.1369
342960	1SPURLK2G	10.0332	50/50	10.0332
342966	1SPURLK4G	5.2723	50/50	5.2723
923522	AB1-169 C OP	160.2150	50/50	160.2150
925921	AC1-068 C	18.7524	50/50	18.7524
925922	AC1-068 E	8.7695	50/50	8.7695
925931	AC1-069 C	18.7524	50/50	18.7524
925932	AC1-069 E	8.7695	50/50	8.7695
925981	AC1-074 C O1	3.2949	Adder	3.88
925982	AC1-074 E O1	1.4121	Adder	1.66
926061	AC1-085 C	22.1388	50/50	22.1388
926062	AC1-085 E	36.1212	50/50	36.1212
926791	AC1-165 C	18.5317	50/50	18.5317
926792	AC1-165 E	8.9901	50/50	8.9901
926801	AC1-166 C	18.5317	50/50	18.5317
926802	AC1-166 E	8.9901	50/50	8.9901
930062	AB1-014 E	5.7753	Adder	6.79
932381	AC2-055 C	1.5105	Adder	1.78
932382	AC2-055 E	2.4644	Adder	2.9
932421	AC2-060 C	5.3557	Adder	6.3
932422	AC2-060 E	3.0126	Adder	3.54
932462	AC2-066 E	3.4652	Adder	4.08
932551	AC2-075 C	0.7825	Adder	0.92
932552	AC2-075 E	0.3942	Adder	0.46
932661	AC2-088 C O1	3.3166	Adder	3.9
932662	AC2-088 E O1	2.7292	Adder	3.21
934491	AD1-073 C	1.1046	Adder	1.3
934492	AD1-073 E	0.5690	Adder	0.67
935031	AD1-136 C	0.4664	Adder	0.55
935032	AD1-136 E	0.3973	Adder	0.47
936251	AD2-031 C O1	1.4172	Adder	1.67
936252	AD2-031 E O1	2.3122	Adder	2.72
936381	AD2-048 C	2.6905	Adder	3.17
936382	AD2-048 E	1.3424	Adder	1.58
938271	AE1-040 C O1	4.0322	50/50	4.0322
938272	AE1-040 E O1	2.0288	50/50	2.0288
938921	AE1-120	3.2789	Adder	3.86
939141	AE1-144 C O1	6.2260	Adder	7.32
939142	AE1-144 E O1	3.0897	Adder	3.63
940531	AE2-038 C O1	4.1532	Adder	4.89
940532	AE2-038 E O1	2.0572	Adder	2.42
941411	AE2-138 C	12.2724	Adder	14.44
941412	AE2-138 E	4.5391	Adder	5.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941981	AE2-210 C O1	4.2287	Adder	4.97
941982	AE2-210 E O1	1.5906	Adder	1.87
942091	AE2-221 C	26.2170	50/50	26.2170
942092	AE2-221 E	17.4780	50/50	17.4780
942981	AE2-320 C O1	36.8980	50/50	36.8980
942982	AE2-320 E O1	18.2560	50/50	18.2560
943111	AE2-339 C	1.5162	Adder	1.78
943112	AE2-339 E	0.7468	Adder	0.88
943191	AE2-319 C O1	36.8980	50/50	36.8980
943192	AE2-319 E O1	18.2560	50/50	18.2560
943201	AE2-318 C	4.2406	Adder	4.99
943202	AE2-318 E	2.0698	Adder	2.44
943771	AF1-045	1.9752	Adder	2.32
943773	AF1-045 E	1.3189	Adder	1.55
944521	AF1-117 C	81.3917	50/50	81.3917
944522	AF1-117 E	25.0723	50/50	25.0723
944621	AF1-127 C O1	3.3860	Adder	3.98
944622	AF1-127 E O1	1.6677	Adder	1.96
944941	AF1-159	0.8205	Adder	0.97
945681	AF1-233 C	11.8768	Adder	13.97
945682	AF1-233 E	5.8674	Adder	6.9
945861	AF1-251 C	8.4419	Adder	9.93
945862	AF1-251 E	5.6280	Adder	6.62
945911	AF1-256 C	3.8066	Adder	4.48
945912	AF1-256 E	2.5378	Adder	2.99
946102	AF1-275 BAT	3.7900	Merchant Transmission	3.7900
946171	AF1-282 C	8.7390	50/50	8.7390
946172	AF1-282 E	5.8260	50/50	5.8260
946181	AF1-283 C	11.3607	50/50	11.3607
946182	AF1-283 E	7.5738	50/50	7.5738
946511	AF1-315 C O1	2.3369	Adder	2.75
946512	AF1-315 E O1	1.5579	Adder	1.83
958171	AF2-111 C	7.0116	Adder	15.56
958172	AF2-111 E	4.6744	Adder	10.38
959541	AF2-245 C	3.5865	Adder	7.96
959542	AF2-245 E	2.3910	Adder	5.31
960571	AF2-348 C	6.8893	Adder	15.29
960572	AF2-348 E	4.5928	Adder	10.19
961491	AF2-440 C	0.8810	Adder	1.96
961492	AF2-440 E	0.8810	Adder	1.96
WEC	WEC	0.2095	Confirmed LTF	0.2095
LGEE	LGEE	1.8342	Confirmed LTF	1.8342
CPL	CPL	0.2216	Confirmed LTF	0.2216
CBM-W2	CBM-W2	11.4496	Confirmed LTF	11.4496
NY	NY	0.5049	Confirmed LTF	0.5049
CBM-W1	CBM-W1	4.5662	Confirmed LTF	4.5662
TVA	TVA	2.0384	Confirmed LTF	2.0384
O-066	O-066	5.8800	Confirmed LTF	5.8800
CBM-S2	CBM-S2	3.3582	Confirmed LTF	3.3582
CBM-S1	CBM-S1	15.1912	Confirmed LTF	15.1912
G-007	G-007	0.9069	Confirmed LTF	0.9069
MEC	MEC	1.4952	Confirmed LTF	1.4952

10.6.16 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
95490932	324267	4KENTON	LGEE	246800		AEP	1	DAY_P734541 34553	tower	185.0	129.88	134.29	DC	18.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1511	Adder	1.35
943112	AE2-339 E	0.5669	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7219	Adder	13.79
945682	AF1-233 E	5.7909	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7320	Adder	4.39
945912	AF1-256 E	2.4880	Adder	2.93
958171	AF2-111 C	4.9735	Adder	11.04
958172	AF2-111 E	3.3157	Adder	7.36
959541	AF2-245 C	3.2133	Adder	7.13
959542	AF2-245 E	2.1422	Adder	4.76
960151	AF2-306	0.7520	Adder	1.67
960161	AF2-307 C	1.1453	Adder	2.54
960162	AF2-307 E	0.7635	Adder	1.69
960571	AF2-348 C	4.8924	Adder	10.86
960572	AF2-348 E	3.2616	Adder	7.24
WEC	WEC	0.0627	Confirmed LTF	0.0627
LGEE	LGEE	0.9242	Confirmed LTF	0.9242
CPL	CPL	0.1402	Confirmed LTF	0.1402
CBM-W2	CBM-W2	4.5045	Confirmed LTF	4.5045
NY	NY	0.0769	Confirmed LTF	0.0769
CBM-W1	CBM-W1	1.7639	Confirmed LTF	1.7639
TVA	TVA	1.0150	Confirmed LTF	1.0150

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
O-066	O-066	0.8669	Confirmed LTF	0.8669
CBM-S2	CBM-S2	1.8091	Confirmed LTF	1.8091
CBM-S1	CBM-S1	7.5913	Confirmed LTF	7.5913
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5291	Confirmed LTF	0.5291

10.6.17 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
101985738	342541	4AVON	EKPC	342631	4PARIS T	EKPC	1	EKPC_P2-4_SPUR N39-150T-A	bus	220.0	109.46	122.37	DC	28.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941411	AE2-138 C	22.8595	50/50	22.8595
941412	AE2-138 E	8.4549	50/50	8.4549
941981	AE2-210 C O1	7.8768	50/50	7.8768
941982	AE2-210 E O1	2.9628	50/50	2.9628
942591	AE2-275 C O1	4.5261	Adder	5.32
942592	AE2-275 E O1	1.7025	Adder	2.0
942891	AE2-308 C O1	8.4879	Adder	9.99
942892	AE2-308 E O1	3.0865	Adder	3.63
943111	AE2-339 C	5.0373	50/50	5.0373
943112	AE2-339 E	2.4811	50/50	2.4811
944621	AF1-127 C O1	7.1213	50/50	7.1213
944622	AF1-127 E O1	3.5075	50/50	3.5075
945861	AF1-251 C	16.6782	50/50	16.6782
945862	AF1-251 E	11.1188	50/50	11.1188
946021	AF1-267 C	2.4628	Adder	2.9
946022	AF1-267 E	1.1316	Adder	1.33
958171	AF2-111 C	17.0505	50/50	17.0505
958172	AF2-111 E	11.3670	50/50	11.3670
960571	AF2-348 C	17.0505	50/50	17.0505
960572	AF2-348 E	11.3670	50/50	11.3670
960641	AF2-355 C O1	4.6422	Adder	10.3
960642	AF2-355 E O1	4.1264	Adder	9.16
961281	AF2-419 C	0.2710	Adder	0.6
961282	AF2-419 E	0.1807	Adder	0.4
961291	AF2-420 C	0.2710	Adder	0.6
961292	AF2-420 E	0.1807	Adder	0.4
WEC	WEC	0.0381	Confirmed LTF	0.0381
LGEE	LGEE	0.6492	Confirmed LTF	0.6492
CPLE	CPLE	0.2593	Confirmed LTF	0.2593
CBM-W2	CBM-W2	4.7338	Confirmed LTF	4.7338
NY	NY	0.0182	Confirmed LTF	0.0182
CBM-W1	CBM-W1	1.0759	Confirmed LTF	1.0759
TVA	TVA	1.3048	Confirmed LTF	1.3048
O-066	O-066	0.1142	Confirmed LTF	0.1142
CBM-S2	CBM-S2	2.9420	Confirmed LTF	2.9420
CBM-S1	CBM-S1	8.2644	Confirmed LTF	8.2644
G-007	G-007	0.0166	Confirmed LTF	0.0166
MADISON	MADISON	2.2982	Confirmed LTF	2.2982
MEC	MEC	0.4767	Confirmed LTF	0.4767

10.6.18 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
100289058	342544	4AVON-R	EKPC	324275	4LOUDON AVE	LGEE	1	DAY_P734541 34553	tower	203.0	124.21	128.15	DC	17.77

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925981	AC1-074 C O1	4.4425	Adder	5.23
925982	AC1-074 E O1	1.9039	Adder	2.24
932551	AC2-075 C	1.0551	Adder	1.24
932552	AC2-075 E	0.5315	Adder	0.63
939141	AE1-144 C O1	3.5626	Adder	4.19
939142	AE1-144 E O1	1.7680	Adder	2.08
940531	AE2-038 C O1	2.3765	Adder	2.8
940532	AE2-038 E O1	1.1772	Adder	1.38
941411	AE2-138 C	14.5552	Adder	17.12
941412	AE2-138 E	5.3834	Adder	6.33
941981	AE2-210 C O1	5.0153	Adder	5.9
941982	AE2-210 E O1	1.8865	Adder	2.22
942891	AE2-308 C O1	5.6250	Adder	6.62
942892	AE2-308 E O1	2.0454	Adder	2.41
943111	AE2-339 C	4.7985	50/50	4.7985
943112	AE2-339 E	2.3635	50/50	2.3635
944621	AF1-127 C O1	5.7116	50/50	5.7116
944622	AF1-127 E O1	2.8132	50/50	2.8132
945681	AF1-233 C	6.8255	Adder	8.03
945682	AF1-233 E	3.3720	Adder	3.97
945861	AF1-251 C	10.9956	Adder	12.94
945862	AF1-251 E	7.3304	Adder	8.62
945911	AF1-256 C	2.1885	Adder	2.57
945912	AF1-256 E	1.4590	Adder	1.72
958171	AF2-111 C	4.7532	Adder	10.55
958172	AF2-111 E	3.1688	Adder	7.03
959541	AF2-245 C	2.0733	Adder	4.6
959542	AF2-245 E	1.3822	Adder	3.07
960571	AF2-348 C	4.8032	Adder	10.66
960572	AF2-348 E	3.2022	Adder	7.11
NEWTON	NEWTON	0.2740	Confirmed LTF	0.2740
FARMERCITY	FARMERCITY	0.0105	Confirmed LTF	0.0105
NY	NY	0.0216	Confirmed LTF	0.0216
PRAIRIE	PRAIRIE	0.5528	Confirmed LTF	0.5528
O-066	O-066	0.2352	Confirmed LTF	0.2352
EDWARDS	EDWARDS	0.0724	Confirmed LTF	0.0724
TILTON	TILTON	0.1638	Confirmed LTF	0.1638
G-007	G-007	0.0364	Confirmed LTF	0.0364
GIBSON	GIBSON	0.2157	Confirmed LTF	0.2157
BLUEG	BLUEG	1.2048	Confirmed LTF	1.2048
TRIMBLE	TRIMBLE	0.3901	Confirmed LTF	0.3901
CATAWBA	CATAWBA	0.0021	Confirmed LTF	0.0021

10.6.19 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
98896705	342559	4BOONE CO	EKPC	250054	08LONGBR	DEO&K	1	DAY_P734541 34553	tower	284.0	144.74	154.02	DC	26.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	6.3712	50/50	6.3712
342960	1SPURLK2G	10.0059	50/50	10.0059
342963	1SPURLK3G	5.2580	50/50	5.2580
342966	1SPURLK4G	5.2580	50/50	5.2580
925981	AC1-074 C O1	9.2590	50/50	9.2590
925982	AC1-074 E O1	3.9682	50/50	3.9682
932551	AC2-075 C	2.1990	50/50	2.1990
932552	AC2-075 E	1.1078	50/50	1.1078
936381	AD2-048 C	6.0757	50/50	6.0757
936382	AD2-048 E	3.0313	50/50	3.0313
936571	AD2-072 C O1	2.9492	Adder	3.47
936572	AD2-072 E O1	1.4460	Adder	1.7
939141	AE1-144 C O1	8.7939	50/50	8.7939
939142	AE1-144 E O1	4.3641	50/50	4.3641
940531	AE2-038 C O1	5.8663	50/50	5.8663
940532	AE2-038 E O1	2.9057	50/50	2.9057
941411	AE2-138 C	14.2422	Adder	16.76
941412	AE2-138 E	5.2677	Adder	6.2
941981	AE2-210 C O1	4.9075	Adder	5.77
941982	AE2-210 E O1	1.8459	Adder	2.17
942411	AE2-254 C O1	1.4107	Adder	1.66
942412	AE2-254 E O1	0.9404	Adder	1.11
942591	AE2-275 C O1	4.0281	Adder	4.74
942592	AE2-275 E O1	1.5151	Adder	1.78
942891	AE2-308 C O1	6.9293	Adder	8.15
942892	AE2-308 E O1	2.5197	Adder	2.96
943111	AE2-339 C	2.1010	Adder	2.47
943112	AE2-339 E	1.0348	Adder	1.22
944621	AF1-127 C O1	4.0548	Adder	4.77
944622	AF1-127 E O1	1.9972	Adder	2.35
945541	AF1-219 C O1	0.9336	Adder	1.1
945542	AF1-219 E O1	0.4393	Adder	0.52
945681	AF1-233 C	16.6052	50/50	16.6052
945682	AF1-233 E	8.2033	50/50	8.2033
945861	AF1-251 C	9.9432	Adder	11.7
945862	AF1-251 E	6.6288	Adder	7.8
945911	AF1-256 C	5.3198	50/50	5.3198
945912	AF1-256 E	3.5466	50/50	3.5466
946021	AF1-267 C	2.2204	Adder	2.61
946022	AF1-267 E	1.0202	Adder	1.2
958171	AF2-111 C	15.9840	50/50	15.9840
958172	AF2-111 E	10.6560	50/50	10.6560

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959541	AF2-245 C	9.4050	50/50	9.4050
959542	AF2-245 E	6.2700	50/50	6.2700
960151	AF2-306	0.9028	Adder	2.0
960161	AF2-307 C	1.3751	Adder	3.05
960162	AF2-307 E	0.9167	Adder	2.03
960571	AF2-348 C	15.7935	50/50	15.7935
960572	AF2-348 E	10.5290	50/50	10.5290
960641	AF2-355 C O1	4.1776	Adder	9.27
960642	AF2-355 E O1	3.7134	Adder	8.24
961281	AF2-419 C	0.3026	Adder	0.67
961282	AF2-419 E	0.2017	Adder	0.45
961291	AF2-420 C	0.3026	Adder	0.67
961292	AF2-420 E	0.2017	Adder	0.45
WEC	WEC	0.0362	Confirmed LTF	0.0362
LGEE	LGEE	1.7092	Confirmed LTF	1.7092
CPL	CPL	0.2831	Confirmed LTF	0.2831
CBM-W2	CBM-W2	6.3063	Confirmed LTF	6.3063
NY	NY	0.0658	Confirmed LTF	0.0658
CBM-W1	CBM-W1	0.7381	Confirmed LTF	0.7381
TVA	TVA	1.6226	Confirmed LTF	1.6226
O-066	O-066	0.6250	Confirmed LTF	0.6250
CBM-S2	CBM-S2	3.3408	Confirmed LTF	3.3408
CBM-S1	CBM-S1	12.7885	Confirmed LTF	12.7885
G-007	G-007	0.0957	Confirmed LTF	0.0957
MADISON	MADISON	3.7780	Confirmed LTF	3.7780
MEC	MEC	0.5752	Confirmed LTF	0.5752

10.6.20 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
100289005	342661	4SPUR-KENT-R	EKPC	324267	4KENTON	LGEE	1	DAY_P734541 34553	tower	281.0	132.46	142.47	DC	28.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	8.0153	50/50	8.0153
342960	1SPURLK2G	11.6615	50/50	11.6615
342963	1SPURLK3G	6.1280	50/50	6.1280
342966	1SPURLK4G	6.1280	50/50	6.1280
925981	AC1-074 C O1	2.4457	Adder	2.88
925982	AC1-074 E O1	1.0482	Adder	1.23
932551	AC2-075 C	0.5809	Adder	0.68
932552	AC2-075 E	0.2926	Adder	0.34
939141	AE1-144 C O1	5.2634	Adder	6.19
939142	AE1-144 E O1	2.6120	Adder	3.07
940531	AE2-038 C O1	3.5111	Adder	4.13
940532	AE2-038 E O1	1.7392	Adder	2.05
941411	AE2-138 C	11.1511	Adder	13.12
941412	AE2-138 E	4.1244	Adder	4.85
941981	AE2-210 C O1	3.8424	Adder	4.52
941982	AE2-210 E O1	1.4453	Adder	1.7
943111	AE2-339 C	1.1399	Adder	1.34
943112	AE2-339 E	0.5614	Adder	0.66
944621	AF1-127 C O1	2.9892	Adder	3.52
944622	AF1-127 E O1	1.4723	Adder	1.73
945681	AF1-233 C	11.6079	Adder	13.66
945682	AF1-233 E	5.7346	Adder	6.75
945861	AF1-251 C	7.5679	Adder	8.9
945862	AF1-251 E	5.0453	Adder	5.94
945911	AF1-256 C	3.8156	Adder	4.49
945912	AF1-256 E	2.5437	Adder	2.99
958171	AF2-111 C	17.3205	50/50	17.3205
958172	AF2-111 E	11.5470	50/50	11.5470
959541	AF2-245 C	10.5360	50/50	10.5360
959542	AF2-245 E	7.0240	50/50	7.0240
960571	AF2-348 C	16.8690	50/50	16.8690
960572	AF2-348 E	11.2460	50/50	11.2460
WEC	WEC	0.0054	Confirmed LTF	0.0054
LGEE	LGEE	0.3235	Confirmed LTF	0.3235
CPL	CPL	0.0615	Confirmed LTF	0.0615
CBM-W2	CBM-W2	2.1376	Confirmed LTF	2.1376
NY	NY	0.0791	Confirmed LTF	0.0791
TVA	TVA	0.6090	Confirmed LTF	0.6090
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.9421	Confirmed LTF	0.9421
CBM-S1	CBM-S1	3.9107	Confirmed LTF	3.9107
G-007	G-007	0.1404	Confirmed LTF	0.1404

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	1.0806	Confirmed LTF	1.0806
MEC	MEC	0.1780	Confirmed LTF	0.1780

10.6.21 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
101987093	342664	4SPURLOCK	EKPC	342661	4SPUR-KENT-R	EKPC	1	DAY_P734541 34553	tower	291.0	128.01	137.67	DC	28.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	8.0153	50/50	8.0153
342960	1SPURLK2G	11.6615	50/50	11.6615
342963	1SPURLK3G	6.1280	50/50	6.1280
342966	1SPURLK4G	6.1280	50/50	6.1280
925981	AC1-074 C O1	2.4457	Adder	2.88
925982	AC1-074 E O1	1.0482	Adder	1.23
932551	AC2-075 C	0.5809	Adder	0.68
932552	AC2-075 E	0.2926	Adder	0.34
939141	AE1-144 C O1	5.2634	Adder	6.19
939142	AE1-144 E O1	2.6120	Adder	3.07
940531	AE2-038 C O1	3.5111	Adder	4.13
940532	AE2-038 E O1	1.7392	Adder	2.05
941411	AE2-138 C	11.1511	Adder	13.12
941412	AE2-138 E	4.1244	Adder	4.85
941981	AE2-210 C O1	3.8424	Adder	4.52
941982	AE2-210 E O1	1.4453	Adder	1.7
943111	AE2-339 C	1.1399	Adder	1.34
943112	AE2-339 E	0.5614	Adder	0.66
944621	AF1-127 C O1	2.9892	Adder	3.52
944622	AF1-127 E O1	1.4723	Adder	1.73
945681	AF1-233 C	11.6079	Adder	13.66
945682	AF1-233 E	5.7346	Adder	6.75
945861	AF1-251 C	7.5679	Adder	8.9
945862	AF1-251 E	5.0453	Adder	5.94
945911	AF1-256 C	3.8156	Adder	4.49
945912	AF1-256 E	2.5437	Adder	2.99
958171	AF2-111 C	17.3205	50/50	17.3205
958172	AF2-111 E	11.5470	50/50	11.5470
959541	AF2-245 C	10.5360	50/50	10.5360
959542	AF2-245 E	7.0240	50/50	7.0240
960571	AF2-348 C	16.8690	50/50	16.8690
960572	AF2-348 E	11.2460	50/50	11.2460
WEC	WEC	0.0054	Confirmed LTF	0.0054
LGEE	LGEE	0.3235	Confirmed LTF	0.3235
CPL	CPL	0.0615	Confirmed LTF	0.0615
CBM-W2	CBM-W2	2.1376	Confirmed LTF	2.1376
NY	NY	0.0791	Confirmed LTF	0.0791
TVA	TVA	0.6090	Confirmed LTF	0.6090
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.9421	Confirmed LTF	0.9421
CBM-S1	CBM-S1	3.9107	Confirmed LTF	3.9107
G-007	G-007	0.1404	Confirmed LTF	0.1404

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	1.0806	Confirmed LTF	1.0806
MEC	MEC	0.1780	Confirmed LTF	0.1780

10.6.22 Index 22

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
98896711	342838	7SPURLOCK	EKPC	253077	09STUART	DAY	1	DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER	tower	1532.0	141.79	149.57	DC	118.53

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251968	08ZIMRHP	48.5861	50/50	48.5861
251969	08ZIMRLP	26.6066	50/50	26.6066
251970	08MELDL1	2.4608	50/50	2.4608
251971	08MELDL2	2.4608	50/50	2.4608
251972	08MELDL3	2.4674	50/50	2.4674
342942	1JKCT 10G	3.6195	50/50	3.6195
342957	1SPURLK1G	24.9695	50/50	24.9695
342960	1SPURLK2G	47.5091	50/50	47.5091
342963	1SPURLK3G	24.9656	50/50	24.9656
342966	1SPURLK4G	24.9656	50/50	24.9656
925921	AC1-068 C	-3.5310	Adder	-4.15
925931	AC1-069 C	-3.5310	Adder	-4.15
925981	AC1-074 C O1	15.7242	50/50	15.7242
925982	AC1-074 E O1	6.7390	50/50	6.7390
926061	AC1-085 C	-25.3878	Adder	-29.87
926791	AC1-165 C	-3.4895	Adder	-4.11
926801	AC1-166 C	-3.4895	Adder	-4.11
926951	AC1-182	1.1568	50/50	1.1568
932551	AC2-075 C	3.7345	50/50	3.7345
932552	AC2-075 E	1.8813	50/50	1.8813
932661	AC2-088 C O1	-5.5654	Adder	-6.55
935031	AD1-136 C	-0.7826	Adder	-0.92
936381	AD2-048 C	10.8026	Adder	12.71
936382	AD2-048 E	5.3897	Adder	6.34
936571	AD2-072 C O1	8.5360	Adder	10.04
936572	AD2-072 E O1	4.1853	Adder	4.92
939131	AE1-143 C	6.3918	Adder	7.52
939132	AE1-143 E	3.1660	Adder	3.72
939141	AE1-144 C O1	32.8780	50/50	32.8780
939142	AE1-144 E O1	16.3160	50/50	16.3160
940531	AE2-038 C O1	21.9323	50/50	21.9323
940532	AE2-038 E O1	10.8637	50/50	10.8637
941411	AE2-138 C	63.1597	50/50	63.1597
941412	AE2-138 E	23.3605	50/50	23.3605
941981	AE2-210 C O1	21.7632	50/50	21.7632
941982	AE2-210 E O1	8.1861	50/50	8.1861
942411	AE2-254 C O1	4.2886	Adder	5.05
942412	AE2-254 E O1	2.8591	Adder	3.36
942591	AE2-275 C O1	13.4973	Adder	15.88
942592	AE2-275 E O1	5.0769	Adder	5.97
942891	AE2-308 C O1	22.6214	Adder	26.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942892	AE2-308 E O1	8.2260	Adder	9.68
943111	AE2-339 C	7.4483	50/50	7.4483
943112	AE2-339 E	3.6685	50/50	3.6685
943701	AF1-038 C	3.2099	Adder	3.78
943702	AF1-038 E	2.1400	Adder	2.52
943772	AF1-045 BAT	4.6834	Merchant Transmission	4.6834
943821	AF1-050 C	2.8525	Adder	3.36
943822	AF1-050 E	1.9017	Adder	2.24
944151	AF1-083 C O1	2.9977	Adder	3.53
944152	AF1-083 E O1	1.9985	Adder	2.35
944511	AF1-116 C	7.1684	Adder	8.43
944512	AF1-116 E	4.7789	Adder	5.62
944621	AF1-127 C O1	17.2956	50/50	17.2956
944622	AF1-127 E O1	8.5188	50/50	8.5188
945541	AF1-219 C O1	2.7718	Adder	3.26
945542	AF1-219 E O1	1.3044	Adder	1.53
945681	AF1-233 C	63.0397	50/50	63.0397
945682	AF1-233 E	31.1431	50/50	31.1431
945861	AF1-251 C	43.2920	50/50	43.2920
945862	AF1-251 E	28.8614	50/50	28.8614
945911	AF1-256 C	20.2286	50/50	20.2286
945912	AF1-256 E	13.4858	50/50	13.4858
946021	AF1-267 C	7.4386	Adder	8.75
946022	AF1-267 E	3.4177	Adder	4.02
957961	AF2-090 C	2.8982	Adder	6.43
957962	AF2-090 E	1.4334	Adder	3.18
958171	AF2-111 C	72.5985	50/50	72.5985
958172	AF2-111 E	48.3990	50/50	48.3990
959541	AF2-245 C	36.4922	50/50	36.4922
959542	AF2-245 E	24.3281	50/50	24.3281
959691	AF2-260 C O1	2.4086	Adder	5.35
959692	AF2-260 E O1	1.2043	Adder	2.67
960151	AF2-306	3.1761	Adder	7.05
960161	AF2-307 C	4.8374	Adder	10.74
960162	AF2-307 E	3.2250	Adder	7.16
960171	AF2-308	1.1243	Adder	2.5
960181	AF2-309 C	1.6864	Adder	3.74
960182	AF2-309 E	1.1243	Adder	2.5
960571	AF2-348 C	71.1180	50/50	71.1180
960572	AF2-348 E	47.4120	50/50	47.4120
960641	AF2-355 C O1	14.6899	Adder	32.61
960642	AF2-355 E O1	13.0577	Adder	28.98
961001	AF2-391 C O1	2.8917	Adder	6.42
961002	AF2-391 E O1	1.9278	Adder	4.28
961281	AF2-419 C	0.9087	Adder	2.02
961282	AF2-419 E	0.6058	Adder	1.34
961291	AF2-420 C	0.9087	Adder	2.02
961292	AF2-420 E	0.6058	Adder	1.34
WEC	WEC	0.3692	Confirmed LTF	0.3692
LGEE	LGEE	4.6598	Confirmed LTF	4.6598
CPL	CPL	0.4776	Confirmed LTF	0.4776
LGE-0012019	LGE-0012019	6.2975	LTF	6.2975

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-W2	CBM-W2	24.6437	Confirmed LTF	24.6437
NY	NY	0.7537	Confirmed LTF	0.7537
CBM-W1	CBM-W1	9.4951	Confirmed LTF	9.4951
TVA	TVA	5.2388	Confirmed LTF	5.2388
O-066	O-066	8.7562	Confirmed LTF	8.7562
CBM-S2	CBM-S2	7.5487	Confirmed LTF	7.5487
CBM-S1	CBM-S1	38.8938	Confirmed LTF	38.8938
G-007	G-007	1.3510	Confirmed LTF	1.3510
MADISON	MADISON	3.2639	Confirmed LTF	3.2639
MEC	MEC	2.9683	Confirmed LTF	2.9683

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
98896770	926060	AC1-085 TAP	DAY	942090	AE2-221 TAP	DAY	1	DAY_P734569 34598 34524	tower	1374.0	101.98	103.9	DC	26.27

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
250166	HLCRST AB114	1.0791	50/50	1.0791
251830	BIOENGRY	0.1021	50/50	0.1021
342957	1SPURLK1G	5.5184	50/50	5.5184
342960	1SPURLK2G	10.4431	50/50	10.4431
342963	1SPURLK3G	5.4878	50/50	5.4878
342966	1SPURLK4G	5.4878	50/50	5.4878
923522	AB1-169 C OP	174.0420	50/50	174.0420
925981	AC1-074 C O1	3.1483	Adder	3.7
925982	AC1-074 E O1	1.3493	Adder	1.59
926061	AC1-085 C	65.1913	50/50	65.1913
926062	AC1-085 E	106.3647	50/50	106.3647
927181	AC1-212 C	-0.1206	Adder	-0.14
927183	AC1-212 BAT	1.4865	Merchant Transmission	1.4865
930062	AB1-014 E	10.2067	50/50	10.2067
932461	AC2-066 C	0.6474	50/50	0.6474
932462	AC2-066 E	6.1240	50/50	6.1240
932481	AC2-068 C	-2.8262	Adder	-3.32
932551	AC2-075 C	0.7477	Adder	0.88
932552	AC2-075 E	0.3767	Adder	0.44
932661	AC2-088 C O1	4.7363	50/50	4.7363
932662	AC2-088 E O1	3.8975	50/50	3.8975
935031	AD1-136 C	0.6660	50/50	0.6660
935032	AD1-136 E	0.5674	50/50	0.5674
936381	AD2-048 C	2.5139	Adder	2.96
936382	AD2-048 E	1.2543	Adder	1.48
938921	AE1-120	5.7948	50/50	5.7948
939141	AE1-144 C O1	6.2226	Adder	7.32
939142	AE1-144 E O1	3.0880	Adder	3.63
940531	AE2-038 C O1	4.1510	Adder	4.88
940532	AE2-038 E O1	2.0561	Adder	2.42
941411	AE2-138 C	12.2304	Adder	14.39
941412	AE2-138 E	4.5236	Adder	5.32
941981	AE2-210 C O1	4.2143	Adder	4.96
941982	AE2-210 E O1	1.5852	Adder	1.86
942591	AE2-275 C O1	3.1736	Adder	3.73
942592	AE2-275 E O1	1.1938	Adder	1.4
942891	AE2-308 C O1	5.3230	Adder	6.26
942892	AE2-308 E O1	1.9356	Adder	2.28
943111	AE2-339 C	1.4716	Adder	1.73
943112	AE2-339 E	0.7248	Adder	0.85
943201	AE2-318 C	5.0506	Adder	5.94

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943202	AE2-318 E	2.4651	Adder	2.9
943771	AF1-045	2.3524	Adder	2.77
943773	AF1-045 E	1.5708	Adder	1.85
943863	AF1-053 BAT	3.0908	Merchant Transmission	3.0908
944521	AF1-117 C	6.8868	Adder	8.1
944522	AF1-117 E	2.1215	Adder	2.5
944621	AF1-127 C O1	3.3596	Adder	3.95
944622	AF1-127 E O1	1.6547	Adder	1.95
945681	AF1-233 C	11.9241	Adder	14.03
945682	AF1-233 E	5.8908	Adder	6.93
945861	AF1-251 C	8.3959	Adder	9.88
945862	AF1-251 E	5.5973	Adder	6.59
945911	AF1-256 C	3.8250	Adder	4.5
945912	AF1-256 E	2.5500	Adder	3.0
946021	AF1-267 C	1.7543	Adder	2.06
946022	AF1-267 E	0.8060	Adder	0.95
946171	AF1-282 C	25.7334	50/50	25.7334
946172	AF1-282 E	17.1556	50/50	17.1556
946181	AF1-283 C	33.4534	50/50	33.4534
946182	AF1-283 E	22.3023	50/50	22.3023
946511	AF1-315 C O1	2.8424	Adder	3.34
946512	AF1-315 E O1	1.8950	Adder	2.23
957393	AF2-033 BAT	2.4906	50/50	2.4906
958171	AF2-111 C	16.0650	50/50	16.0650
958172	AF2-111 E	10.7100	50/50	10.7100
959541	AF2-245 C	8.0824	50/50	8.0824
959542	AF2-245 E	5.3882	50/50	5.3882
960151	AF2-306	0.7356	Adder	1.63
960161	AF2-307 C	1.1203	Adder	2.49
960162	AF2-307 E	0.7469	Adder	1.66
960571	AF2-348 C	15.7590	50/50	15.7590
960572	AF2-348 E	10.5060	50/50	10.5060
960641	AF2-355 C O1	3.4557	Adder	7.67
960642	AF2-355 E O1	3.0717	Adder	6.82
WEC	WEC	0.0369	Confirmed LTF	0.0369
LGEE	LGEE	1.3703	Confirmed LTF	1.3703
CPL	CPL	0.3976	Confirmed LTF	0.3976
CBM-W2	CBM-W2	7.6085	Confirmed LTF	7.6085
NY	NY	0.1698	Confirmed LTF	0.1698
TVA	TVA	1.7318	Confirmed LTF	1.7318
O-066	O-066	1.8010	Confirmed LTF	1.8010
CBM-S2	CBM-S2	4.4159	Confirmed LTF	4.4159
CBM-S1	CBM-S1	12.3796	Confirmed LTF	12.3796
G-007	G-007	0.2766	Confirmed LTF	0.2766
MEC	MEC	0.6849	Confirmed LTF	0.6849

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
98896742	942090	AE2-221 TAP	DAY	253014	09CLINTO	DAY	1	DAY_P734569 34598 34524	tower	1374.0	114.17	116.09	DC	26.27

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
250166	HLCRST AB114	1.0791	50/50	1.0791
251830	BIOENGRY	0.1021	50/50	0.1021
342957	1SPURLK1G	5.5184	50/50	5.5184
342960	1SPURLK2G	10.4431	50/50	10.4431
342963	1SPURLK3G	5.4878	50/50	5.4878
342966	1SPURLK4G	5.4878	50/50	5.4878
923522	AB1-169 C OP	174.0420	50/50	174.0420
925981	AC1-074 C O1	3.1483	Adder	3.7
925982	AC1-074 E O1	1.3493	Adder	1.59
926061	AC1-085 C	65.1913	50/50	65.1913
926062	AC1-085 E	106.3647	50/50	106.3647
927181	AC1-212 C	-0.1206	Adder	-0.14
927183	AC1-212 BAT	1.4865	Merchant Transmission	1.4865
930062	AB1-014 E	10.2067	50/50	10.2067
932461	AC2-066 C	0.6474	50/50	0.6474
932462	AC2-066 E	6.1240	50/50	6.1240
932481	AC2-068 C	-2.8262	Adder	-3.32
932551	AC2-075 C	0.7477	Adder	0.88
932552	AC2-075 E	0.3767	Adder	0.44
932661	AC2-088 C O1	4.7363	50/50	4.7363
932662	AC2-088 E O1	3.8975	50/50	3.8975
935031	AD1-136 C	0.6660	50/50	0.6660
935032	AD1-136 E	0.5674	50/50	0.5674
936381	AD2-048 C	2.5139	Adder	2.96
936382	AD2-048 E	1.2543	Adder	1.48
938921	AE1-120	5.7948	50/50	5.7948
939141	AE1-144 C O1	6.2226	Adder	7.32
939142	AE1-144 E O1	3.0880	Adder	3.63
940531	AE2-038 C O1	4.1510	Adder	4.88
940532	AE2-038 E O1	2.0561	Adder	2.42
941411	AE2-138 C	12.2304	Adder	14.39
941412	AE2-138 E	4.5236	Adder	5.32
941981	AE2-210 C O1	4.2143	Adder	4.96
941982	AE2-210 E O1	1.5852	Adder	1.86
942091	AE2-221 C	100.7658	50/50	100.7658
942092	AE2-221 E	67.1772	50/50	67.1772
942591	AE2-275 C O1	3.1736	Adder	3.73
942592	AE2-275 E O1	1.1938	Adder	1.4
942891	AE2-308 C O1	5.3230	Adder	6.26
942892	AE2-308 E O1	1.9356	Adder	2.28
943111	AE2-339 C	1.4716	Adder	1.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943112	AE2-339 E	0.7248	Adder	0.85
943201	AE2-318 C	5.0506	Adder	5.94
943202	AE2-318 E	2.4651	Adder	2.9
943771	AF1-045	2.3524	Adder	2.77
943773	AF1-045 E	1.5708	Adder	1.85
943863	AF1-053 BAT	3.0908	Merchant Transmission	3.0908
944521	AF1-117 C	6.8868	Adder	8.1
944522	AF1-117 E	2.1215	Adder	2.5
944621	AF1-127 C O1	3.3596	Adder	3.95
944622	AF1-127 E O1	1.6547	Adder	1.95
945681	AF1-233 C	11.9241	Adder	14.03
945682	AF1-233 E	5.8908	Adder	6.93
945861	AF1-251 C	8.3959	Adder	9.88
945862	AF1-251 E	5.5973	Adder	6.59
945911	AF1-256 C	3.8250	Adder	4.5
945912	AF1-256 E	2.5500	Adder	3.0
946021	AF1-267 C	1.7543	Adder	2.06
946022	AF1-267 E	0.8060	Adder	0.95
946171	AF1-282 C	25.7334	50/50	25.7334
946172	AF1-282 E	17.1556	50/50	17.1556
946181	AF1-283 C	33.4534	50/50	33.4534
946182	AF1-283 E	22.3023	50/50	22.3023
946511	AF1-315 C O1	2.8424	Adder	3.34
946512	AF1-315 E O1	1.8950	Adder	2.23
957393	AF2-033 BAT	2.4906	50/50	2.4906
958171	AF2-111 C	16.0650	50/50	16.0650
958172	AF2-111 E	10.7100	50/50	10.7100
959541	AF2-245 C	8.0824	50/50	8.0824
959542	AF2-245 E	5.3882	50/50	5.3882
960151	AF2-306	0.7356	Adder	1.63
960161	AF2-307 C	1.1203	Adder	2.49
960162	AF2-307 E	0.7469	Adder	1.66
960571	AF2-348 C	15.7590	50/50	15.7590
960572	AF2-348 E	10.5060	50/50	10.5060
960641	AF2-355 C O1	3.4557	Adder	7.67
960642	AF2-355 E O1	3.0717	Adder	6.82
WEC	WEC	0.0369	Confirmed LTF	0.0369
LGEE	LGEE	1.3703	Confirmed LTF	1.3703
CPL	CPL	0.3976	Confirmed LTF	0.3976
CBM-W2	CBM-W2	7.6085	Confirmed LTF	7.6085
NY	NY	0.1698	Confirmed LTF	0.1698
TVA	TVA	1.7318	Confirmed LTF	1.7318
O-066	O-066	1.8010	Confirmed LTF	1.8010
CBM-S2	CBM-S2	4.4159	Confirmed LTF	4.4159
CBM-S1	CBM-S1	12.3796	Confirmed LTF	12.3796
G-007	G-007	0.2766	Confirmed LTF	0.2766
MEC	MEC	0.6849	Confirmed LTF	0.6849

10.7 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
AA1-099	Clinton Co. 34.5kV	In Service
AB1-014	Hillcrest 138kV	Under Construction
AB1-169	Stuart 345kV	Engineering and Procurement
AB2-083	Delano 138kV	Active
AB2-085	Adams 138kV	Active
AC1-001	Delano 138kV	Active
AC1-068	Atlanta 69kV I	Engineering and Procurement
AC1-069	Atlanta 69kV II	Engineering and Procurement
AC1-074	Jacksonville-Renaker 138kV I	Active
AC1-078	Beatty-London 138kV	Active
AC1-085	Stuart-Clinton 345kV	Engineering and Procurement
AC1-089	Hillsboro-Wildcat 138kV	Suspended
AC1-165	Atlanta 69kV III	Engineering and Procurement
AC1-166	Atlanta 69kV IV	Engineering and Procurement
AC1-182	W.H. Zimmer Station 345kV	In Service
AC1-194	Elk 138kV	Active
AC1-212	Minster 69kV	Engineering and Procurement
AC2-029	Circleville 138kV	Active
AC2-055	Buckskin 69kV	Active
AC2-059	Biers Run-Circleville 138kV	Active
AC2-060	Buckskin 69kV	Active
AC2-061	Hillsboro-Clinton 138kV	Active
AC2-066	Hillcrest 138kV	Under Construction
AC2-068	Camden-Crystal II 69kV	Engineering and Procurement
AC2-075	Great Blue Heron Solar	Active
AC2-088	S. Bethel-Brown 69kV	Engineering and Procurement
AC2-111	College Corner 138kV	Active
AD1-072	Biers Run-Circleville 138 kV	Active
AD1-073	Buckskin 69 kV	Active
AD1-081	Beatty-London 138 kV	Active
AD1-136	South Bethel-Brown 69 kV	Engineering and Procurement
AD1-140	Greene-Clark 138 kV	Active
AD2-016	Biers Run-Circleville 138 kV	Active
AD2-031	Martinsville-Wilmington 69 kV	Active
AD2-048	Cynthia-Headquarters 69 kV	Active
AD2-072	Van Arsdell-Mercer Industrial 69kV	Active
AD2-162	Biers Run-Circleville 138kV	Active
AE1-007	Camden-Crystal III 69 kV	Active
AE1-040	Greenfield 69 kV	Active

Queue Number	Project Name	Status
AE1-093	Elk 138 kV	Active
AE1-120	Hillcrest 138 kV	Engineering and Procurement
AE1-143	Marion County 161 kV	
AE1-144	Goddard-Plumville 138 kV	Active
AE2-038	Goddard-Plumville 138 kV II	Active
AE2-138	Avon-North Clark 345 kV	Active
AE2-148	Beatty-Greene 345 kV	Active
AE2-149	Biers Run-Bixby 345 kV	Active
AE2-206	East Sidney-Quincy 138 kV	Active
AE2-210	Avon-North Clark 345 kV	Active
AE2-214	Cole 345 kV	Active
AE2-217	East Springfield-London 138 kV	Active
AE2-218	Eldean 138 kV	Active
AE2-221	Clinton-Stuart 345 kV	Active
AE2-254	Garrard County-Tommy-Gooch 69 kV	Active
AE2-267	Woodsdale 345 kV	Active
AE2-275	JK Smith-Fawkes 138 kV	Active
AE2-278	Urbana 138 kV	Active
AE2-302	East Beaver-Lick 138 kV	Active
AE2-308	Three Forks-Dale 138 kV	Active
AE2-315	Yankee Tap 69 kV	Active
AE2-318	Ford-Cedarville 138 kV	Active
AE2-319	Atlanta 69kV I	Active
AE2-320	Atlanta 69 kV II	Active
AE2-339	Avon 138 kV	Active
AF1-038	Sewellton Jct-Webbs Crossroads 69 kV	Active
AF1-045	Cedarville-Ford 138 kV	Active
AF1-050	Summer Shade - Green County 161 kV	Active
AF1-053	Givens-Mechanicsburg 138 kV	Active
AF1-062	Jug Street 138 kV	Active
AF1-071	College Corner 138 kV	Active
AF1-078	East Sidney-Quincy 138 kV	Active
AF1-083	Green County-Saloma 161 kV	Active
AF1-116	Marion County 161 kV	Active
AF1-117	Atlanta-Stuart 345 kV	Active
AF1-127	Avon 345 kV	Active
AF1-159	Martinsville-Wilmington 69 kV	Active
AF1-219	Hunt Farm 69 kV	Active
AF1-221	College Corner-Drewersburg 138 kV	Active
AF1-228	Beatty-Greene 345 kV	Active
AF1-233	Flemingsburg 138 kV	Active
AF1-249	Nickel 12.47 kV	Active
AF1-251	Avon-North Clark 345 kV	Active
AF1-256	Flemingsburg-Spurlock 138 kV	Active
AF1-267	Union City Tap 138 kV	Active
AF1-275	Cole 345 kV	Active
AF1-282	Stuart-Clinton 345 kV	Active
AF1-283	Stuart-Clinton 345 kV	Active
AF1-315	Cedarville-Ford 138 kV	Active
AF2-011	Tait 69 kV	Active
AF2-012	Tait 69 kV	Active
AF2-033	Miami Fort 138 kV	Active

Queue Number	Project Name	Status
AF2-034	Kendall	Active
AF2-066	West Manchester 69 kV	Active
AF2-067	West Manchester-Crown 69 kV	Active
AF2-079	Greenville 138 kV	Active
AF2-090	Central Hardin 138 kV	Active
AF2-111	North Clark-Spurlock 345 kV	Active
AF2-123	Lafayette 69 kV	Active
AF2-198	Heath 69 kV	Active
AF2-210	Foster-Garver Road 345 kV	Active
AF2-211	College Corner 138 kV	Active
AF2-212	Shelby 138 kV	Active
AF2-218	Gettysburg 69 kV	Active
AF2-245	Spurlock-Flemingsburg 345 kV	Active
AF2-260	Stephensburg 69 kV	Active
AF2-263	Shelby 138 kV	Active
AF2-298	Crown-Brookville 69 kV	Active
AF2-306	Hope-Blevins Valley Tap 69 kV	Active
AF2-307	Hope-Blevins Valley Tap 69 kV	Active
AF2-308	Central Hardin-Stephensburg 69 kV	Active
AF2-309	Central Hardin-Stephensburg 69 kV	Active
AF2-348	North Clark-Spurlock 345 kV	Active
AF2-355	West Gerrard-J.K. Smith 345 nkV	Active
AF2-371	Harrison-Poston 138 kV	Active
AF2-391	Central Hardin 69 kV	Active
AF2-419	Hunt Farm-Ballard 69 kV	Active
AF2-420	Hunt Farm-Ballard 69 kV	Active
AF2-440	Martinsville-Highland 69 kV	Active
V4-073	Yankee 12.5kV	In Service
Y1-054	Rochelle 138kV	In Service
Y1-063	Trenton 34.5kV	In Service
Z1-080	Clinton County 34.5kV	In Service

10.8 Contingency Descriptions

Contingency Name	Contingency Definition
DAY_P734569 34598 34524	CONTINGENCY 'DAY_P734569 34598 34524' OPEN BRANCH FROM BUS 249566 TO BUS 249578 CKT 1 / OPEN BRANCH FROM BUS 249566 TO BUS 253006 CKT 1 / 249566 08FOSTER 345 253006 09BATH 345 1 OPEN BRANCH FROM BUS 249566 TO BUS 253079 CKT 1 / 249566 08FOSTER 345 253079 09SUGRCK 345 1 END
DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGR VZIMMER	CONTINGENCY 'DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER' OPEN BRANCH FROM BUS 249989 TO BUS 250080 CKT 1 / 249989 08BKJ246 138 250080 08NWTWN2 138 1 OPEN BRANCH FROM BUS 250079 TO BUS 250080 CKT Z1 / 250079 08NWTWN1 138 250080 08NWTWN2 138 Z1 OPEN BRANCH FROM BUS 250079 TO BUS 250092 CKT 1 / 250079 08NWTWN1 138 250092 08REDBK1 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END
DEOK_P7-1_C5 4524FOSTRSUGRCRK34598FOSTER BATH	CONTINGENCY 'DEOK_P7-1_C5 4524FOSTRSUGRCRK34598FOSTERBATH' OPEN BRANCH FROM BUS 249566 TO BUS 253079 CKT 1 / 249566 08FOSTER 345 253079 09SUGRCK 345 1 OPEN BRANCH FROM BUS 249566 TO BUS 253006 CKT 1 / 249566 08FOSTER 345 253006 09BATH 345 1 END
DAY_P4_L34526-3	CONTINGENCY 'DAY_P4_L34526-3' OPEN LINE FROM BUS 253027 TO BUS 253006 CKT 1 /* 09GREENE 345 - 09BATH 345 OPEN LINE FROM BUS 253027 TO BUS 253014 CKT 1 /* 09GREENE 345 - 09CLINTO 345 OPEN LINE FROM BUS 253014 TO BUS 253013 CKT 1 /* 09CLINTON 69 - 09CLINTO 345 OPEN LINE FROM BUS 253014 TO BUS 253013 CKT 2 /* 09CLINTON 69 - 09CLINTO 345 END
DAY_P1-2_#762	CONTINGENCY 'DAY_P1-2_#762' OPEN BRANCH FROM BUS 243453 TO BUS 253110 CKT 1 / 243453 05BEATTY 345 253110 09ADKINS 345 1 END

Contingency Name	Contingency Definition
AEP_P4_#3195_05BEATTY 345_304E	CONTINGENCY 'AEP_P4_#3195_05BEATTY 345_304E' OPEN BRANCH FROM BUS 243453 TO BUS 243454 CKT 1 / 243453 05BEATTY 345 243454 05BIXBY 345 1 OPEN BRANCH FROM BUS 243453 TO BUS 243468 CKT 4 / 243453 05BEATTY 345 243468 05BEATTX 138 4 END
DAY_P734541 34553	CONTINGENCY 'DAY_P734541 34553' OPEN BRANCH FROM BUS 249581 TO BUS 342838 CKT 1 /* 249581 08MELDAL 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* 253077 09STUART 345.00 342838 7SPURLOCK 345.00 END
DEOK_P5-5_FOSTER345 BUS1+RELAYFAIL	CONTINGENCY 'DEOK_P5-5_FOSTER345 BUS1+RELAYFAIL' OPEN BRANCH FROM BUS 249566 TO BUS 250035 CKT 1 / 249566 08FOSTER 345 250035 08FTRM11 138 1 OPEN BRANCH FROM BUS 249566 TO BUS 249578 CKT 1 / 249566 08FOSTER 345 249578 08HILCRT 345 1 OPEN BRANCH FROM BUS 249566 TO BUS 253079 CKT 1 / 249566 08FOSTER 345 253079 09SUGRCK 345 1 END
AEP_P4_#10715_05COLE 345_C	CONTINGENCY 'AEP_P4_#10715_05COLE 345_C' OPEN BRANCH FROM BUS 244022 TO BUS 243457 CKT 1 / 244022 05COLE 345 243457 05HAYDEN 345 1 OPEN BRANCH FROM BUS 244022 TO BUS 244023 CKT 1 / 244022 05COLE 345 244023 05COLE 138 1 END
EKPC_P2-3_SPUR N39-1444	CONTINGENCY 'EKPC_P2-3_SPUR N39-1444' /* SPURLOCK OPEN BRANCH FROM BUS 958170 TO BUS 342838 CKT 1 /* 958170 AF2-111 TAP 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 342664 TO BUS 342838 CKT 2 /* 342664 4SPURLOCK 138.00 342838 7SPURLOCK 345.00 END
DEOK_P2-2_C1 SILVER GROVE 345 BUS	CONTINGENCY 'DEOK_P2-2_C1 SILVER GROVE 345 BUS' OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END

Contingency Name	Contingency Definition
DEOK_P2-3_C2 1493_RED BANK	CONTINGENCY 'DEOK_P2-3_C2 1493_RED BANK' OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249571 TO BUS 250092 CKT 1 / 249571 08REDBK1 345 250092 08REDBK1 138 1 END
AEP_P4_#8094_05BIXBY 345_C	CONTINGENCY 'AEP_P4_#8094_05BIXBY 345_C' OPEN BRANCH FROM BUS 243453 TO BUS 243454 CKT 1 / 243453 05BEATTY 345 243454 05BIXBY 345 1 OPEN BRANCH FROM BUS 941520 TO BUS 243454 CKT 1 / 941520 AE2-149 TAP 345 243454 05BIXBY 345 1 END
DEOK_P2-3_C2 816_SILVERGROVE	CONTINGENCY 'DEOK_P2-3_C2 816_SILVERGROVE' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249988 TO BUS 250097 CKT 1 / 249988 08BKJ135 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250042 TO BUS 250097 CKT 1 / 250042 08HANDS1 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250052 TO BUS 250097 CKT 1 / 250052 08KYUNIV 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250053 TO BUS 250097 CKT 1 / 250053 08LAFARG 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
DAY-P1-STU SPUR	CONTINGENCY 'DAY-P1-STU SPUR' DISCONNECT BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* STU SPUR END
EKPC_P2-4_SPUR N39-150T-A	CONTINGENCY 'EKPC_P2-4_SPUR N39-150T-A' /* SPURLOCK OPEN BUS 342960 /* 1SPURLK2G OPEN BRANCH FROM BUS 958170 TO BUS 342838 CKT 1 /* 958170 AF2-111 TAP 345.00 342838 7SPURLOCK 345.00 END

Contingency Name	Contingency Definition
DAY_P4_L34553-1	CONTINGENCY 'DAY_P4_L34553-1' OPEN LINE FROM BUS 253077 TO BUS 342838 CKT 1 /* 09STUART 345 - 7SPURLK 345 OPEN LINE FROM BUS 253077 TO BUS 253076 CKT 1 /* 09STUART 345 - 09STUART 138 END
Base Case	
AEP_P1-2_#713	CONTINGENCY 'AEP_P1-2_#713' OPEN BRANCH FROM BUS 243453 TO BUS 243454 CKT 1 / 243453 05BEATTY 345 243454 05BIXBY 345 1 END
DEOK_P2-3_C2 1349_FOSTER	CONTINGENCY 'DEOK_P2-3_C2 1349_FOSTER' OPEN BRANCH FROM BUS 249566 TO BUS 253006 CKT 1 / 249566 08FOSTER 345 253006 09BATH 345 1 OPEN BRANCH FROM BUS 249566 TO BUS 249578 CKT 1 / 249566 08FOSTER 345 249578 08HILCRT 345 1 END
DAY_P7_495	CONTINGENCY 'DAY_P7_495' OPEN BRANCH FROM BUS 249566 TO BUS 253006 CKT 1 / 249566 08FOSTER 345 253006 09BATH 345 1 OPEN BRANCH FROM BUS 253014 TO BUS 253027 CKT 1 / 253014 09CLINTO 345 253027 09GREENE 345 1 OPEN BRANCH FROM BUS 253014 TO BUS 253013 CKT 1 / 253014 09CLINTO 345 253013 09CLINTO 69.0 1 OPEN BRANCH FROM BUS 253014 TO BUS 253013 CKT 2 / 253014 09CLINTO 345 253013 09CLINTO 69.0 1 END
DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	CONTINGENCY 'DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
AEP_P1-2_#10137	CONTINGENCY 'AEP_P1-2_#10137' OPEN BRANCH FROM BUS 243453 TO BUS 244022 CKT 1 / 243453 05BEATTY 345 244022 05COLE 345 1 END

Contingency Name	Contingency Definition
DAY_P1_AC1-085_ST_FSA-B	CONTINGENCY 'DAY_P1_AC1-085_ST_FSA-B' OPEN BRANCH FROM BUS 253014 TO BUS 942090 CKT 1 END
EKPC_P2-3_SPUR N39-1474	CONTINGENCY 'EKPC_P2-3_SPUR N39-1474' /* SPURLOCK OPEN BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* 253077 09STUART 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 342664 TO BUS 342838 CKT 2 /* 342664 4SPURLOCK 138.00 342838 7SPURLOCK 345.00 END
EKPC_P4-2_SPUR N39-1474	CONTINGENCY 'EKPC_P4-2_SPUR N39-1474' /* SPURLOCK OPEN BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* 253077 09STUART 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 342664 TO BUS 342838 CKT 2 /* 342664 4SPURLOCK 138.00 342838 7SPURLOCK 345.00 END
AEP_P4_#6774_05MARQUI 345_D	CONTINGENCY 'AEP_P4_#6774_05MARQUI 345_D' OPEN BRANCH FROM BUS 246888 TO BUS 242938 CKT 1 / 246888 05BIERSR 345 242938 05MARQUI 345 1 OPEN BRANCH FROM BUS 242938 TO BUS 253038 CKT 1 / 242938 05MARQUI 345 253038 09KILLEN 345 1 END
AEP_P4_#3196_05BEATTY 345_302E	CONTINGENCY 'AEP_P4_#3196_05BEATTY 345_302E' OPEN BRANCH FROM BUS 243453 TO BUS 244022 CKT 1 / 243453 05BEATTY 345 244022 05COLE 345 1 OPEN BRANCH FROM BUS 243453 TO BUS 243468 CKT 4 / 243453 05BEATTY 345 243468 05BEATTX 138 4 END
EKPC_P7-1_SPUR 345&138-B	CONTINGENCY 'EKPC_P7-1_SPUR 345&138-B' /* SPURLOCK - N CLARK 345 & SPURLOCK - GODDARD 138 OPEN BRANCH FROM BUS 958170 TO BUS 342838 CKT 1 /* 958170 AF2-111 TAP 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 959540 TO BUS 342664 CKT 1 /* 959540 AF2-245 TAP138.00 342664 4SPURLOCK 138.00 OPEN BRANCH FROM BUS 342583 TO BUS 342589 CKT 1 /* 342583 4FLEMINGSBRG138.00 342589 4GODDARD 138.00 END

11 Light Load Analysis

Light Load Studies (As applicable)

To be determined during later study phases.

12 Short Circuit Analysis

The following Breakers are overdutied:

To be determined during later study phases.

13 Stability and Reactive Power Assessment

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined during later study phases.

14 Affected Systems

14.1 LG&E

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

14.2 MISO

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

14.3 TVA

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

14.4 Duke Energy Progress

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

15 Affected Systems

15.1 TVA

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

15.2 Duke Energy Progress

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

15.3 MISO

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

15.4 LG&E

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