



**Generation Interconnection
Feasibility Study Report
For
Queue Project AF2-196
CEDAR NECK 69 KV II
9 MW Capacity / 30 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 DPL.

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.

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

3 General

The Interconnection Customer (IC) has proposed an uprate to a planned Offshore Wind generating facility located in Sussex, Delaware. This project is an increase to the Interconnection Customer's AE2-257 project, which will share the same point of interconnection. The AF2-196 queue position is a 30 MW uprate (9 MW Capacity uprate) to the previous project. The total installed facilities will have a capability of 150 MW with 42 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this uprate project is June 01, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-196
Project Name	CEDAR NECK 69 KV II
State	Delaware
County	Sussex
Transmission Owner	DPL
MFO	150
MWE	30
MWC	9
Fuel	Offshore Wind
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

AF2-196 will interconnect with the DPL transmission system via a new terminal position at the Cedar Neck 69 kV substation that will be established as part of the AE2-257 project. If AE2-257 does not complete the necessary work to facilitate this interconnection, AF2-196 will be required to complete the work listed in the AE2-257 Study.

5 Cost Summary

The AF2-196 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$0
Total System Network Upgrade Costs	\$277,459,000
Total Costs	\$277,459,000

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

5.1 DPL Costs

Cost estimates will further be refined as a part of the Impact Study and Facilities Study for this project. The Interconnection Customer will be responsible for all costs incurred by DPL in connection with the AF2-196 project. DPL reserves the right to reassess issues presented in this document and, upon appropriate justification, submit additional costs related to the AF2-196 project.

6 Transmission Owner Scope of Work

Work scope required to interconnect this facility will be completed as part of AE2-257. Refer to AE2-257 report for scope.

7 Schedule

Refer to AE2-257 for schedule.

8 Transmission Owner Analysis

None

9 Interconnection Customer Requirements

9.1 Required Relaying and Communications

Necessary relaying and communications work will be completed as part of AE2-257 project. Refer to AE2-257 report for scope.

9.2 Special Operating Requirements

1. DPL will require the capability to remotely disconnect the generator from the grid by communication from its System Operations facility. Such disconnection may be facilitated by a generator breaker, or other method depending upon the specific circumstances and the evaluation by DPL.
2. DPL reserves the right to charge the Interconnection Customer operation and maintenance expenses to maintain the Interconnection Customer attachment facilities, including metering and telecommunications facilities, owned by DPL.

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

10.2 Interconnected Transmission Owner Requirements

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

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

69 kV metering for this project will be established as part of AE2-257 project. Refer to AE2-257 report for scope.

11 Summer Peak - Load Flow Analysis

The Queue Project AF2-196 was evaluated as a 30.0 MW (Capacity 9.0 MW) injection as an uprate to AE2-257 at the Cedar Neck 69 kV substation in the DPL area. Project AF2-196 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-196 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

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

None

11.2 Multiple Facility Contingency

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

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
101769275	232114	SHARNGT N	138.0	DP&L	232112	FELTON	138.0	DP&L	1	DPL_P4-2_DP6	breaker	242.0	98.89	100.67	DC	4.35

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
100078251	232001	COOLSPRS	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	DPL_P4-2_DP15	breaker	678.0	150.64	153.42	DC	18.89
99342231	232003	CARTANZA	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	DPL_P4-2_DP25B	breaker	804.0	149.83	151.22	DC	11.18
99342232	232003	CARTANZA	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	DPL_P4-2_DP23	breaker	804.0	149.7	151.1	DC	11.18
99342233	232003	CARTANZA	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	DPL_P4-2_DP24	breaker	804.0	149.69	151.08	DC	11.18
100078324	232006	INDRIV4	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	DPL_P4-2_DP36	breaker	805.0	132.7	134.83	DC	17.25
101770287	232100	CHURCH	138.0	DP&L	232107	TOWNSE ND	138.0	DP&L	1	DPL_P7_1_DBL_1NCB_FSA-A	tower	348.0	125.36	126.07	DC	5.53
101770293	232106	MIDLTNT P	138.0	DP&L	232104	MT PLSNT	138.0	DP&L	1	DPL_P7_1_DBL_1NCB_FSA-A	tower	348.0	121.25	121.96	DC	5.53
101770277	232107	TOWNSE ND	138.0	DP&L	232106	MIDLTNT P	138.0	DP&L	1	DPL_P7_1_DBL_1NCB_FSA-A	tower	348.0	130.56	131.27	DC	5.53
101769159	232121	INDRV2&3	138.0	DP&L	232119	NELSON	138.0	DP&L	1	DPL_P4-2_DP15	breaker	193.0	122.36	124.59	DC	4.29
101769160	232121	INDRV2&3	138.0	DP&L	232119	NELSON	138.0	DP&L	1	DPL_P4-2_DP6	breaker	193.0	105.66	108.07	DC	4.66
101769161	232121	INDRV2&3	138.0	DP&L	232119	NELSON	138.0	DP&L	1	DPL_P4-2_DP3	breaker	193.0	104.94	107.17	DC	4.29
101769181	232215	KENT	69.0	DP&L	232812	NMERED TH	69.0	DP&L	1	DPL_P4-2_DP11	breaker	93.0	125.46	126.31	DC	1.74
101769038	232233	PRESTON	69.0	DP&L	232821	TANYARD	69.0	DP&L	1	DPL_P4-2_DP11	breaker	93.0	193.72	194.88	DC	2.4

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
101769023	232234	TODD	69.0	DP&L	232233	PRESTON	69.0	DP&L	1	DPL_P4-2_DP11	breaker	93.0	198.67	199.83	DC	2.4
101769209	232241	VIENN_69	69.0	DP&L	232234	TODD	69.0	DP&L	1	DPL_P4-2_DP11	breaker	143.0	104.36	104.96	DC	1.91
101769287	232812	NMEREDTH	69.0	DP&L	924820	AB2-135 TAP	69.0	DP&L	1	DPL_P4-2_DP11	breaker	93.0	103.2	104.05	DC	1.74
101769164	232821	TANYARD	69.0	DP&L	232820	TALBOT	69.0	DP&L	1	DPL_P4-2_DP11	breaker	173.0	100.73	101.35	DC	2.4

11.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
100078591	232001	COOLSPRS	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	DPL_P1_2_CKT 23034	operation	678.0	152.72	155.37	DC	18.01
100078593	232001	COOLSPRS	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	Base Case	operation	550.0	104.01	106.0	DC	10.99
99342637	232002	CEDARCK	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	CKT 23032B	operation	679.0	166.26	167.11	DC	12.74
99342638	232002	CEDARCK	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	Base Case	operation	551.0	127.85	129.48	DC	9.1
99342736	232003	CARTANZA	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	CKT 23030B	operation	804.0	149.57	150.94	DC	11.18
99342737	232003	CARTANZA	230.0	DP&L	232013	SILVER RUN	230.0	PJM	1	Base Case	operation	650.0	136.75	137.86	DC	7.18
100078585	232004	MILF_230	230.0	DP&L	232000	STEELE	230.0	DP&L	1	CKT 23032B	operation	550.0	166.82	168.65	DC	10.06
100078590	232004	MILF_230	230.0	DP&L	232000	STEELE	230.0	DP&L	1	Base Case	operation	550.0	109.0	110.31	DC	7.26
100078817	232004	MILF_230	230.0	DP&L	232002	CEDARCK	230.0	DP&L	1	CKT 23032B	operation	804.0	104.4	105.59	DC	9.55
100078657	232006	INDRIV 4	230.0	DP&L	232001	COOLSPRS	230.0	DP&L	1	DPL_P1_2_CKT 23034	operation	800.0	135.28	136.94	DC	13.33
100078666	232006	INDRIV 4	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	DPL_P1_2_CKT 23069	operation	805.0	130.67	132.85	DC	17.6
100078668	232006	INDRIV 4	230.0	DP&L	232004	MILF_230	230.0	DP&L	1	Base Case	operation	650.0	99.98	101.49	DC	9.86
99342945	232013	SILVER RUN	230.0	PJM	231004	RL_230	230.0	DP&L	1	CKT 23032A	operation	679.0	111.83	112.35	DC	7.94

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
101769164	14	TANYARD 69.0 kV - TALBOT 69.0 kV Ckt 1	<u>DP&L</u> dt6716r0003 (1044) : To mitigate the (DP&L) Tanyard - Talbot 69 kV line (from bus 232820 to bus 232821 ckt 1) overload, it will require increasing the emergency rating of the Tanyard - Talbot 69 kV line by rebuilding the line. This includes installation of new poles, foundations, insulators and OPGW. Project Type : FAC Cost : \$7,499,000 Time Estimate : 36-48 Months	\$7,499,000
99342232,99342233,99342231	3	CARTANZA 230.0 kV - SILVER RUN 230.0 kV Ckt 1	<u>DP&L</u> dt23032r0002 (1021) : Rebuild Cartanza - Silver Run 230 kV line Project Type : FAC Cost : \$67,000,000 Time Estimate : 48-60 Months <u>DP&L</u> ds23032r0001 (1022) : Replace 3000A CBs at Cartanza with 4000A CBs Project Type : FAC Cost : \$1,000,000 Time Estimate : 12-18 Months	\$68,000,000
101769038	10	PRESTON 69.0 kV - TANYARD 69.0 kV Ckt 1	<u>DP&L</u> b2946 (1016) : PJM baseline upgrade b2946 conversion of Preston station to a Ring Bus Project Type : CON Cost : \$0 Time Estimate : 30-36 Months <u>DP&L</u> dt6716r0001 (1041) : To mitigate the (DP&L) Preston - Tanyard 69 kV line (from bus 232821 to bus 232233 ckt 1) overload, it will require increasing the emergency rating of the Preston-Tanyard 69 kV line by rebuilding the line. This includes installation of new poles, foundations, insulators and OPGW. Project Type : FAC Cost : \$11,000,000 Time Estimate : 36-48 Months	\$11,000,000
101770293	6	MIDLTNTTP 138.0 kV - MT PLSNT 138.0 kV Ckt 1	<u>DP&L</u> dt13808r0002 (1013) : Partial reconductor of 13808 line between Mt. Pleasant and Middletown Tap Project Type : FAC Cost : \$110,000 Time Estimate : 9-12 Months <u>DP&L</u> ds13808r0002 (1015) : Upgrade disconnect switch at Middletown Tap Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months	\$210,000

ID	Idx	Facility	Upgrade Description	Cost
101769159,101769160,101769161	8	INDRV2&3 138.0 kV - NELSON 138.0 kV Ckt 1	<u>DP&L</u> dt13703r0001 (1039) : To mitigate the (DP&L) Indian River to Nelson 138 kV line (from bus 232121 to bus 232119 ckt 1) overload, it will require increasing the emergency rating of the Indian River - Nelson 138 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$32,000,000 Time Estimate : 48-60 Months	\$32,000,000
101770277	7	TOWNSEND 138.0 kV - MIDLTNTP 138.0 kV Ckt 1	<u>DP&L</u> ds13808r0001 (1014) : Upgrade disconnect switch at Middletown Tap Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months <u>DP&L</u> dt13808r0001 (1038) : To mitigate the (DP&L) TOWNSEND to MIDLTNTP 138 kV line (from bus 232107 to bus 232106 ckt 1) overload, it will require increasing the emergency rating of the Townsend to Middletown Tap 138 kV line by reconductoring a small portion of the line Project Type : FAC Cost : \$100,000 Time Estimate : 9-12 Months	\$200,000
101770287	5	CHURCH 138.0 kV - TOWNSEND 138.0 kV Ckt 1	<u>DP&L</u> ds13833r0001 (1034): To mitigate the (DP&L) CHURCH to TOWNSEND 138 kV line (from bus 232100 to bus 232107 ckt 1) overload will require substation reinforcements at Church Substation. Project Type : FAC Cost : \$500,000 Time Estimate : 24-36 Months <u>DP&L</u> ds13833r0002 (1035): To mitigate the (DP&L) CHURCH to TOWNSEND 138 kV line (from bus 232100 to bus 232107 ckt 1) overload will require substation reinforcements (on top of ds13833r0001) at Church Substation. Project Type : FAC Cost : \$200,000 Time Estimate : 24.0 Months	\$700,000

ID	Idx	Facility	Upgrade Description	Cost
101769023	11	TODD 69.0 kV - PRESTON 69.0 kV Ckt 1	<u>DP&L</u> b2946 (1016) : PJM baseline upgrade b2946 conversion of Preston station to a Ring Bus Project Type : CON Cost : \$0 Time Estimate : 30-36 Months <u>DP&L</u> ds6716r0001 (1028): Previously identified in AB2-172, To mitigate the (DP&L) TODD to PRESTON 69 kV line (from bus 232234 to bus 232233 ckt 1) overload will require substation reinforcements at Todd Substation. Replace 600A Disconnect Switch at Todd Project Type : FAC Cost : \$100,000 Time Estimate : 12.0 Months <u>DP&L</u> ds6716r0002 (1042) : To mitigate the (DP&L) Preston - Tanyard 69 kV line (from bus 232821 to bus 232233 ckt 1) overload, it will require increasing the emergency rating of the Preston-Tanyard 69 kV line by replacing the terminal equipment at the Tanyard Tap Project Type : FAC Cost : \$100,000 Time Estimate : 9-12 Months <u>DP&L</u> dt6716r0005 (1059) : To mitigate the (DP&L) Preston - Todd 69 kV line (from bus 232234 to bus 232233 ckt 1) overload, it will require increasing the emergency rating of the Preston-Todd 69 kV line by rebuilding the line. This includes installation of new poles, conductor, foundations, insulators and OPGW. Project Type : FAC Cost : \$9,000,000 Time Estimate : 36-48 Months	\$9,200,000
101769275	1	SHARNGTN 138.0 kV - FELTON 138.0 kV Ckt 1	<u>DP&L</u> dt13709r0001 (1046) : To mitigate the (DP&L) Felton - S. Harrington 138 kV line (from bus 232112 to bus 232114 ckt 1) overload, it will require increasing the emergency rating of the Felton - S. Harrington 138 kV line by rebuilding the line which includes the installation of new poles, foundations insulators and OPGW Project Type : FAC Cost : \$17,000,000 Time Estimate : 36-48 Months	\$17,000,000
100078324	4	INDRIV 4 230.0 kV - MILF_230 230.0 kV Ckt 1	<u>DP&L</u> dt23034r0001 (1054) : To mitigate the (DPL) Indian River - Milford 230 kV line (from bus 232006 to 232004) overload it will require increasing the emergency rating of the line by rebuild with new poles, foundations, insulators, and OPGW. In addition terminal upgrades will be required at Milford and Indian River Project Type : FAC Cost : \$60,000,000 Time Estimate : 48-60 Months	\$60,000,000

ID	Idx	Facility	Upgrade Description	Cost
101769209	12	VIENN_69 69.0 kV - TODD 69.0 kV Ckt 1	<u>DP&L</u> ds6702r0001 (1063) : To mitigate the (DPL) Vienna - Todd 69 kV line (from bus 232241 to 232234) it will require increasing the emergency rating of the line by upgrading the relays at both Todd and Vienna Project Type : FAC Cost : \$450,000 Time Estimate : 12-18 Months	\$450,000
101769181	9	KENT 69.0 kV - NMEREDTH 69.0 kV Ckt 1	<u>DP&L</u> dt6704r0001 (1017): Rebuild 6704-2 Line from Kent to N. Meredith Tap. Upgrade disconnect switch @ N Meredith Project Type : FAC Cost : \$7,600,000 Time Estimate : 36-48 Months	\$7,600,000
101769287	13	NMEREDTH 69.0 kV - AB2-135 TAP 69.0 kV Ckt 1	<u>DP&L</u> dt6704r0002 (1053) : To mitigate the (DPL) New Meredith to AB2-135 Tap 69 kV line (from bus 232812 to 924820_ overload it will require increasing the emergency rating of the New Meredith to AB2-135 Tap 69 kV line by rebuilding the line with new poles foundations insulators and OPGW. Terminal equipment at New Meredith Tap will also need to be replaced Project Type : FAC Cost : \$11,000,000 Time Estimate : 36-48 Months	\$11,000,000
100078251	2	COOLSPRS 230.0 kV - MILF_230 230.0 kV Ckt 1	<u>DP&L</u> dt23069r0001 (1067) : Rebuild 23069 Cool Spring - Milford (232001 to 232004) with new poles, conductor, foundations, insulators and OPGW Project Type : FAC Cost : \$52,000,000 Time Estimate : 48-60 Months <u>DP&L</u> ds23069r0001 (1068) : Upgrade terminal equipment at Milford and Cool Spring Project Type : FAC Cost : \$400,000 Time Estimate : 12-18 Months <u>DP&L</u> ds23069r0002 (1069) : Upgrade terminal equipment at Milford and Cool Spring Project Type : FAC Cost : \$200,000 Time Estimate : 9-12 Months	\$52,600,000
			TOTAL COST	\$277,459,000

11.6 Flow Gate Details

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

11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101769275	232114	SHARNGTN	DP&L	232112	FELTON	DP&L	1	DPL_P4-2_DP6	breaker	242.0	98.89	100.67	DC	4.35

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
231940	T-011	0.1307	50/50	0.1307
232405	W1-003 E	0.4563	Adder	0.54
232407	W1-004 E	0.4563	Adder	0.54
232409	W1-005 E	0.4563	Adder	0.54
232411	W1-006 E	0.4563	Adder	0.54
232412	X1-032 E	0.3929	Adder	0.46
232418	X3-008 E	0.8173	Adder	0.96
232427	Y1-080 E	0.1630	Adder	0.19
232429	Y3-058 E	0.9081	Adder	1.07
232432	Z2-076 C	0.0973	50/50	0.0973
232433	Z2-076 E	0.2842	50/50	0.2842
232434	Z2-077 C	0.0973	50/50	0.0973
232435	Z2-077 E	0.2842	50/50	0.2842
232851	DUP-SFR1	0.3180	50/50	0.3180
232904	IR4	10.1845	50/50	10.1845
232905	BAYVIEW1	0.2577	50/50	0.2577
232920	IR10	0.4036	50/50	0.4036
232921	TASLEY2G	0.4516	50/50	0.4516
293670	O-025 C	0.1248	50/50	0.1248
917081	Z2-012 C	0.1567	50/50	0.1567
917082	Z2-012 E	1.4819	50/50	1.4819
923282	AB1-137 C	0.6093	50/50	0.6093
923283	AB1-137 E	0.2611	50/50	0.2611
924681	AB2-120 C OP	4.5501	50/50	4.5501
924682	AB2-120 E OP	7.4239	50/50	7.4239
924781	AB2-130 C OP	4.8369	50/50	4.8369
924782	AB2-130 E OP	7.8918	50/50	7.8918
924831	AB2-136 C	1.8388	Adder	2.16
924832	AB2-136 E	1.9500	Adder	2.29
925151	AB2-172 C OP	1.2523	Adder	1.47
925152	AB2-172 E OP	2.0432	Adder	2.4
925261	AB2-180 C	1.3671	Adder	1.61
925262	AB2-180 E	0.5859	Adder	0.69
927031	AC1-190 C	2.3574	Adder	2.77
927032	AC1-190 E	1.0103	Adder	1.19
927191	AC1-213 C	0.3859	50/50	0.3859
927192	AC1-213 E	0.2532	50/50	0.2532
930201	AB1-056 C	9.1867	50/50	9.1867
930202	AB1-056 E	26.1620	50/50	26.1620
930881	AB1-137 C	0.6093	50/50	0.6093
930882	AB1-137 E	0.2611	50/50	0.2611
932161	AC2-023 C	2.4973	Adder	2.94

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932162	AC2-023 E	1.8188	Adder	2.14
933641	AC2-186 C	3.1405	50/50	3.1405
933642	AC2-186 E	5.1240	50/50	5.1240
938651	AE1-087 C	1.0545	Adder	1.24
938652	AE1-087 E	0.2636	Adder	0.31
938891	AE1-117 C O1	6.0113	50/50	6.0113
938892	AE1-117 E O1	16.0059	50/50	16.0059
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	6.0055	50/50	6.0055
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	15.9905	50/50	15.9905
939151	AE1-145	2.3972	50/50	2.3972
939621	AE1-192 C O1	5.6170	50/50	5.6170
939622	AE1-192 E O1	2.7487	50/50	2.7487
942441	AE2-257 C	4.7807	50/50	4.7807
942442	AE2-257 E	12.6037	50/50	12.6037
943361	AF1-007 C	0.2710	50/50	0.2710
943362	AF1-007 E	0.7703	50/50	0.7703
944921	AF1-157 C O1	2.2149	50/50	2.2149
944922	AF1-157 E O1	1.4766	50/50	1.4766
945661	AF1-231 C	0.7715	Adder	0.91
945662	AF1-231 E	1.1572	Adder	1.36
945781	AF1-243	0.5976	50/50	0.5976
945791	AF1-244	0.7797	Adder	0.92
945931	AF1-258	0.3125	Adder	0.37
946041	AF1-269 (Withdrawn : 05/12/2020)	0.8537	Adder	1.0
957611	AF2-055 C	4.1829	50/50	4.1829
957612	AF2-055 E	1.7927	50/50	1.7927
957661	AF2-060	1.0787	50/50	1.0787
957671	AF2-061 O1	4.7944	50/50	4.7944
959021	AF2-193 C O1	16.9754	50/50	16.9754
959022	AF2-193 E O1	45.7906	50/50	45.7906
959031	AF2-194 C O1	16.9754	50/50	16.9754
959032	AF2-194 E O1	45.7906	50/50	45.7906
959051	AF2-196 C	1.3038	50/50	1.3038
959052	AF2-196 E	3.0423	50/50	3.0423
959161	AF2-207 C O1	2.5730	50/50	2.5730
959162	AF2-207 E O1	3.8595	50/50	3.8595
959571	AF2-248 C	0.4250	50/50	0.4250
959572	AF2-248 E	0.4750	50/50	0.4750
959581	AF2-249 C	0.0750	50/50	0.0750
959582	AF2-249 E	0.3000	50/50	0.3000
959591	AF2-250 C	0.1375	50/50	0.1375
959592	AF2-250 E	0.1063	50/50	0.1063
960341	AF2-325 C	0.1586	Adder	0.35
960342	AF2-325 E	0.2190	Adder	0.49
960671	AF2-358 C O1	2.5081	Adder	5.57
960672	AF2-358 E O1	1.6721	Adder	3.71
960871	AF2-378 C	0.0428	Adder	0.1
960872	AF2-378 E	0.0594	Adder	0.13

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960881	AF2-379 C	0.0850	Adder	0.19
960882	AF2-379 E	0.1171	Adder	0.26
960941	AF2-385 C O1	6.1262	50/50	6.1262
960942	AF2-385 E O1	3.4460	50/50	3.4460
961181	AF2-409 O1	3.8991	Adder	8.66
NEWTON	NEWTON	0.0580	Confirmed LTF	0.0580
FARMERCITY	FARMERCITY	0.0030	Confirmed LTF	0.0030
CALDERWOOD	CALDERWOOD	0.0268	Confirmed LTF	0.0268
NY	NY	0.0343	Confirmed LTF	0.0343
PRAIRIE	PRAIRIE	0.1395	Confirmed LTF	0.1395
O-066	O-066	0.4435	Confirmed LTF	0.4435
CHEOAH	CHEOAH	0.0270	Confirmed LTF	0.0270
EDWARDS	EDWARDS	0.0189	Confirmed LTF	0.0189
TILTON	TILTON	0.0340	Confirmed LTF	0.0340
G-007	G-007	0.0718	Confirmed LTF	0.0718
GIBSON	GIBSON	0.0295	Confirmed LTF	0.0295
BLUEG	BLUEG	0.0937	Confirmed LTF	0.0937
TRIMBLE	TRIMBLE	0.0301	Confirmed LTF	0.0301
CATAWBA	CATAWBA	0.0189	Confirmed LTF	0.0189

11.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
100078251	232001	COOLSPRS	DP&L	232004	MILF_230	DP&L	1	DPL_P4-2_DP15	breaker	678.0	150.64	153.42	DC	18.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
231940	T-011	0.3872	50/50	0.3872
232405	W1-003 E	1.1070	Adder	1.3
232407	W1-004 E	1.1070	Adder	1.3
232409	W1-005 E	1.1070	Adder	1.3
232411	W1-006 E	1.1070	Adder	1.3
232412	X1-032 E	0.9717	Adder	1.14
232418	X3-008 E	2.1847	Adder	2.57
232427	Y1-080 E	0.4411	Adder	0.52
232428	Y3-058 C	0.3192	50/50	0.3192
232429	Y3-058 E	3.0192	50/50	3.0192
232432	Z2-076 C	0.3980	50/50	0.3980
232433	Z2-076 E	1.1625	50/50	1.1625
232434	Z2-077 C	0.3980	50/50	0.3980
232435	Z2-077 E	1.1625	50/50	1.1625
232851	DUP-SFR1	0.5447	50/50	0.5447
232904	IR4	48.3402	50/50	48.3402
232905	BAYVIEW1	0.6248	50/50	0.6248
232920	IR10	1.7530	50/50	1.7530
232921	TASLEY2G	1.0949	50/50	1.0949
293670	O-025 C	0.3561	50/50	0.3561
917081	Z2-012 C	0.3799	50/50	0.3799
917082	Z2-012 E	3.5930	50/50	3.5930
923282	AB1-137 C	2.5984	50/50	2.5984
923283	AB1-137 E	1.1136	50/50	1.1136
924681	AB2-120 C OP	11.0059	50/50	11.0059
924682	AB2-120 E OP	17.9571	50/50	17.9571
924781	AB2-130 C OP	11.9184	50/50	11.9184
924782	AB2-130 E OP	19.4458	50/50	19.4458
924831	AB2-136 C	4.9610	Adder	5.84
924832	AB2-136 E	5.2610	Adder	6.19
925151	AB2-172 C OP	3.3476	Adder	3.94
925152	AB2-172 E OP	5.4618	Adder	6.43
925261	AB2-180 C	4.5451	50/50	4.5451
925262	AB2-180 E	1.9479	50/50	1.9479
927031	AC1-190 C	6.3124	Adder	7.43
927032	AC1-190 E	2.7053	Adder	3.18
927191	AC1-213 C	1.1009	50/50	1.1009
927192	AC1-213 E	0.7225	50/50	0.7225
930201	AB1-056 C	43.6040	50/50	43.6040
930202	AB1-056 E	124.1765	50/50	124.1765
930881	AB1-137 C	2.5984	50/50	2.5984
930882	AB1-137 E	1.1136	50/50	1.1136

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932161	AC2-023 C	8.2410	50/50	8.2410
932162	AC2-023 E	6.0019	50/50	6.0019
933641	AC2-186 C	2.0645	Adder	2.43
933642	AC2-186 E	3.3683	Adder	3.96
938651	AE1-087 C	2.8190	Adder	3.32
938652	AE1-087 E	0.7048	Adder	0.83
938891	AE1-117 C O1	25.7030	50/50	25.7030
938892	AE1-117 E O1	68.4382	50/50	68.4382
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	25.6184	50/50	25.6184
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	68.2128	50/50	68.2128
939151	AE1-145	5.8088	50/50	5.8088
939621	AE1-192 C O1	13.6187	50/50	13.6187
939622	AE1-192 E O1	6.6645	50/50	6.6645
942441	AE2-257 C	20.7738	50/50	20.7738
942442	AE2-257 E	54.7674	50/50	54.7674
943361	AF1-007 C	1.2865	50/50	1.2865
943362	AF1-007 E	3.6562	50/50	3.6562
944921	AF1-157 C O1	7.3694	50/50	7.3694
944922	AF1-157 E O1	4.9129	50/50	4.9129
945661	AF1-231 C	1.8695	Adder	2.2
945662	AF1-231 E	2.8043	Adder	3.3
945781	AF1-243	1.4488	50/50	1.4488
945791	AF1-244	1.9377	Adder	2.28
945931	AF1-258	1.0389	50/50	1.0389
946041	AF1-269 (Withdrawn : 05/12/2020)	2.3107	Adder	2.72
957611	AF2-055 C	10.1416	50/50	10.1416
957612	AF2-055 E	4.3464	50/50	4.3464
957661	AF2-060	2.6140	50/50	2.6140
957671	AF2-061 O1	11.6176	50/50	11.6176
959021	AF2-193 C O1	80.5725	50/50	80.5725
959022	AF2-193 E O1	217.3427	50/50	217.3427
959031	AF2-194 C O1	80.5725	50/50	80.5725
959032	AF2-194 E O1	217.3427	50/50	217.3427
959051	AF2-196 C	5.6656	50/50	5.6656
959052	AF2-196 E	13.2197	50/50	13.2197
959161	AF2-207 C O1	7.3513	50/50	7.3513
959162	AF2-207 E O1	11.0270	50/50	11.0270
959571	AF2-248 C	1.2138	50/50	1.2138
959572	AF2-248 E	1.3566	50/50	1.3566
959581	AF2-249 C	0.2142	50/50	0.2142
959582	AF2-249 E	0.8568	50/50	0.8568
959591	AF2-250 C	0.3927	50/50	0.3927
959592	AF2-250 E	0.3035	50/50	0.3035
960341	AF2-325 C	0.4266	Adder	0.95
960342	AF2-325 E	0.5891	Adder	1.31
960671	AF2-358 C O1	6.7964	Adder	15.09
960672	AF2-358 E O1	4.5309	Adder	10.06
960871	AF2-378 C	0.1154	Adder	0.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960872	AF2-378 E	0.1601	Adder	0.36
960881	AF2-379 C	0.4962	50/50	0.4962
960882	AF2-379 E	0.6838	50/50	0.6838
960941	AF2-385 C O1	17.5032	50/50	17.5032
960942	AF2-385 E O1	9.8456	50/50	9.8456
961181	AF2-409 O1	10.9688	Adder	24.35
NEWTON	NEWTON	0.2718	Confirmed LTF	0.2718
FARMERCITY	FARMERCITY	0.0142	Confirmed LTF	0.0142
CALDERWOOD	CALDERWOOD	0.1257	Confirmed LTF	0.1257
NY	NY	0.1493	Confirmed LTF	0.1493
PRAIRIE	PRAIRIE	0.6535	Confirmed LTF	0.6535
O-066	O-066	1.8346	Confirmed LTF	1.8346
CHEOAH	CHEOAH	0.1266	Confirmed LTF	0.1266
EDWARDS	EDWARDS	0.0885	Confirmed LTF	0.0885
TILTON	TILTON	0.1594	Confirmed LTF	0.1594
G-007	G-007	0.2891	Confirmed LTF	0.2891
GIBSON	GIBSON	0.1381	Confirmed LTF	0.1381
BLUEG	BLUEG	0.4392	Confirmed LTF	0.4392
TRIMBLE	TRIMBLE	0.1408	Confirmed LTF	0.1408
CATAWBA	CATAWBA	0.0885	Confirmed LTF	0.0885

11.6.3 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
99342233	232003	CARTANZA	DP&L	232013	SILVER RUN	PJM	1	DPL_P4-2_DP24	breaker	804.0	149.69	151.08	DC	11.18

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
231940	T-011	0.3090	50/50	0.3090
232003	CARTANZA	35.0801	50/50	35.0801
232405	W1-003 E	1.3046	Adder	1.53
232407	W1-004 E	1.3046	Adder	1.53
232409	W1-005 E	1.3046	Adder	1.53
232411	W1-006 E	1.3046	Adder	1.53
232412	X1-032 E	1.1410	Adder	1.34
232418	X3-008 E	2.9466	Adder	3.47
232423	X3-066 E	0.5928	Adder	0.7
232425	Y1-079 E	1.0454	Adder	1.23
232427	Y1-080 E	0.5284	Adder	0.62
232429	Y3-058 E	2.5845	Adder	3.04
232432	Z2-076 C	0.2520	50/50	0.2520
232433	Z2-076 E	0.7361	50/50	0.7361
232434	Z2-077 C	0.2520	50/50	0.2520
232435	Z2-077 E	0.7361	50/50	0.7361
232436	AB1-176 C	0.2406	Adder	0.28
232616	GEN FOOD	1.7245	50/50	1.7245
232851	DUP-SFR1	0.6094	50/50	0.6094
232901	NORTHST	5.2189	50/50	5.2189
232904	IR4	26.9780	50/50	26.9780
232920	IR10	1.0356	50/50	1.0356
232921	TASLEY2G	1.2895	50/50	1.2895
232922	MR3 (Deactivation : 01/06/2021)	67.0885	50/50	67.0885
917082	Z2-012 E	3.5969	Adder	4.23
919831	AA2-069 (Suspended)	296.6362	50/50	296.6362
923282	AB1-137 C	1.5610	50/50	1.5610
923283	AB1-137 E	0.6690	50/50	0.6690
923322	AB1-141 C OP	2.0896	Adder	2.46
923323	AB1-141 E OP	0.9751	Adder	1.15
923332	AB1-142 C OP	2.0896	Adder	2.46
923603	AB1-176 E	0.3968	Adder	0.47
923921	AB2-032 C	2.1051	Adder	2.48
923922	AB2-032 E	0.9906	Adder	1.17
923951	AB2-036 C	5.8419	Adder	6.87
923952	AB2-036 E	9.5580	Adder	11.24
923961	AB2-037 C	12.7658	Adder	15.02
923962	AB2-037 E	20.8547	Adder	24.53
924681	AB2-120 C OP	12.9827	50/50	12.9827
924682	AB2-120 E OP	21.1823	50/50	21.1823
924781	AB2-130 C OP	11.1022	50/50	11.1022

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924782	AB2-130 E OP	18.1140	50/50	18.1140
924801	AB2-133 C OP	3.6875	Adder	4.34
924802	AB2-133 E OP	4.6768	Adder	5.5
924821	AB2-135 C	5.2881	Adder	6.22
924822	AB2-135 E	6.0309	Adder	7.1
924831	AB2-136 C	6.1379	Adder	7.22
924832	AB2-136 E	6.5091	Adder	7.66
924971	AB2-153 C	1.1764	Adder	1.38
924972	AB2-153 E	1.9193	Adder	2.26
925151	AB2-172 C OP	4.5149	Adder	5.31
925152	AB2-172 E OP	7.3664	Adder	8.67
925261	AB2-180 C	3.8907	Adder	4.58
925262	AB2-180 E	1.6674	Adder	1.96
925271	AB2-185 C OP	2.3605	Adder	2.78
925272	AB2-185 E OP	1.0116	Adder	1.19
926131	AC1-091 C	2.1565	Adder	2.54
926132	AC1-091 E	3.5367	Adder	4.16
926141	AC1-092 C	2.1565	Adder	2.54
926142	AC1-092 E	3.5367	Adder	4.16
926151	AC1-093 C	2.0415	Adder	2.4
926152	AC1-093 E	3.3642	Adder	3.96
926161	AC1-094 C	1.7252	Adder	2.03
926162	AC1-094 E	2.8466	Adder	3.35
927031	AC1-190 C	8.3773	Adder	9.86
927032	AC1-190 E	3.5903	Adder	4.22
927191	AC1-213 C	0.9101	Adder	1.07
927192	AC1-213 E	0.5973	Adder	0.7
930201	AB1-056 C	24.3348	50/50	24.3348
930202	AB1-056 E	69.3014	50/50	69.3014
930881	AB1-137 C	1.5610	50/50	1.5610
930882	AB1-137 E	0.6690	50/50	0.6690
930932	AB1-142 E OP	0.9751	Adder	1.15
932161	AC2-023 C	7.2429	Adder	8.52
932162	AC2-023 E	5.2750	Adder	6.21
933631	AC2-185 C	4.3706	Adder	5.14
933632	AC2-185 E	7.1309	Adder	8.39
933641	AC2-186 C	6.6329	50/50	6.6329
933642	AC2-186 E	10.8221	50/50	10.8221
936611	AD2-076 C O1	2.8243	Adder	3.32
936612	AD2-076 E O1	4.6081	Adder	5.42
938651	AE1-087 C	3.8020	Adder	4.47
938652	AE1-087 E	0.9505	Adder	1.12
938891	AE1-117 C O1	15.4231	50/50	15.4231
938892	AE1-117 E O1	41.0662	50/50	41.0662
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	15.4123	50/50	15.4123
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	41.0375	50/50	41.0375
939151	AE1-145	6.8344	50/50	6.8344
939621	AE1-192 C O1	13.6333	Adder	16.04
939622	AE1-192 E O1	6.6716	Adder	7.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941021	AE2-093 C	3.6397	Adder	4.28
941022	AE2-093 E	5.7829	Adder	6.8
941181	AE2-112 C	0.9799	Adder	1.15
941182	AE2-112 E	1.5987	Adder	1.88
942441	AE2-257 C	12.2951	50/50	12.2951
942442	AE2-257 E	32.4145	50/50	32.4145
943361	AF1-007 C	0.7180	50/50	0.7180
943362	AF1-007 E	2.0405	50/50	2.0405
943441	AF1-015 C	1.1640	Adder	1.37
943442	AF1-015 E	1.6074	Adder	1.89
943651	AF1-036 C	1.2741	Adder	1.5
943652	AF1-036 E	1.7595	Adder	2.07
944921	AF1-157 C O1	5.3508	50/50	5.3508
944922	AF1-157 E O1	3.5672	50/50	3.5672
945661	AF1-231 C	2.2040	Adder	2.59
945662	AF1-231 E	3.3060	Adder	3.89
945781	AF1-243	1.4504	Adder	1.71
945791	AF1-244	2.2732	Adder	2.67
945931	AF1-258	0.8893	Adder	1.05
945941	AF1-259	0.1275	Adder	0.15
946041	AF1-269 (Withdrawn : 05/12/2020)	2.7681	Adder	3.26
957611	AF2-055 C	5.3808	Adder	11.94
957612	AF2-055 E	2.3061	Adder	5.12
957661	AF2-060	3.0755	50/50	3.0755
957671	AF2-061 O1	13.6688	50/50	13.6688
958151	AF2-109 C	0.7945	Adder	1.76
958152	AF2-109 E	0.7945	Adder	1.76
959021	AF2-193 C O1	44.9665	50/50	44.9665
959022	AF2-193 E O1	121.2963	50/50	121.2963
959031	AF2-194 C O1	44.9665	50/50	44.9665
959032	AF2-194 E O1	121.2963	50/50	121.2963
959051	AF2-196 C	3.3532	50/50	3.3532
959052	AF2-196 E	7.8242	50/50	7.8242
959161	AF2-207 C O1	3.0476	Adder	6.76
959162	AF2-207 E O1	4.5714	Adder	10.15
959571	AF2-248 C	0.5134	Adder	1.14
959572	AF2-248 E	0.5738	Adder	1.27
959581	AF2-249 C	0.0906	Adder	0.2
959582	AF2-249 E	0.3624	Adder	0.8
959591	AF2-250 C	0.1661	Adder	0.37
959592	AF2-250 E	0.1284	Adder	0.29
960221	AF2-313 C	1.0726	Adder	2.38
960222	AF2-313 E	0.6081	Adder	1.35
960341	AF2-325 C	0.5432	Adder	1.21
960342	AF2-325 E	0.7501	Adder	1.67
960671	AF2-358 C O1	8.0503	Adder	17.87
960672	AF2-358 E O1	5.3669	Adder	11.91
960871	AF2-378 C	0.1447	Adder	0.32
960872	AF2-378 E	0.2007	Adder	0.45
960881	AF2-379 C	0.2454	Adder	0.54
960882	AF2-379 E	0.3382	Adder	0.75
960941	AF2-385 C O1	7.2561	Adder	16.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960942	AF2-385 E O1	4.0816	Adder	9.06
960961	AF2-387 C O1	6.1759	Adder	13.71
960962	AF2-387 E O1	3.0972	Adder	6.88
961181	AF2-409 O1	13.3334	Adder	29.6
NEWTON	NEWTON	0.3804	Confirmed LTF	0.3804
FARMERCITY	FARMERCITY	0.0198	Confirmed LTF	0.0198
CALDERWOOD	CALDERWOOD	0.1754	Confirmed LTF	0.1754
NY	NY	0.2555	Confirmed LTF	0.2555
PRAIRIE	PRAIRIE	0.9144	Confirmed LTF	0.9144
O-066	O-066	3.3600	Confirmed LTF	3.3600
CHEOAH	CHEOAH	0.1767	Confirmed LTF	0.1767
EDWARDS	EDWARDS	0.1239	Confirmed LTF	0.1239
TILTON	TILTON	0.2230	Confirmed LTF	0.2230
G-007	G-007	0.5595	Confirmed LTF	0.5595
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.1933	Confirmed LTF	0.1933
BLUEG	BLUEG	0.6145	Confirmed LTF	0.6145
TRIMBLE	TRIMBLE	0.1970	Confirmed LTF	0.1970
CATAWBA	CATAWBA	0.1228	Confirmed LTF	0.1228

11.6.4 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
100078324	232006	INDRIV 4	DP&L	232004	MILF_230	DP&L	1	DPL_P4-2_DP36	breaker	805.0	132.7	134.83	DC	17.25

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232405	W1-003 E	1.8279	Adder	2.15
232407	W1-004 E	1.8279	Adder	2.15
232409	W1-005 E	1.8279	Adder	2.15
232411	W1-006 E	1.8279	Adder	2.15
232412	X1-032 E	1.5486	Adder	1.82
232418	X3-008 E	2.5633	Adder	3.02
232427	Y1-080 E	0.5170	Adder	0.61
232429	Y3-058 E	3.1520	Adder	3.71
232432	Z2-076 C	0.3857	50/50	0.3857
232433	Z2-076 E	1.1263	50/50	1.1263
232434	Z2-077 C	0.3857	50/50	0.3857
232435	Z2-077 E	1.1263	50/50	1.1263
232904	IR4	45.7150	50/50	45.7150
232905	BAYVIEW1	1.0327	50/50	1.0327
232916	OH NUG5	2.6954	50/50	2.6954
232920	IR10	1.6005	50/50	1.6005
232921	TASLEY2G	1.8096	50/50	1.8096
917081	Z2-012 C	0.6279	50/50	0.6279
917082	Z2-012 E	5.9387	50/50	5.9387
923282	AB1-137 C	2.4535	50/50	2.4535
923283	AB1-137 E	1.0515	50/50	1.0515
924681	AB2-120 C OP	18.2666	50/50	18.2666
924682	AB2-120 E OP	29.8034	50/50	29.8034
924781	AB2-130 C OP	9.9371	Adder	11.69
924782	AB2-130 E OP	16.2131	Adder	19.07
924831	AB2-136 C	5.8158	Adder	6.84
924832	AB2-136 E	6.1675	Adder	7.26
925151	AB2-172 C OP	3.9277	Adder	4.62
925152	AB2-172 E OP	6.4083	Adder	7.54
925261	AB2-180 C	4.7449	Adder	5.58
925262	AB2-180 E	2.0335	Adder	2.39
927031	AC1-190 C	7.4051	Adder	8.71
927032	AC1-190 E	3.1736	Adder	3.73
927191	AC1-213 C	1.1621	Adder	1.37
927192	AC1-213 E	0.7626	Adder	0.9
930201	AB1-056 C	41.2360	50/50	41.2360
930202	AB1-056 E	117.4328	50/50	117.4328
930881	AB1-137 C	2.4535	50/50	2.4535
930882	AB1-137 E	1.0515	50/50	1.0515
932161	AC2-023 C	8.5289	Adder	10.03
932162	AC2-023 E	6.2116	Adder	7.31
938651	AE1-087 C	3.3075	Adder	3.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938652	AE1-087 E	0.8269	Adder	0.97
938891	AE1-117 C O1	24.1152	50/50	24.1152
938892	AE1-117 E O1	64.2104	50/50	64.2104
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	24.0883	50/50	24.0883
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	64.1386	50/50	64.1386
939151	AE1-145	9.6140	50/50	9.6140
939621	AE1-192 C O1	22.5097	50/50	22.5097
939622	AE1-192 E O1	11.0154	50/50	11.0154
942441	AE2-257 C	18.9776	50/50	18.9776
942442	AE2-257 E	50.0320	50/50	50.0320
943361	AF1-007 C	1.2166	50/50	1.2166
943362	AF1-007 E	3.4577	50/50	3.4577
944921	AF1-157 C O1	5.4205	Adder	6.38
944922	AF1-157 E O1	3.6137	Adder	4.25
945661	AF1-231 C	3.0927	Adder	3.64
945662	AF1-231 E	4.6390	Adder	5.46
945781	AF1-243	2.3946	50/50	2.3946
945791	AF1-244	3.0605	Adder	3.6
945931	AF1-258	1.0845	Adder	1.28
946041	AF1-269 (Withdrawn : 05/12/2020)	2.7079	Adder	3.19
957611	AF2-055 C	16.7625	50/50	16.7625
957612	AF2-055 E	7.1840	50/50	7.1840
957661	AF2-060	4.3263	50/50	4.3263
957671	AF2-061 O1	19.2280	50/50	19.2280
959021	AF2-193 C O1	76.1969	50/50	76.1969
959022	AF2-193 E O1	205.5395	50/50	205.5395
959031	AF2-194 C O1	76.1969	50/50	76.1969
959032	AF2-194 E O1	205.5395	50/50	205.5395
959051	AF2-196 C	5.1757	50/50	5.1757
959052	AF2-196 E	12.0767	50/50	12.0767
959161	AF2-207 C O1	3.6498	Adder	8.1
959162	AF2-207 E O1	5.4747	Adder	12.15
959571	AF2-248 C	0.6300	Adder	1.4
959572	AF2-248 E	0.7041	Adder	1.56
959581	AF2-249 C	0.1112	Adder	0.25
959582	AF2-249 E	0.4447	Adder	0.99
959591	AF2-250 C	0.2038	Adder	0.45
959592	AF2-250 E	0.1575	Adder	0.35
960341	AF2-325 C	0.5002	Adder	1.11
960342	AF2-325 E	0.6908	Adder	1.53
960671	AF2-358 C O1	7.9644	Adder	17.68
960672	AF2-358 E O1	5.3096	Adder	11.79
960871	AF2-378 C	0.1353	Adder	0.3
960872	AF2-378 E	0.1877	Adder	0.42
960881	AF2-379 C	0.3201	Adder	0.71
960882	AF2-379 E	0.4412	Adder	0.98
960941	AF2-385 C O1	8.6900	Adder	19.29
960942	AF2-385 E O1	4.8881	Adder	10.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961181	AF2-409 O1	13.4091	Adder	29.76
NEWTON	NEWTON	0.3181	Confirmed LTF	0.3181
FARMERCITY	FARMERCITY	0.0166	Confirmed LTF	0.0166
CALDERWOOD	CALDERWOOD	0.1471	Confirmed LTF	0.1471
NY	NY	0.1759	Confirmed LTF	0.1759
PRAIRIE	PRAIRIE	0.7646	Confirmed LTF	0.7646
O-066	O-066	2.1571	Confirmed LTF	2.1571
CHEOAH	CHEOAH	0.1481	Confirmed LTF	0.1481
EDWARDS	EDWARDS	0.1036	Confirmed LTF	0.1036
TILTON	TILTON	0.1865	Confirmed LTF	0.1865
G-007	G-007	0.3401	Confirmed LTF	0.3401
GIBSON	GIBSON	0.1616	Confirmed LTF	0.1616
BLUEG	BLUEG	0.5139	Confirmed LTF	0.5139
TRIMBLE	TRIMBLE	0.1647	Confirmed LTF	0.1647
CATAWBA	CATAWBA	0.1036	Confirmed LTF	0.1036

11.6.5 Index 5

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 %	ACID C	MW IMPACT
101770287	232100	CHURCH	DP&L	232107	TOWNSEND	DP&L	1	DPL_P7_1_DBL_1NCB_FS A-A	tower	348.0	125.36	126.07	DC	5.53

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.5398	50/50	0.5398
232405	W1-003 E	0.9090	50/50	0.9090
232406	W1-004 FULL	0.5398	50/50	0.5398
232407	W1-004 E	0.9090	50/50	0.9090
232408	W1-005 C	0.5398	50/50	0.5398
232409	W1-005 E	0.9090	50/50	0.9090
232410	W1-006 C	0.5398	50/50	0.5398
232411	W1-006 E	0.9090	50/50	0.9090
232412	X1-032 E	0.8192	50/50	0.8192
232417	X3-008 C	0.3307	50/50	0.3307
232418	X3-008 E	3.1277	50/50	3.1277
232422	X3-066 FULL	0.1653	50/50	0.1653
232423	X3-066 E	1.5632	50/50	1.5632
232424	Y1-079 C	0.2436	50/50	0.2436
232425	Y1-079 E	2.3039	50/50	2.3039
232426	Y1-080 FULL	0.0519	50/50	0.0519
232427	Y1-080 E	0.4932	50/50	0.4932
232428	Y3-058 C	0.2078	50/50	0.2078
232429	Y3-058 E	1.9655	50/50	1.9655
232433	Z2-076 E	0.3208	Adder	0.38
232435	Z2-077 E	0.3208	Adder	0.38
232436	AB1-176 C	0.6345	50/50	0.6345
232813	VAUGHN	0.1155	50/50	0.1155
232902	EASTMUNI	3.7067	50/50	3.7067
232907	VN8	5.9640	50/50	5.9640
232910	NRG_G1	1.8200	50/50	1.8200
232911	NRG_G2	1.8200	50/50	1.8200
232919	VN10	0.4079	50/50	0.4079
232922	MR3 (Deactivation : 01/06/2021)	9.0862	Adder	10.69
232926	CRISFLD1	0.3545	50/50	0.3545
293670	O-025 C	0.2133	50/50	0.2133
917082	Z2-012 E	2.1263	Adder	2.5
918831	AA1-102	1.3293	50/50	1.3293
919831	AA2-069 (Suspended)	40.1751	Adder	47.26
923282	AB1-137 C	0.6591	Adder	0.78
923283	AB1-137 E	0.2825	Adder	0.33
923322	AB1-141 C OP	5.7565	50/50	5.7565
923323	AB1-141 E OP	2.6864	50/50	2.6864
923332	AB1-142 C OP	5.7565	50/50	5.7565
923603	AB1-176 E	1.0463	50/50	1.0463
923921	AB2-032 C	5.7992	50/50	5.7992

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
923922	AB2-032 E	2.7290	50/50	2.7290
923951	AB2-036 C	12.6924	50/50	12.6924
923952	AB2-036 E	20.7661	50/50	20.7661
924681	AB2-120 C OP	6.5091	Adder	7.66
924682	AB2-120 E OP	10.6201	Adder	12.49
924781	AB2-130 C OP	5.4762	Adder	6.44
924782	AB2-130 E OP	8.9348	Adder	10.51
924801	AB2-133 C OP	11.5595	50/50	11.5595
924802	AB2-133 E OP	14.6609	50/50	14.6609
924821	AB2-135 C	12.3188	50/50	12.3188
924822	AB2-135 E	14.0492	50/50	14.0492
924831	AB2-136 C	5.9522	50/50	5.9522
924832	AB2-136 E	6.3123	50/50	6.3123
924971	AB2-153 C	3.2407	50/50	3.2407
924972	AB2-153 E	5.2875	50/50	5.2875
925151	AB2-172 C OP	4.7924	50/50	4.7924
925152	AB2-172 E OP	7.8191	50/50	7.8191
925251	AB2-179 C OP	-9.1300	Adder	-10.74
925261	AB2-180 C	2.9588	50/50	2.9588
925262	AB2-180 E	1.2680	50/50	1.2680
925271	AB2-185 C OP	5.2023	50/50	5.2023
925272	AB2-185 E OP	2.2295	50/50	2.2295
926131	AC1-091 C	0.6416	Adder	0.75
926132	AC1-091 E	1.0523	Adder	1.24
926141	AC1-092 C	0.6416	Adder	0.75
926142	AC1-092 E	1.0523	Adder	1.24
926151	AC1-093 C	0.6074	Adder	0.71
926152	AC1-093 E	1.0010	Adder	1.18
926161	AC1-094 C	0.5133	Adder	0.6
926162	AC1-094 E	0.8470	Adder	1.0
927031	AC1-190 C	8.7532	50/50	8.7532
927032	AC1-190 E	3.7514	50/50	3.7514
927191	AC1-213 C	0.6596	50/50	0.6596
927192	AC1-213 E	0.4328	50/50	0.4328
930201	AB1-056 C	9.9441	Adder	11.7
930202	AB1-056 E	28.3190	Adder	33.32
930881	AB1-137 C	0.6591	Adder	0.78
930882	AB1-137 E	0.2825	Adder	0.33
930932	AB1-142 E OP	2.6864	50/50	2.6864
932161	AC2-023 C	5.6983	50/50	5.6983
932162	AC2-023 E	4.1501	50/50	4.1501
933631	AC2-185 C	1.3004	Adder	1.53
933632	AC2-185 E	2.1217	Adder	2.5
933641	AC2-186 C	3.1357	Adder	3.69
933642	AC2-186 E	5.1161	Adder	6.02
936611	AD2-076 C O1	8.1874	50/50	8.1874
936612	AD2-076 E O1	13.3584	50/50	13.3584
938651	AE1-087 C	4.0357	50/50	4.0357
938652	AE1-087 E	1.0089	50/50	1.0089
938891	AE1-117 C O1	6.5135	Adder	7.66
938892	AE1-117 E O1	17.3433	Adder	20.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	6.5188	Adder	7.67
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	17.3573	Adder	20.42
939151	AE1-145	3.4253	Adder	4.03
939621	AE1-192 C O1	8.0595	Adder	9.48
939622	AE1-192 E O1	3.9440	Adder	4.64
941021	AE2-093 C	5.9738	50/50	5.9738
941022	AE2-093 E	9.4914	50/50	9.4914
941181	AE2-112 C	2.8405	50/50	2.8405
941182	AE2-112 E	4.6345	50/50	4.6345
942441	AE2-257 C	5.1662	Adder	6.08
942442	AE2-257 E	13.6201	Adder	16.02
943361	AF1-007 C	0.2934	Adder	0.35
943362	AF1-007 E	0.8338	Adder	0.98
943441	AF1-015 C	1.9104	50/50	1.9104
943442	AF1-015 E	2.6382	50/50	2.6382
943651	AF1-036 C	3.6936	50/50	3.6936
943652	AF1-036 E	5.1006	50/50	5.1006
944921	AF1-157 C O1	2.4567	Adder	2.89
944922	AF1-157 E O1	1.6378	Adder	1.93
945661	AF1-231 C	1.3034	Adder	1.53
945662	AF1-231 E	1.9552	Adder	2.3
945781	AF1-243	0.8574	Adder	1.01
945791	AF1-244	1.6440	50/50	1.6440
945931	AF1-258	0.6763	50/50	0.6763
945941	AF1-259	0.3362	50/50	0.3362
946041	AF1-269 (Withdrawn : 05/12/2020)	2.5836	50/50	2.5836
957611	AF2-055 C	3.1809	Adder	7.06
957612	AF2-055 E	1.3633	Adder	3.03
957661	AF2-060	0.8169	Adder	1.81
957671	AF2-061 O1	3.6308	Adder	8.06
958151	AF2-109 C	4.6990	50/50	4.6990
958152	AF2-109 E	4.6990	50/50	4.6990
959021	AF2-193 C O1	9.7387	Adder	21.62
959022	AF2-193 E O1	26.2699	Adder	58.31
959031	AF2-194 C O1	9.7387	Adder	21.62
959032	AF2-194 E O1	26.2699	Adder	58.31
959051	AF2-196 C	0.7468	Adder	1.66
959052	AF2-196 E	1.7424	Adder	3.87
959161	AF2-207 C O1	4.1274	50/50	4.1274
959162	AF2-207 E O1	6.1910	50/50	6.1910
959571	AF2-248 C	0.6978	50/50	0.6978
959572	AF2-248 E	0.7799	50/50	0.7799
959581	AF2-249 C	0.1231	50/50	0.1231
959582	AF2-249 E	0.4926	50/50	0.4926
959591	AF2-250 C	0.2258	50/50	0.2258
959592	AF2-250 E	0.1745	50/50	0.1745
960221	AF2-313 C	5.3367	50/50	5.3367
960222	AF2-313 E	3.0255	50/50	3.0255

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960341	AF2-325 C	1.0261	50/50	1.0261
960342	AF2-325 E	1.4170	50/50	1.4170
960671	AF2-358 C O1	13.9800	50/50	13.9800
960672	AF2-358 E O1	9.3200	50/50	9.3200
960871	AF2-378 C	0.2686	50/50	0.2686
960872	AF2-378 E	0.3727	50/50	0.3727
960881	AF2-379 C	0.3393	50/50	0.3393
960882	AF2-379 E	0.4676	50/50	0.4676
960941	AF2-385 C O1	9.8270	50/50	9.8270
960942	AF2-385 E O1	5.5277	50/50	5.5277
960961	AF2-387 C O1	22.1865	50/50	22.1865
960962	AF2-387 E O1	11.1265	50/50	11.1265
961181	AF2-409 O1	22.5980	50/50	22.5980
NEWTON	NEWTON	0.1870	Confirmed LTF	0.1870
FARMERCITY	FARMERCITY	0.0097	Confirmed LTF	0.0097
CALDERWOOD	CALDERWOOD	0.0870	Confirmed LTF	0.0870
NY	NY	0.0603	Confirmed LTF	0.0603
PRAIRIE	PRAIRIE	0.4494	Confirmed LTF	0.4494
O-066	O-066	0.5309	Confirmed LTF	0.5309
CHEOAH	CHEOAH	0.0876	Confirmed LTF	0.0876
EDWARDS	EDWARDS	0.0609	Confirmed LTF	0.0609
TILTON	TILTON	0.1096	Confirmed LTF	0.1096
G-007	G-007	0.0530	Confirmed LTF	0.0530
GIBSON	GIBSON	0.0950	Confirmed LTF	0.0950
BLUEG	BLUEG	0.3021	Confirmed LTF	0.3021
TRIMBLE	TRIMBLE	0.0968	Confirmed LTF	0.0968
CATAWBA	CATAWBA	0.0619	Confirmed LTF	0.0619

11.6.6 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 %	ACID C	MW IMPACT
101770293	232106	MIDLTNT P	DP&L	232104	MT PLSN T	DP&L	1	DPL_P7_1_DBL_1NCB_FSA-A	tower	348.0	121.25	121.96	DC	5.53

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.5398	50/50	0.5398
232405	W1-003 E	0.9090	50/50	0.9090
232406	W1-004 FULL	0.5398	50/50	0.5398
232407	W1-004 E	0.9090	50/50	0.9090
232408	W1-005 C	0.5398	50/50	0.5398
232409	W1-005 E	0.9090	50/50	0.9090
232410	W1-006 C	0.5398	50/50	0.5398
232411	W1-006 E	0.9090	50/50	0.9090
232412	X1-032 E	0.8192	50/50	0.8192
232417	X3-008 C	0.3307	50/50	0.3307
232418	X3-008 E	3.1277	50/50	3.1277
232422	X3-066 FULL	0.1653	50/50	0.1653
232423	X3-066 E	1.5632	50/50	1.5632
232424	Y1-079 C	0.2436	50/50	0.2436
232425	Y1-079 E	2.3039	50/50	2.3039
232426	Y1-080 FULL	0.0519	50/50	0.0519
232427	Y1-080 E	0.4932	50/50	0.4932
232428	Y3-058 C	0.2078	50/50	0.2078
232429	Y3-058 E	1.9655	50/50	1.9655
232433	Z2-076 E	0.3208	Adder	0.38
232435	Z2-077 E	0.3208	Adder	0.38
232436	AB1-176 C	0.6345	50/50	0.6345
232813	VAUGHN	0.1155	50/50	0.1155
232902	EASTMUNI	3.7067	50/50	3.7067
232907	VN8	5.9640	50/50	5.9640
232910	NRG_G1	1.8200	50/50	1.8200
232911	NRG_G2	1.8200	50/50	1.8200
232919	VN10	0.4079	50/50	0.4079
232922	MR3 (Deactivation : 01/06/2021)	9.0862	Adder	10.69
232926	CRISFLD1	0.3545	50/50	0.3545
293670	O-025 C	0.2133	50/50	0.2133
917082	Z2-012 E	2.1263	Adder	2.5
918831	AA1-102	1.3293	50/50	1.3293
919831	AA2-069 (Suspended)	40.1751	Adder	47.26
923282	AB1-137 C	0.6591	Adder	0.78
923283	AB1-137 E	0.2825	Adder	0.33
923322	AB1-141 C OP	5.7565	50/50	5.7565
923323	AB1-141 E OP	2.6864	50/50	2.6864
923332	AB1-142 C OP	5.7565	50/50	5.7565
923603	AB1-176 E	1.0463	50/50	1.0463
923921	AB2-032 C	5.7992	50/50	5.7992

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
923922	AB2-032 E	2.7290	50/50	2.7290
923951	AB2-036 C	12.6924	50/50	12.6924
923952	AB2-036 E	20.7661	50/50	20.7661
924681	AB2-120 C OP	6.5091	Adder	7.66
924682	AB2-120 E OP	10.6201	Adder	12.49
924781	AB2-130 C OP	5.4762	Adder	6.44
924782	AB2-130 E OP	8.9348	Adder	10.51
924801	AB2-133 C OP	11.5595	50/50	11.5595
924802	AB2-133 E OP	14.6609	50/50	14.6609
924821	AB2-135 C	12.3188	50/50	12.3188
924822	AB2-135 E	14.0492	50/50	14.0492
924831	AB2-136 C	5.9522	50/50	5.9522
924832	AB2-136 E	6.3123	50/50	6.3123
924971	AB2-153 C	3.2407	50/50	3.2407
924972	AB2-153 E	5.2875	50/50	5.2875
925151	AB2-172 C OP	4.7924	50/50	4.7924
925152	AB2-172 E OP	7.8191	50/50	7.8191
925251	AB2-179 C OP	26.8588	50/50	26.8588
925252	AB2-179 E OP	8.8577	50/50	8.8577
925261	AB2-180 C	2.9588	50/50	2.9588
925262	AB2-180 E	1.2680	50/50	1.2680
925271	AB2-185 C OP	5.2023	50/50	5.2023
925272	AB2-185 E OP	2.2295	50/50	2.2295
927031	AC1-190 C	8.7532	50/50	8.7532
927032	AC1-190 E	3.7514	50/50	3.7514
927191	AC1-213 C	0.6596	50/50	0.6596
927192	AC1-213 E	0.4328	50/50	0.4328
930201	AB1-056 C	9.9441	Adder	11.7
930202	AB1-056 E	28.3190	Adder	33.32
930881	AB1-137 C	0.6591	Adder	0.78
930882	AB1-137 E	0.2825	Adder	0.33
930932	AB1-142 E OP	2.6864	50/50	2.6864
932161	AC2-023 C	5.6983	50/50	5.6983
932162	AC2-023 E	4.1501	50/50	4.1501
933641	AC2-186 C	3.1357	Adder	3.69
933642	AC2-186 E	5.1161	Adder	6.02
936611	AD2-076 C O1	8.1874	50/50	8.1874
936612	AD2-076 E O1	13.3584	50/50	13.3584
938651	AE1-087 C	4.0357	50/50	4.0357
938652	AE1-087 E	1.0089	50/50	1.0089
938891	AE1-117 C O1	6.5135	Adder	7.66
938892	AE1-117 E O1	17.3433	Adder	20.4
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	6.5188	Adder	7.67
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	17.3573	Adder	20.42
939151	AE1-145	3.4253	Adder	4.03
939621	AE1-192 C O1	8.0595	Adder	9.48
939622	AE1-192 E O1	3.9440	Adder	4.64
941021	AE2-093 C	5.9738	50/50	5.9738
941022	AE2-093 E	9.4914	50/50	9.4914

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941181	AE2-112 C	2.8405	50/50	2.8405
941182	AE2-112 E	4.6345	50/50	4.6345
942441	AE2-257 C	5.1662	Adder	6.08
942442	AE2-257 E	13.6201	Adder	16.02
943361	AF1-007 C	0.2934	Adder	0.35
943362	AF1-007 E	0.8338	Adder	0.98
943441	AF1-015 C	1.9104	50/50	1.9104
943442	AF1-015 E	2.6382	50/50	2.6382
943651	AF1-036 C	3.6936	50/50	3.6936
943652	AF1-036 E	5.1006	50/50	5.1006
944921	AF1-157 C O1	2.4567	Adder	2.89
944922	AF1-157 E O1	1.6378	Adder	1.93
945661	AF1-231 C	1.3034	Adder	1.53
945662	AF1-231 E	1.9552	Adder	2.3
945781	AF1-243	0.8574	Adder	1.01
945791	AF1-244	1.6440	50/50	1.6440
945931	AF1-258	0.6763	50/50	0.6763
945941	AF1-259	0.3362	50/50	0.3362
946041	AF1-269 (Withdrawn : 05/12/2020)	2.5836	50/50	2.5836
957611	AF2-055 C	3.1809	Adder	7.06
957612	AF2-055 E	1.3633	Adder	3.03
957661	AF2-060	0.8169	Adder	1.81
957671	AF2-061 O1	3.6308	Adder	8.06
958151	AF2-109 C	4.6990	50/50	4.6990
958152	AF2-109 E	4.6990	50/50	4.6990
959021	AF2-193 C O1	9.7387	Adder	21.62
959022	AF2-193 E O1	26.2699	Adder	58.31
959031	AF2-194 C O1	9.7387	Adder	21.62
959032	AF2-194 E O1	26.2699	Adder	58.31
959051	AF2-196 C	0.7468	Adder	1.66
959052	AF2-196 E	1.7424	Adder	3.87
959161	AF2-207 C O1	4.1274	50/50	4.1274
959162	AF2-207 E O1	6.1910	50/50	6.1910
959571	AF2-248 C	0.6978	50/50	0.6978
959572	AF2-248 E	0.7799	50/50	0.7799
959581	AF2-249 C	0.1231	50/50	0.1231
959582	AF2-249 E	0.4926	50/50	0.4926
959591	AF2-250 C	0.2258	50/50	0.2258
959592	AF2-250 E	0.1745	50/50	0.1745
960221	AF2-313 C	5.3367	50/50	5.3367
960222	AF2-313 E	3.0255	50/50	3.0255
960341	AF2-325 C	1.0261	50/50	1.0261
960342	AF2-325 E	1.4170	50/50	1.4170
960671	AF2-358 C O1	13.9800	50/50	13.9800
960672	AF2-358 E O1	9.3200	50/50	9.3200
960871	AF2-378 C	0.2686	50/50	0.2686
960872	AF2-378 E	0.3727	50/50	0.3727
960881	AF2-379 C	0.3393	50/50	0.3393
960882	AF2-379 E	0.4676	50/50	0.4676
960941	AF2-385 C O1	9.8270	50/50	9.8270
960942	AF2-385 E O1	5.5277	50/50	5.5277
960961	AF2-387 C O1	22.1865	50/50	22.1865

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960962	AF2-387 E O1	11.1265	50/50	11.1265
961181	AF2-409 O1	22.5980	50/50	22.5980
NEWTON	NEWTON	0.1870	Confirmed LTF	0.1870
FARMERCITY	FARMERCITY	0.0097	Confirmed LTF	0.0097
CALDERWOOD	CALDERWOOD	0.0870	Confirmed LTF	0.0870
NY	NY	0.0603	Confirmed LTF	0.0603
PRAIRIE	PRAIRIE	0.4494	Confirmed LTF	0.4494
O-066	O-066	0.5309	Confirmed LTF	0.5309
CHEOAH	CHEOAH	0.0876	Confirmed LTF	0.0876
EDWARDS	EDWARDS	0.0609	Confirmed LTF	0.0609
TILTON	TILTON	0.1096	Confirmed LTF	0.1096
G-007	G-007	0.0530	Confirmed LTF	0.0530
GIBSON	GIBSON	0.0950	Confirmed LTF	0.0950
BLUEG	BLUEG	0.3021	Confirmed LTF	0.3021
TRIMBLE	TRIMBLE	0.0968	Confirmed LTF	0.0968
CATAWBA	CATAWBA	0.0619	Confirmed LTF	0.0619

11.6.7 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 %	ACID C	MW IMPACT
101770277	232107	TOWNSEND	DP&L	232106	MIDLTNT P	DP&L	1	DPL_P7_1_DBL_1NCB_FS A-A	tower	348.0	130.56	131.27	DC	5.53

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.5398	50/50	0.5398
232405	W1-003 E	0.9090	50/50	0.9090
232406	W1-004 FULL	0.5398	50/50	0.5398
232407	W1-004 E	0.9090	50/50	0.9090
232408	W1-005 C	0.5398	50/50	0.5398
232409	W1-005 E	0.9090	50/50	0.9090
232410	W1-006 C	0.5398	50/50	0.5398
232411	W1-006 E	0.9090	50/50	0.9090
232412	X1-032 E	0.8192	50/50	0.8192
232417	X3-008 C	0.3307	50/50	0.3307
232418	X3-008 E	3.1277	50/50	3.1277
232422	X3-066 FULL	0.1653	50/50	0.1653
232423	X3-066 E	1.5632	50/50	1.5632
232424	Y1-079 C	0.2436	50/50	0.2436
232425	Y1-079 E	2.3039	50/50	2.3039
232426	Y1-080 FULL	0.0519	50/50	0.0519
232427	Y1-080 E	0.4932	50/50	0.4932
232428	Y3-058 C	0.2078	50/50	0.2078
232429	Y3-058 E	1.9655	50/50	1.9655
232433	Z2-076 E	0.3208	Adder	0.38
232435	Z2-077 E	0.3208	Adder	0.38
232436	AB1-176 C	0.6345	50/50	0.6345
232813	VAUGHN	0.1155	50/50	0.1155
232902	EASTMUNI	3.7067	50/50	3.7067
232907	VN8	5.9640	50/50	5.9640
232910	NRG_G1	1.8200	50/50	1.8200
232911	NRG_G2	1.8200	50/50	1.8200
232919	VN10	0.4079	50/50	0.4079
232922	MR3 (Deactivation : 01/06/2021)	9.0862	Adder	10.69
232926	CRISFLD1	0.3545	50/50	0.3545
293670	O-025 C	0.2133	50/50	0.2133
917082	Z2-012 E	2.1263	Adder	2.5
918831	AA1-102	1.3293	50/50	1.3293
919831	AA2-069 (Suspended)	40.1751	Adder	47.26
923282	AB1-137 C	0.6591	Adder	0.78
923283	AB1-137 E	0.2825	Adder	0.33
923322	AB1-141 C OP	5.7565	50/50	5.7565
923323	AB1-141 E OP	2.6864	50/50	2.6864
923332	AB1-142 C OP	5.7565	50/50	5.7565
923603	AB1-176 E	1.0463	50/50	1.0463
923921	AB2-032 C	5.7992	50/50	5.7992

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
923922	AB2-032 E	2.7290	50/50	2.7290
923951	AB2-036 C	12.6924	50/50	12.6924
923952	AB2-036 E	20.7661	50/50	20.7661
924681	AB2-120 C OP	6.5091	Adder	7.66
924682	AB2-120 E OP	10.6201	Adder	12.49
924781	AB2-130 C OP	5.4762	Adder	6.44
924782	AB2-130 E OP	8.9348	Adder	10.51
924801	AB2-133 C OP	11.5595	50/50	11.5595
924802	AB2-133 E OP	14.6609	50/50	14.6609
924821	AB2-135 C	12.3188	50/50	12.3188
924822	AB2-135 E	14.0492	50/50	14.0492
924831	AB2-136 C	5.9522	50/50	5.9522
924832	AB2-136 E	6.3123	50/50	6.3123
924971	AB2-153 C	3.2407	50/50	3.2407
924972	AB2-153 E	5.2875	50/50	5.2875
925151	AB2-172 C OP	4.7924	50/50	4.7924
925152	AB2-172 E OP	7.8191	50/50	7.8191
925251	AB2-179 C OP	26.8588	50/50	26.8588
925252	AB2-179 E OP	8.8577	50/50	8.8577
925261	AB2-180 C	2.9588	50/50	2.9588
925262	AB2-180 E	1.2680	50/50	1.2680
925271	AB2-185 C OP	5.2023	50/50	5.2023
925272	AB2-185 E OP	2.2295	50/50	2.2295
927031	AC1-190 C	8.7532	50/50	8.7532
927032	AC1-190 E	3.7514	50/50	3.7514
927191	AC1-213 C	0.6596	50/50	0.6596
927192	AC1-213 E	0.4328	50/50	0.4328
930201	AB1-056 C	9.9441	Adder	11.7
930202	AB1-056 E	28.3190	Adder	33.32
930881	AB1-137 C	0.6591	Adder	0.78
930882	AB1-137 E	0.2825	Adder	0.33
930932	AB1-142 E OP	2.6864	50/50	2.6864
932161	AC2-023 C	5.6983	50/50	5.6983
932162	AC2-023 E	4.1501	50/50	4.1501
933641	AC2-186 C	3.1357	Adder	3.69
933642	AC2-186 E	5.1161	Adder	6.02
936611	AD2-076 C O1	8.1874	50/50	8.1874
936612	AD2-076 E O1	13.3584	50/50	13.3584
938651	AE1-087 C	4.0357	50/50	4.0357
938652	AE1-087 E	1.0089	50/50	1.0089
938891	AE1-117 C O1	6.5135	Adder	7.66
938892	AE1-117 E O1	17.3433	Adder	20.4
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	6.5188	Adder	7.67
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	17.3573	Adder	20.42
939151	AE1-145	3.4253	Adder	4.03
939621	AE1-192 C O1	8.0595	Adder	9.48
939622	AE1-192 E O1	3.9440	Adder	4.64
941021	AE2-093 C	5.9738	50/50	5.9738
941022	AE2-093 E	9.4914	50/50	9.4914

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941181	AE2-112 C	2.8405	50/50	2.8405
941182	AE2-112 E	4.6345	50/50	4.6345
942441	AE2-257 C	5.1662	Adder	6.08
942442	AE2-257 E	13.6201	Adder	16.02
943361	AF1-007 C	0.2934	Adder	0.35
943362	AF1-007 E	0.8338	Adder	0.98
943441	AF1-015 C	1.9104	50/50	1.9104
943442	AF1-015 E	2.6382	50/50	2.6382
943651	AF1-036 C	3.6936	50/50	3.6936
943652	AF1-036 E	5.1006	50/50	5.1006
944921	AF1-157 C O1	2.4567	Adder	2.89
944922	AF1-157 E O1	1.6378	Adder	1.93
945661	AF1-231 C	1.3034	Adder	1.53
945662	AF1-231 E	1.9552	Adder	2.3
945781	AF1-243	0.8574	Adder	1.01
945791	AF1-244	1.6440	50/50	1.6440
945931	AF1-258	0.6763	50/50	0.6763
945941	AF1-259	0.3362	50/50	0.3362
946041	AF1-269 (Withdrawn : 05/12/2020)	2.5836	50/50	2.5836
957611	AF2-055 C	3.1809	Adder	7.06
957612	AF2-055 E	1.3633	Adder	3.03
957661	AF2-060	0.8169	Adder	1.81
957671	AF2-061 O1	3.6308	Adder	8.06
958151	AF2-109 C	4.6990	50/50	4.6990
958152	AF2-109 E	4.6990	50/50	4.6990
959021	AF2-193 C O1	9.7387	Adder	21.62
959022	AF2-193 E O1	26.2699	Adder	58.31
959031	AF2-194 C O1	9.7387	Adder	21.62
959032	AF2-194 E O1	26.2699	Adder	58.31
959051	AF2-196 C	0.7468	Adder	1.66
959052	AF2-196 E	1.7424	Adder	3.87
959161	AF2-207 C O1	4.1274	50/50	4.1274
959162	AF2-207 E O1	6.1910	50/50	6.1910
959571	AF2-248 C	0.6978	50/50	0.6978
959572	AF2-248 E	0.7799	50/50	0.7799
959581	AF2-249 C	0.1231	50/50	0.1231
959582	AF2-249 E	0.4926	50/50	0.4926
959591	AF2-250 C	0.2258	50/50	0.2258
959592	AF2-250 E	0.1745	50/50	0.1745
960221	AF2-313 C	5.3367	50/50	5.3367
960222	AF2-313 E	3.0255	50/50	3.0255
960341	AF2-325 C	1.0261	50/50	1.0261
960342	AF2-325 E	1.4170	50/50	1.4170
960671	AF2-358 C O1	13.9800	50/50	13.9800
960672	AF2-358 E O1	9.3200	50/50	9.3200
960871	AF2-378 C	0.2686	50/50	0.2686
960872	AF2-378 E	0.3727	50/50	0.3727
960881	AF2-379 C	0.3393	50/50	0.3393
960882	AF2-379 E	0.4676	50/50	0.4676
960941	AF2-385 C O1	9.8270	50/50	9.8270
960942	AF2-385 E O1	5.5277	50/50	5.5277
960961	AF2-387 C O1	22.1865	50/50	22.1865

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960962	AF2-387 E O1	11.1265	50/50	11.1265
961181	AF2-409 O1	22.5980	50/50	22.5980
NEWTON	NEWTON	0.1870	Confirmed LTF	0.1870
FARMERCITY	FARMERCITY	0.0097	Confirmed LTF	0.0097
CALDERWOOD	CALDERWOOD	0.0870	Confirmed LTF	0.0870
NY	NY	0.0603	Confirmed LTF	0.0603
PRAIRIE	PRAIRIE	0.4494	Confirmed LTF	0.4494
O-066	O-066	0.5309	Confirmed LTF	0.5309
CHEOAH	CHEOAH	0.0876	Confirmed LTF	0.0876
EDWARDS	EDWARDS	0.0609	Confirmed LTF	0.0609
TILTON	TILTON	0.1096	Confirmed LTF	0.1096
G-007	G-007	0.0530	Confirmed LTF	0.0530
GIBSON	GIBSON	0.0950	Confirmed LTF	0.0950
BLUEG	BLUEG	0.3021	Confirmed LTF	0.3021
TRIMBLE	TRIMBLE	0.0968	Confirmed LTF	0.0968
CATAWBA	CATAWBA	0.0619	Confirmed LTF	0.0619

11.6.8 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
101769159	232121	INDRV2&3	DP&L	232119	NELSON	DP&L	1	DPL_P4-2_DP15	breaker	193.0	122.36	124.59	DC	4.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232432	Z2-076 C	0.0732	50/50	0.0732
232433	Z2-076 E	0.2137	50/50	0.2137
232434	Z2-077 C	0.0732	50/50	0.0732
232435	Z2-077 E	0.2137	50/50	0.2137
232904	IR4	9.5791	50/50	9.5791
232920	IR10	0.4075	50/50	0.4075
923282	AB1-137 C	0.6413	50/50	0.6413
923283	AB1-137 E	0.2749	50/50	0.2749
930201	AB1-056 C	8.6405	50/50	8.6405
930202	AB1-056 E	24.6068	50/50	24.6068
930881	AB1-137 C	0.6413	50/50	0.6413
930882	AB1-137 E	0.2749	50/50	0.2749
938653	AE1-087 BAT	2.4992	50/50	2.4992
938891	AE1-117 C O1	6.1636	50/50	6.1636
938892	AE1-117 E O1	16.4115	50/50	16.4115
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	6.0993	50/50	6.0993
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	16.2402	50/50	16.2402
939152	AE1-145 BAT	3.6302	50/50	3.6302
942441	AE2-257 C	4.7223	50/50	4.7223
942442	AE2-257 E	12.4497	50/50	12.4497
943361	AF1-007 C	0.2549	50/50	0.2549
943362	AF1-007 E	0.7245	50/50	0.7245
945663	AF1-231 BAT	3.4582	50/50	3.4582
945782	AF1-243 BAT	0.9092	50/50	0.9092
945792	AF1-244 BAT	1.4734	50/50	1.4734
946042	AF1-269 BAT (Withdrawn : 05/12/2020)	1.6195	50/50	1.6195
957613	AF2-055 BAT	5.4552	50/50	5.4552
957662	AF2-060 BAT	1.6336	50/50	1.6336
957672	AF2-061 BAT	7.2604	50/50	7.2604
959021	AF2-193 C O1	15.9662	50/50	15.9662
959022	AF2-193 E O1	43.0686	50/50	43.0686
959031	AF2-194 C O1	15.9662	50/50	15.9662
959032	AF2-194 E O1	43.0686	50/50	43.0686
959051	AF2-196 C	1.2879	50/50	1.2879
959052	AF2-196 E	3.0051	50/50	3.0051
959163	AF2-207 BAT	10.3229	50/50	10.3229
959583	AF2-249 BAT	0.5596	50/50	0.5596
961182	AF2-409 BAT	20.4260	50/50	20.4260

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
WEC	WEC	0.0091	Confirmed LTF	0.0091
LGEE	LGEE	0.0165	Confirmed LTF	0.0165
CPLE	CPLE	0.0192	Confirmed LTF	0.0192
G-007A	G-007A	0.1223	Confirmed LTF	0.1223
VFT	VFT	0.3031	Confirmed LTF	0.3031
CBM-W2	CBM-W2	0.2375	Confirmed LTF	0.2375
CBM-W1	CBM-W1	0.3628	Confirmed LTF	0.3628
TVA	TVA	0.0406	Confirmed LTF	0.0406
CBM-S2	CBM-S2	0.1676	Confirmed LTF	0.1676
CBM-S1	CBM-S1	0.2471	Confirmed LTF	0.2471
MEC	MEC	0.0461	Confirmed LTF	0.0461

11.6.9 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
101769181	232215	KENT	DP&L	232812	NMEREDTH	DP&L	1	DPL_P4-2_DP11	breaker	93.0	125.46	126.31	DC	1.74

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232405	W1-003 E	0.2068	Adder	0.24
232407	W1-004 E	0.2068	Adder	0.24
232409	W1-005 E	0.2068	Adder	0.24
232411	W1-006 E	0.2068	Adder	0.24
232412	X1-032 E	0.1823	Adder	0.21
232429	Y3-058 E	0.4017	Adder	0.47
232433	Z2-076 E	0.0983	Adder	0.12
232435	Z2-077 E	0.0983	Adder	0.12
232813	VAUGHN	0.1279	50/50	0.1279
232899	W1-062	0.9333	50/50	0.9333
232900	DEMECSMY	0.9333	50/50	0.9333
232910	NRG_G1	2.3092	50/50	2.3092
232911	NRG_G2	2.3092	50/50	2.3092
917082	Z2-012 E	0.5697	Adder	0.67
923282	AB1-137 C	0.2078	Adder	0.24
923283	AB1-137 E	0.0891	Adder	0.1
923322	AB1-141 C OP	-1.0388	Adder	-1.22
923332	AB1-142 C OP	-1.0388	Adder	-1.22
923921	AB2-032 C	-1.0465	Adder	-1.23
924681	AB2-120 C OP	1.7468	Adder	2.06
924682	AB2-120 E OP	2.8500	Adder	3.35
924781	AB2-130 C OP	1.7505	Adder	2.06
924782	AB2-130 E OP	2.8561	Adder	3.36
924971	AB2-153 C	-0.5848	Adder	-0.69
925251	AB2-179 C OP	-2.0557	Adder	-2.42
925261	AB2-180 C	0.6048	Adder	0.71
925262	AB2-180 E	0.2592	Adder	0.3
926131	AC1-091 C	0.4457	Adder	0.52
926132	AC1-091 E	0.7309	Adder	0.86
926141	AC1-092 C	0.4457	Adder	0.52
926142	AC1-092 E	0.7309	Adder	0.86
926151	AC1-093 C	0.4219	Adder	0.5
926152	AC1-093 E	0.6953	Adder	0.82
926161	AC1-094 C	0.3565	Adder	0.42
926162	AC1-094 E	0.5883	Adder	0.69
927191	AC1-213 C	0.1456	Adder	0.17
927192	AC1-213 E	0.0956	Adder	0.11
930201	AB1-056 C	3.1070	Adder	3.66
930202	AB1-056 E	8.8483	Adder	10.41
930881	AB1-137 C	0.2078	Adder	0.24
930882	AB1-137 E	0.0891	Adder	0.1
933631	AC2-185 C	0.9032	Adder	1.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933632	AC2-185 E	1.4737	Adder	1.73
933641	AC2-186 C	2.7814	50/50	2.7814
933642	AC2-186 E	4.5381	50/50	4.5381
938891	AE1-117 C O1	2.0516	Adder	2.41
938892	AE1-117 E O1	5.4627	Adder	6.43
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.0509	Adder	2.41
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	5.4608	Adder	6.42
939151	AE1-145	0.9194	Adder	1.08
939621	AE1-192 C O1	2.1593	Adder	2.54
939622	AE1-192 E O1	1.0567	Adder	1.24
942441	AE2-257 C	1.6289	Adder	1.92
942442	AE2-257 E	4.2943	Adder	5.05
943361	AF1-007 C	0.0917	Adder	0.11
943362	AF1-007 E	0.2605	Adder	0.31
944921	AF1-157 C O1	0.7817	Adder	0.92
944922	AF1-157 E O1	0.5211	Adder	0.61
945661	AF1-231 C	0.3491	Adder	0.41
945662	AF1-231 E	0.5236	Adder	0.62
945781	AF1-243	0.2297	Adder	0.27
945791	AF1-244	0.3641	Adder	0.43
945931	AF1-258	0.1382	Adder	0.16
957611	AF2-055 C	0.8522	Adder	1.89
957612	AF2-055 E	0.3652	Adder	0.81
957661	AF2-060	0.2193	Adder	0.49
957671	AF2-061 O1	0.9745	Adder	2.16
958153	AF2-109 BAT	3.2376	50/50	3.2376
959021	AF2-193 C O1	3.0429	Adder	6.75
959022	AF2-193 E O1	8.2081	Adder	18.22
959031	AF2-194 C O1	3.0429	Adder	6.75
959032	AF2-194 E O1	8.2081	Adder	18.22
959051	AF2-196 C	0.2354	Adder	0.52
959052	AF2-196 E	0.5494	Adder	1.22
959161	AF2-207 C O1	0.5175	Adder	1.15
959162	AF2-207 E O1	0.7762	Adder	1.72
959571	AF2-248 C	0.0853	Adder	0.19
959572	AF2-248 E	0.0954	Adder	0.21
959581	AF2-249 C	0.0151	Adder	0.03
959582	AF2-249 E	0.0602	Adder	0.13
959591	AF2-250 C	0.0276	Adder	0.06
959592	AF2-250 E	0.0213	Adder	0.05
960881	AF2-379 C	0.0394	Adder	0.09
960882	AF2-379 E	0.0543	Adder	0.12
960941	AF2-385 C O1	1.2321	Adder	2.73
960942	AF2-385 E O1	0.6931	Adder	1.54
961181	AF2-409 O1	2.2845	Adder	5.07
NEWTON	NEWTON	0.0666	Confirmed LTF	0.0666
FARMERCITY	FARMERCITY	0.0035	Confirmed LTF	0.0035
CALDERWOOD	CALDERWOOD	0.0308	Confirmed LTF	0.0308
NY	NY	0.0188	Confirmed LTF	0.0188

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
PRAIRIE	PRAIRIE	0.1601	Confirmed LTF	0.1601
O-066	O-066	0.1411	Confirmed LTF	0.1411
CHEOAH	CHEOAH	0.0310	Confirmed LTF	0.0310
EDWARDS	EDWARDS	0.0217	Confirmed LTF	0.0217
TILTON	TILTON	0.0391	Confirmed LTF	0.0391
G-007	G-007	0.0104	Confirmed LTF	0.0104
GIBSON	GIBSON	0.0339	Confirmed LTF	0.0339
BLUEG	BLUEG	0.1076	Confirmed LTF	0.1076
TRIMBLE	TRIMBLE	0.0345	Confirmed LTF	0.0345
CATAWBA	CATAWBA	0.0221	Confirmed LTF	0.0221

11.6.10 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
101769038	232233	PRESTON	DP&L	232821	TANYARD	DP&L	1	DPL_P4-2_DP11	breaker	93.0	193.72	194.88	DC	2.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.3036	50/50	0.3036
232405	W1-003 E	0.5112	50/50	0.5112
232406	W1-004 FULL	0.3036	50/50	0.3036
232407	W1-004 E	0.5112	50/50	0.5112
232408	W1-005 C	0.3036	50/50	0.3036
232409	W1-005 E	0.5112	50/50	0.5112
232410	W1-006 C	0.3036	50/50	0.3036
232411	W1-006 E	0.5112	50/50	0.5112
232412	X1-032 E	0.4732	50/50	0.4732
232417	X3-008 C	0.5183	50/50	0.5183
232418	X3-008 E	4.9023	50/50	4.9023
232426	Y1-080 FULL	0.0598	50/50	0.0598
232427	Y1-080 E	0.5688	50/50	0.5688
232428	Y3-058 C	0.1521	50/50	0.1521
232429	Y3-058 E	1.4383	50/50	1.4383
232433	Z2-076 E	0.1512	Adder	0.18
232435	Z2-077 E	0.1512	Adder	0.18
232905	BAYVIEW1	0.2443	50/50	0.2443
232907	VN8	3.9453	50/50	3.9453
232919	VN10	0.3965	50/50	0.3965
232921	TASLEY2G	0.4282	50/50	0.4282
232926	CRISFLD1	0.2061	50/50	0.2061
293670	O-025 C	0.1383	50/50	0.1383
917081	Z2-012 C	0.1486	50/50	0.1486
917082	Z2-012 E	1.4052	50/50	1.4052
918831	AA1-102	0.7727	50/50	0.7727
923282	AB1-137 C	0.2879	Adder	0.34
923283	AB1-137 E	0.1234	Adder	0.15
924681	AB2-120 C OP	3.6460	Adder	4.29
924682	AB2-120 E OP	5.9488	Adder	7.0
924781	AB2-130 C OP	3.8511	50/50	3.8511
924782	AB2-130 E OP	6.2834	50/50	6.2834
924831	AB2-136 C	7.6302	50/50	7.6302
924832	AB2-136 E	8.0917	50/50	8.0917
925151	AB2-172 C OP	7.5117	50/50	7.5117
925152	AB2-172 E OP	12.2559	50/50	12.2559
925261	AB2-180 C	2.1652	50/50	2.1652
925262	AB2-180 E	0.9280	50/50	0.9280
927031	AC1-190 C	13.3011	50/50	13.3011
927032	AC1-190 E	5.7005	50/50	5.7005
927191	AC1-213 C	0.4276	50/50	0.4276
927192	AC1-213 E	0.2806	50/50	0.2806

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
930201	AB1-056 C	4.1164	Adder	4.84
930202	AB1-056 E	11.7229	Adder	13.79
930881	AB1-137 C	0.2879	Adder	0.34
930882	AB1-137 E	0.1234	Adder	0.15
932161	AC2-023 C	4.4912	50/50	4.4912
932162	AC2-023 E	3.2710	50/50	3.2710
938651	AE1-087 C	6.3256	50/50	6.3256
938652	AE1-087 E	1.5814	50/50	1.5814
938891	AE1-117 C O1	2.8516	Adder	3.35
938892	AE1-117 E O1	7.5929	Adder	8.93
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.8640	Adder	3.37
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	7.6258	Adder	8.97
939151	AE1-145	1.9210	Adder	2.26
939621	AE1-192 C O1	5.3260	50/50	5.3260
939622	AE1-192 E O1	2.6064	50/50	2.6064
942441	AE2-257 C	2.2451	Adder	2.64
942442	AE2-257 E	5.9190	Adder	6.96
943361	AF1-007 C	0.1214	Adder	0.14
943362	AF1-007 E	0.3452	Adder	0.41
944921	AF1-157 C O1	1.3116	Adder	1.54
944922	AF1-157 E O1	0.8744	Adder	1.03
945661	AF1-231 C	0.7320	Adder	0.86
945662	AF1-231 E	1.0980	Adder	1.29
945781	AF1-243	0.5666	50/50	0.5666
945791	AF1-244	0.9557	50/50	0.9557
945931	AF1-258	0.4949	50/50	0.4949
946041	AF1-269 (Withdrawn : 05/12/2020)	2.9792	50/50	2.9792
957611	AF2-055 C	3.9662	50/50	3.9662
957612	AF2-055 E	1.6998	50/50	1.6998
957661	AF2-060	0.4582	Adder	1.02
957671	AF2-061 O1	2.0363	Adder	4.52
959021	AF2-193 C O1	4.0314	Adder	8.95
959022	AF2-193 E O1	10.8747	Adder	24.14
959031	AF2-194 C O1	4.0314	Adder	8.95
959032	AF2-194 E O1	10.8747	Adder	24.14
959051	AF2-196 C	0.3245	Adder	0.72
959052	AF2-196 E	0.7572	Adder	1.68
959161	AF2-207 C O1	2.5390	50/50	2.5390
959162	AF2-207 E O1	3.8084	50/50	3.8084
959571	AF2-248 C	0.4379	50/50	0.4379
959572	AF2-248 E	0.4894	50/50	0.4894
959581	AF2-249 C	0.0773	50/50	0.0773
959582	AF2-249 E	0.3091	50/50	0.3091
959591	AF2-250 C	0.1417	50/50	0.1417
959592	AF2-250 E	0.1095	50/50	0.1095
960341	AF2-325 C	1.4218	50/50	1.4218
960342	AF2-325 E	1.9635	50/50	1.9635
960671	AF2-358 C O1	15.4410	50/50	15.4410

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960672	AF2-358 E O1	10.2940	50/50	10.2940
960871	AF2-378 C	0.3573	50/50	0.3573
960872	AF2-378 E	0.4957	50/50	0.4957
960881	AF2-379 C	0.2067	50/50	0.2067
960882	AF2-379 E	0.2849	50/50	0.2849
960941	AF2-385 C O1	6.0451	50/50	6.0451
960942	AF2-385 E O1	3.4004	50/50	3.4004
961181	AF2-409 O1	14.9490	50/50	14.9490
NEWTON	NEWTON	0.0752	Confirmed LTF	0.0752
FARMERCITY	FARMERCITY	0.0039	Confirmed LTF	0.0039
CALDERWOOD	CALDERWOOD	0.0348	Confirmed LTF	0.0348
NY	NY	0.0288	Confirmed LTF	0.0288
PRAIRIE	PRAIRIE	0.1808	Confirmed LTF	0.1808
O-066	O-066	0.2890	Confirmed LTF	0.2890
CHEOAH	CHEOAH	0.0350	Confirmed LTF	0.0350
EDWARDS	EDWARDS	0.0245	Confirmed LTF	0.0245
TILTON	TILTON	0.0441	Confirmed LTF	0.0441
G-007	G-007	0.0374	Confirmed LTF	0.0374
GIBSON	GIBSON	0.0382	Confirmed LTF	0.0382
BLUEG	BLUEG	0.1215	Confirmed LTF	0.1215
TRIMBLE	TRIMBLE	0.0390	Confirmed LTF	0.0390
CATAWBA	CATAWBA	0.0245	Confirmed LTF	0.0245

11.6.11 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
101769023	232234	TODD	DP&L	232233	PRESTON	DP&L	1	DPL_P4-2_DP11	breaker	93.0	198.67	199.83	DC	2.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.3036	50/50	0.3036
232405	W1-003 E	0.5112	50/50	0.5112
232406	W1-004 FULL	0.3036	50/50	0.3036
232407	W1-004 E	0.5112	50/50	0.5112
232408	W1-005 C	0.3036	50/50	0.3036
232409	W1-005 E	0.5112	50/50	0.5112
232410	W1-006 C	0.3036	50/50	0.3036
232411	W1-006 E	0.5112	50/50	0.5112
232412	X1-032 E	0.4732	50/50	0.4732
232417	X3-008 C	0.5183	50/50	0.5183
232418	X3-008 E	4.9023	50/50	4.9023
232426	Y1-080 FULL	0.0598	50/50	0.0598
232427	Y1-080 E	0.5688	50/50	0.5688
232428	Y3-058 C	0.1521	50/50	0.1521
232429	Y3-058 E	1.4383	50/50	1.4383
232433	Z2-076 E	0.1512	Adder	0.18
232435	Z2-077 E	0.1512	Adder	0.18
232905	BAYVIEW1	0.2443	50/50	0.2443
232907	VN8	3.9453	50/50	3.9453
232919	VN10	0.3965	50/50	0.3965
232921	TASLEY2G	0.4282	50/50	0.4282
232926	CRISFLD1	0.2061	50/50	0.2061
293670	O-025 C	0.1383	50/50	0.1383
917081	Z2-012 C	0.1486	50/50	0.1486
917082	Z2-012 E	1.4052	50/50	1.4052
918831	AA1-102	0.7727	50/50	0.7727
923282	AB1-137 C	0.2879	Adder	0.34
923283	AB1-137 E	0.1234	Adder	0.15
924681	AB2-120 C OP	3.6460	Adder	4.29
924682	AB2-120 E OP	5.9488	Adder	7.0
924781	AB2-130 C OP	3.8511	50/50	3.8511
924782	AB2-130 E OP	6.2834	50/50	6.2834
924831	AB2-136 C	7.6302	50/50	7.6302
924832	AB2-136 E	8.0917	50/50	8.0917
925151	AB2-172 C OP	7.5117	50/50	7.5117
925152	AB2-172 E OP	12.2559	50/50	12.2559
925261	AB2-180 C	2.1652	50/50	2.1652
925262	AB2-180 E	0.9280	50/50	0.9280
927031	AC1-190 C	13.3011	50/50	13.3011
927032	AC1-190 E	5.7005	50/50	5.7005
927191	AC1-213 C	0.4276	50/50	0.4276
927192	AC1-213 E	0.2806	50/50	0.2806

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
930201	AB1-056 C	4.1164	Adder	4.84
930202	AB1-056 E	11.7229	Adder	13.79
930881	AB1-137 C	0.2879	Adder	0.34
930882	AB1-137 E	0.1234	Adder	0.15
932161	AC2-023 C	4.4912	50/50	4.4912
932162	AC2-023 E	3.2710	50/50	3.2710
938651	AE1-087 C	6.3256	50/50	6.3256
938652	AE1-087 E	1.5814	50/50	1.5814
938891	AE1-117 C O1	2.8516	Adder	3.35
938892	AE1-117 E O1	7.5929	Adder	8.93
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.8640	Adder	3.37
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	7.6258	Adder	8.97
939151	AE1-145	1.9210	Adder	2.26
939621	AE1-192 C O1	5.3260	50/50	5.3260
939622	AE1-192 E O1	2.6064	50/50	2.6064
942441	AE2-257 C	2.2451	Adder	2.64
942442	AE2-257 E	5.9190	Adder	6.96
943361	AF1-007 C	0.1214	Adder	0.14
943362	AF1-007 E	0.3452	Adder	0.41
944921	AF1-157 C O1	1.3116	Adder	1.54
944922	AF1-157 E O1	0.8744	Adder	1.03
945661	AF1-231 C	0.7320	Adder	0.86
945662	AF1-231 E	1.0980	Adder	1.29
945781	AF1-243	0.5666	50/50	0.5666
945791	AF1-244	0.9557	50/50	0.9557
945931	AF1-258	0.4949	50/50	0.4949
946041	AF1-269 (Withdrawn : 05/12/2020)	2.9792	50/50	2.9792
957611	AF2-055 C	3.9662	50/50	3.9662
957612	AF2-055 E	1.6998	50/50	1.6998
957661	AF2-060	0.4582	Adder	1.02
957671	AF2-061 O1	2.0363	Adder	4.52
959021	AF2-193 C O1	4.0314	Adder	8.95
959022	AF2-193 E O1	10.8747	Adder	24.14
959031	AF2-194 C O1	4.0314	Adder	8.95
959032	AF2-194 E O1	10.8747	Adder	24.14
959051	AF2-196 C	0.3245	Adder	0.72
959052	AF2-196 E	0.7572	Adder	1.68
959161	AF2-207 C O1	2.5390	50/50	2.5390
959162	AF2-207 E O1	3.8084	50/50	3.8084
959571	AF2-248 C	0.4379	50/50	0.4379
959572	AF2-248 E	0.4894	50/50	0.4894
959581	AF2-249 C	0.0773	50/50	0.0773
959582	AF2-249 E	0.3091	50/50	0.3091
959591	AF2-250 C	0.1417	50/50	0.1417
959592	AF2-250 E	0.1095	50/50	0.1095
960341	AF2-325 C	1.4218	50/50	1.4218
960342	AF2-325 E	1.9635	50/50	1.9635
960671	AF2-358 C O1	15.4410	50/50	15.4410

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960672	AF2-358 E O1	10.2940	50/50	10.2940
960871	AF2-378 C	0.3573	50/50	0.3573
960872	AF2-378 E	0.4957	50/50	0.4957
960881	AF2-379 C	0.2067	50/50	0.2067
960882	AF2-379 E	0.2849	50/50	0.2849
960941	AF2-385 C O1	6.0451	50/50	6.0451
960942	AF2-385 E O1	3.4004	50/50	3.4004
961181	AF2-409 O1	14.9490	50/50	14.9490
NEWTON	NEWTON	0.0752	Confirmed LTF	0.0752
FARMERCITY	FARMERCITY	0.0039	Confirmed LTF	0.0039
CALDERWOOD	CALDERWOOD	0.0348	Confirmed LTF	0.0348
NY	NY	0.0288	Confirmed LTF	0.0288
PRAIRIE	PRAIRIE	0.1808	Confirmed LTF	0.1808
O-066	O-066	0.2890	Confirmed LTF	0.2890
CHEOAH	CHEOAH	0.0350	Confirmed LTF	0.0350
EDWARDS	EDWARDS	0.0245	Confirmed LTF	0.0245
TILTON	TILTON	0.0441	Confirmed LTF	0.0441
G-007	G-007	0.0374	Confirmed LTF	0.0374
GIBSON	GIBSON	0.0382	Confirmed LTF	0.0382
BLUEG	BLUEG	0.1215	Confirmed LTF	0.1215
TRIMBLE	TRIMBLE	0.0390	Confirmed LTF	0.0390
CATAWBA	CATAWBA	0.0245	Confirmed LTF	0.0245

11.6.12 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
101769209	232241	VIENN_69	DP&L	232234	TODD	DP&L	1	DPL_P4-2_DP11	breaker	143.0	104.36	104.96	DC	1.91

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232405	W1-003 E	0.3455	Adder	0.41
232407	W1-004 E	0.3455	Adder	0.41
232409	W1-005 E	0.3455	Adder	0.41
232411	W1-006 E	0.3455	Adder	0.41
232412	X1-032 E	0.3198	Adder	0.38
232428	Y3-058 C	0.1209	50/50	0.1209
232429	Y3-058 E	1.1436	50/50	1.1436
232433	Z2-076 E	0.1202	Adder	0.14
232435	Z2-077 E	0.1202	Adder	0.14
232907	VN8	3.1366	50/50	3.1366
232919	VN10	0.3152	50/50	0.3152
293670	O-025 C	0.1100	50/50	0.1100
917082	Z2-012 E	0.9497	Adder	1.12
923282	AB1-137 C	0.2289	Adder	0.27
923283	AB1-137 E	0.0981	Adder	0.12
924681	AB2-120 C OP	2.8992	Adder	3.41
924682	AB2-120 E OP	4.7304	Adder	5.57
924781	AB2-130 C OP	2.6027	Adder	3.06
924782	AB2-130 E OP	4.2466	Adder	5.0
925261	AB2-180 C	1.7216	50/50	1.7216
925262	AB2-180 E	0.7378	50/50	0.7378
927191	AC1-213 C	0.3400	50/50	0.3400
927192	AC1-213 E	0.2231	50/50	0.2231
930201	AB1-056 C	3.2735	Adder	3.85
930202	AB1-056 E	9.3222	Adder	10.97
930881	AB1-137 C	0.2289	Adder	0.27
930882	AB1-137 E	0.0981	Adder	0.12
932161	AC2-023 C	3.5706	50/50	3.5706
932162	AC2-023 E	2.6005	50/50	2.6005
938653	AE1-087 BAT	9.6116	50/50	9.6116
938891	AE1-117 C O1	2.2678	Adder	2.67
938892	AE1-117 E O1	6.0384	Adder	7.1
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.2777	Adder	2.68
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	6.0647	Adder	7.13
939151	AE1-145	1.5275	Adder	1.8
939621	AE1-192 C O1	3.5995	Adder	4.23
939622	AE1-192 E O1	1.7615	Adder	2.07
942441	AE2-257 C	1.7854	Adder	2.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942442	AE2-257 E	4.7069	Adder	5.54
943361	AF1-007 C	0.0966	Adder	0.11
943362	AF1-007 E	0.2745	Adder	0.32
944921	AF1-157 C O1	1.0430	Adder	1.23
944922	AF1-157 E O1	0.6953	Adder	0.82
945661	AF1-231 C	0.5820	Adder	0.68
945662	AF1-231 E	0.8731	Adder	1.03
945781	AF1-243	0.3829	Adder	0.45
945791	AF1-244	0.6459	Adder	0.76
945931	AF1-258	0.3935	50/50	0.3935
957611	AF2-055 C	1.4207	Adder	3.15
957612	AF2-055 E	0.6089	Adder	1.35
957661	AF2-060	0.3643	Adder	0.81
957671	AF2-061 O1	1.6191	Adder	3.59
959021	AF2-193 C O1	3.2058	Adder	7.12
959022	AF2-193 E O1	8.6477	Adder	19.2
959031	AF2-194 C O1	3.2058	Adder	7.12
959032	AF2-194 E O1	8.6477	Adder	19.2
959051	AF2-196 C	0.2581	Adder	0.57
959052	AF2-196 E	0.6022	Adder	1.34
959161	AF2-207 C O1	2.0188	50/50	2.0188
959162	AF2-207 E O1	3.0282	50/50	3.0282
959571	AF2-248 C	0.3482	50/50	0.3482
959572	AF2-248 E	0.3892	50/50	0.3892
959581	AF2-249 C	0.0614	50/50	0.0614
959582	AF2-249 E	0.2458	50/50	0.2458
959591	AF2-250 C	0.1127	50/50	0.1127
959592	AF2-250 E	0.0870	50/50	0.0870
960881	AF2-379 C	0.1644	50/50	0.1644
960882	AF2-379 E	0.2265	50/50	0.2265
960941	AF2-385 C O1	4.8067	50/50	4.8067
960942	AF2-385 E O1	2.7038	50/50	2.7038
961181	AF2-409 O1	11.8850	50/50	11.8850
NEWTON	NEWTON	0.0559	Confirmed LTF	0.0559
FARMERCITY	FARMERCITY	0.0029	Confirmed LTF	0.0029
CALDERWOOD	CALDERWOOD	0.0258	Confirmed LTF	0.0258
NY	NY	0.0210	Confirmed LTF	0.0210
PRAIRIE	PRAIRIE	0.1343	Confirmed LTF	0.1343
O-066	O-066	0.2016	Confirmed LTF	0.2016
CHEOAH	CHEOAH	0.0260	Confirmed LTF	0.0260
EDWARDS	EDWARDS	0.0182	Confirmed LTF	0.0182
TILTON	TILTON	0.0328	Confirmed LTF	0.0328
G-007	G-007	0.0260	Confirmed LTF	0.0260
GIBSON	GIBSON	0.0284	Confirmed LTF	0.0284
BLUEG	BLUEG	0.0903	Confirmed LTF	0.0903
TRIMBLE	TRIMBLE	0.0289	Confirmed LTF	0.0289
CATAWBA	CATAWBA	0.0182	Confirmed LTF	0.0182

11.6.13 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
101769287	232812	NMEREDTH	DP&L	924820	AB2-135 TAP	DP&L	1	DPL_P4-2_DP11	breaker	93.0	103.2	104.05	DC	1.74

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232405	W1-003 E	0.2068	Adder	0.24
232407	W1-004 E	0.2068	Adder	0.24
232409	W1-005 E	0.2068	Adder	0.24
232411	W1-006 E	0.2068	Adder	0.24
232412	X1-032 E	0.1823	Adder	0.21
232429	Y3-058 E	0.4017	Adder	0.47
232433	Z2-076 E	0.0983	Adder	0.12
232435	Z2-077 E	0.0983	Adder	0.12
232813	VAUGHN	0.1279	50/50	0.1279
232899	W1-062	0.9333	50/50	0.9333
232900	DEMECSMY	0.9333	50/50	0.9333
232910	NRG_G1	2.3092	50/50	2.3092
232911	NRG_G2	2.3092	50/50	2.3092
917082	Z2-012 E	0.5697	Adder	0.67
923282	AB1-137 C	0.2078	Adder	0.24
923283	AB1-137 E	0.0891	Adder	0.1
923322	AB1-141 C OP	-1.0388	Adder	-1.22
923332	AB1-142 C OP	-1.0388	Adder	-1.22
923921	AB2-032 C	-1.0465	Adder	-1.23
924681	AB2-120 C OP	1.7468	Adder	2.06
924682	AB2-120 E OP	2.8500	Adder	3.35
924781	AB2-130 C OP	1.7505	Adder	2.06
924782	AB2-130 E OP	2.8561	Adder	3.36
924971	AB2-153 C	-0.5848	Adder	-0.69
925251	AB2-179 C OP	-2.0557	Adder	-2.42
925261	AB2-180 C	0.6048	Adder	0.71
925262	AB2-180 E	0.2592	Adder	0.3
926131	AC1-091 C	0.4457	Adder	0.52
926132	AC1-091 E	0.7309	Adder	0.86
926141	AC1-092 C	0.4457	Adder	0.52
926142	AC1-092 E	0.7309	Adder	0.86
926151	AC1-093 C	0.4219	Adder	0.5
926152	AC1-093 E	0.6953	Adder	0.82
926161	AC1-094 C	0.3565	Adder	0.42
926162	AC1-094 E	0.5883	Adder	0.69
927191	AC1-213 C	0.1456	Adder	0.17
927192	AC1-213 E	0.0956	Adder	0.11
930201	AB1-056 C	3.1070	Adder	3.66
930202	AB1-056 E	8.8483	Adder	10.41
930881	AB1-137 C	0.2078	Adder	0.24
930882	AB1-137 E	0.0891	Adder	0.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933631	AC2-185 C	0.9032	Adder	1.06
933632	AC2-185 E	1.4737	Adder	1.73
933641	AC2-186 C	2.7814	50/50	2.7814
933642	AC2-186 E	4.5381	50/50	4.5381
938891	AE1-117 C O1	2.0516	Adder	2.41
938892	AE1-117 E O1	5.4627	Adder	6.43
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.0509	Adder	2.41
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	5.4608	Adder	6.42
939151	AE1-145	0.9194	Adder	1.08
939621	AE1-192 C O1	2.1593	Adder	2.54
939622	AE1-192 E O1	1.0567	Adder	1.24
942441	AE2-257 C	1.6289	Adder	1.92
942442	AE2-257 E	4.2943	Adder	5.05
943361	AF1-007 C	0.0917	Adder	0.11
943362	AF1-007 E	0.2605	Adder	0.31
944921	AF1-157 C O1	0.7817	Adder	0.92
944922	AF1-157 E O1	0.5211	Adder	0.61
945661	AF1-231 C	0.3491	Adder	0.41
945662	AF1-231 E	0.5236	Adder	0.62
945781	AF1-243	0.2297	Adder	0.27
945791	AF1-244	0.3641	Adder	0.43
945931	AF1-258	0.1382	Adder	0.16
957611	AF2-055 C	0.8522	Adder	1.89
957612	AF2-055 E	0.3652	Adder	0.81
957661	AF2-060	0.2193	Adder	0.49
957671	AF2-061 O1	0.9745	Adder	2.16
958153	AF2-109 BAT	3.2376	50/50	3.2376
959021	AF2-193 C O1	3.0429	Adder	6.75
959022	AF2-193 E O1	8.2081	Adder	18.22
959031	AF2-194 C O1	3.0429	Adder	6.75
959032	AF2-194 E O1	8.2081	Adder	18.22
959051	AF2-196 C	0.2354	Adder	0.52
959052	AF2-196 E	0.5494	Adder	1.22
959161	AF2-207 C O1	0.5175	Adder	1.15
959162	AF2-207 E O1	0.7762	Adder	1.72
959571	AF2-248 C	0.0853	Adder	0.19
959572	AF2-248 E	0.0954	Adder	0.21
959581	AF2-249 C	0.0151	Adder	0.03
959582	AF2-249 E	0.0602	Adder	0.13
959591	AF2-250 C	0.0276	Adder	0.06
959592	AF2-250 E	0.0213	Adder	0.05
960881	AF2-379 C	0.0394	Adder	0.09
960882	AF2-379 E	0.0543	Adder	0.12
960941	AF2-385 C O1	1.2321	Adder	2.73
960942	AF2-385 E O1	0.6931	Adder	1.54
961181	AF2-409 O1	2.2845	Adder	5.07
NEWTON	NEWTON	0.0666	Confirmed LTF	0.0666
FARMERCITY	FARMERCITY	0.0035	Confirmed LTF	0.0035
CALDERWOOD	CALDERWOOD	0.0308	Confirmed LTF	0.0308

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
NY	NY	0.0188	Confirmed LTF	0.0188
PRAIRIE	PRAIRIE	0.1601	Confirmed LTF	0.1601
O-066	O-066	0.1411	Confirmed LTF	0.1411
CHEOAH	CHEOAH	0.0310	Confirmed LTF	0.0310
EDWARDS	EDWARDS	0.0217	Confirmed LTF	0.0217
TILTON	TILTON	0.0391	Confirmed LTF	0.0391
G-007	G-007	0.0104	Confirmed LTF	0.0104
GIBSON	GIBSON	0.0339	Confirmed LTF	0.0339
BLUEG	BLUEG	0.1076	Confirmed LTF	0.1076
TRIMBLE	TRIMBLE	0.0345	Confirmed LTF	0.0345
CATAWBA	CATAWBA	0.0221	Confirmed LTF	0.0221

11.6.14 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
101769164	232821	TANYARD	DP&L	232820	TALBOT	DP&L	1	DPL_P4-2_DP11	breaker	173.0	100.73	101.35	DC	2.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
232404	W1-003 C	0.3036	50/50	0.3036
232405	W1-003 E	0.5112	50/50	0.5112
232406	W1-004 FULL	0.3036	50/50	0.3036
232407	W1-004 E	0.5112	50/50	0.5112
232408	W1-005 C	0.3036	50/50	0.3036
232409	W1-005 E	0.5112	50/50	0.5112
232410	W1-006 C	0.3036	50/50	0.3036
232411	W1-006 E	0.5112	50/50	0.5112
232412	X1-032 E	0.4732	50/50	0.4732
232417	X3-008 C	0.5183	50/50	0.5183
232418	X3-008 E	4.9023	50/50	4.9023
232426	Y1-080 FULL	0.0598	50/50	0.0598
232427	Y1-080 E	0.5688	50/50	0.5688
232428	Y3-058 C	0.1521	50/50	0.1521
232429	Y3-058 E	1.4383	50/50	1.4383
232433	Z2-076 E	0.1512	Adder	0.18
232435	Z2-077 E	0.1512	Adder	0.18
232905	BAYVIEW1	0.2443	50/50	0.2443
232907	VN8	3.9453	50/50	3.9453
232919	VN10	0.3965	50/50	0.3965
232921	TASLEY2G	0.4282	50/50	0.4282
232926	CRISFLD1	0.2061	50/50	0.2061
293670	O-025 C	0.1383	50/50	0.1383
917081	Z2-012 C	0.1486	50/50	0.1486
917082	Z2-012 E	1.4052	50/50	1.4052
918831	AA1-102	0.7727	50/50	0.7727
923282	AB1-137 C	0.2879	Adder	0.34
923283	AB1-137 E	0.1234	Adder	0.15
924681	AB2-120 C OP	3.6460	Adder	4.29
924682	AB2-120 E OP	5.9488	Adder	7.0
924781	AB2-130 C OP	3.8511	50/50	3.8511
924782	AB2-130 E OP	6.2834	50/50	6.2834
924831	AB2-136 C	7.6302	50/50	7.6302
924832	AB2-136 E	8.0917	50/50	8.0917
925151	AB2-172 C OP	7.5117	50/50	7.5117
925152	AB2-172 E OP	12.2559	50/50	12.2559
925261	AB2-180 C	2.1652	50/50	2.1652
925262	AB2-180 E	0.9280	50/50	0.9280
927031	AC1-190 C	13.3011	50/50	13.3011
927032	AC1-190 E	5.7005	50/50	5.7005
927191	AC1-213 C	0.4276	50/50	0.4276
927192	AC1-213 E	0.2806	50/50	0.2806

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
930201	AB1-056 C	4.1164	Adder	4.84
930202	AB1-056 E	11.7229	Adder	13.79
930881	AB1-137 C	0.2879	Adder	0.34
930882	AB1-137 E	0.1234	Adder	0.15
932161	AC2-023 C	4.4912	50/50	4.4912
932162	AC2-023 E	3.2710	50/50	3.2710
938651	AE1-087 C	6.3256	50/50	6.3256
938652	AE1-087 E	1.5814	50/50	1.5814
938891	AE1-117 C O1	2.8516	Adder	3.35
938892	AE1-117 E O1	7.5929	Adder	8.93
938901	AE1-118 C O1 (Withdrawn : 07/10/2020)	2.8640	Adder	3.37
938902	AE1-118 E O1 (Withdrawn : 07/10/2020)	7.6258	Adder	8.97
939151	AE1-145	1.9210	Adder	2.26
939621	AE1-192 C O1	5.3260	50/50	5.3260
939622	AE1-192 E O1	2.6064	50/50	2.6064
942441	AE2-257 C	2.2451	Adder	2.64
942442	AE2-257 E	5.9190	Adder	6.96
943361	AF1-007 C	0.1214	Adder	0.14
943362	AF1-007 E	0.3452	Adder	0.41
944921	AF1-157 C O1	1.3116	Adder	1.54
944922	AF1-157 E O1	0.8744	Adder	1.03
945661	AF1-231 C	0.7320	Adder	0.86
945662	AF1-231 E	1.0980	Adder	1.29
945781	AF1-243	0.5666	50/50	0.5666
945791	AF1-244	0.9557	50/50	0.9557
945931	AF1-258	0.4949	50/50	0.4949
946041	AF1-269 (Withdrawn : 05/12/2020)	2.9792	50/50	2.9792
957611	AF2-055 C	3.9662	50/50	3.9662
957612	AF2-055 E	1.6998	50/50	1.6998
957661	AF2-060	0.4582	Adder	1.02
957671	AF2-061 O1	2.0363	Adder	4.52
959021	AF2-193 C O1	4.0314	Adder	8.95
959022	AF2-193 E O1	10.8747	Adder	24.14
959031	AF2-194 C O1	4.0314	Adder	8.95
959032	AF2-194 E O1	10.8747	Adder	24.14
959051	AF2-196 C	0.3245	Adder	0.72
959052	AF2-196 E	0.7572	Adder	1.68
959161	AF2-207 C O1	2.5390	50/50	2.5390
959162	AF2-207 E O1	3.8084	50/50	3.8084
959571	AF2-248 C	0.4379	50/50	0.4379
959572	AF2-248 E	0.4894	50/50	0.4894
959581	AF2-249 C	0.0773	50/50	0.0773
959582	AF2-249 E	0.3091	50/50	0.3091
959591	AF2-250 C	0.1417	50/50	0.1417
959592	AF2-250 E	0.1095	50/50	0.1095
960341	AF2-325 C	1.4218	50/50	1.4218
960342	AF2-325 E	1.9635	50/50	1.9635
960671	AF2-358 C O1	15.4410	50/50	15.4410

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960672	AF2-358 E O1	10.2940	50/50	10.2940
960871	AF2-378 C	0.3573	50/50	0.3573
960872	AF2-378 E	0.4957	50/50	0.4957
960881	AF2-379 C	0.2067	50/50	0.2067
960882	AF2-379 E	0.2849	50/50	0.2849
960941	AF2-385 C O1	6.0451	50/50	6.0451
960942	AF2-385 E O1	3.4004	50/50	3.4004
961181	AF2-409 O1	14.9490	50/50	14.9490
NEWTON	NEWTON	0.0752	Confirmed LTF	0.0752
FARMERCITY	FARMERCITY	0.0039	Confirmed LTF	0.0039
CALDERWOOD	CALDERWOOD	0.0348	Confirmed LTF	0.0348
NY	NY	0.0288	Confirmed LTF	0.0288
PRAIRIE	PRAIRIE	0.1808	Confirmed LTF	0.1808
O-066	O-066	0.2890	Confirmed LTF	0.2890
CHEOAH	CHEOAH	0.0350	Confirmed LTF	0.0350
EDWARDS	EDWARDS	0.0245	Confirmed LTF	0.0245
TILTON	TILTON	0.0441	Confirmed LTF	0.0441
G-007	G-007	0.0374	Confirmed LTF	0.0374
GIBSON	GIBSON	0.0382	Confirmed LTF	0.0382
BLUEG	BLUEG	0.1215	Confirmed LTF	0.1215
TRIMBLE	TRIMBLE	0.0390	Confirmed LTF	0.0390
CATAWBA	CATAWBA	0.0245	Confirmed LTF	0.0245

11.7 Queue Dependencies

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

Queue Number	Project Name	Status
AA1-102	Kings Creek-Loretto 138kV	Partially in Service - Under Construction
AA2-069	Cartanza 230kV	Suspended
AB1-056	Indian River 230kV I	Engineering and Procurement
AB1-137	Frankford 25kV	Engineering and Procurement
AB1-141	Church-Wye Mills 138 kV I	Engineering and Procurement
AB1-142	Church-Wye Mills 138 kV II	Engineering and Procurement
AB1-176	Price 25kV II	Active
AB2-032	Church-Wye Mills 138 kV	Engineering and Procurement
AB2-036	Church-Steele 138kV	Active
AB2-037	Keeney-Steele 230kV	Active
AB2-120	Piney Grove-New Church 138kV	Active
AB2-130	Laurel 69kV	Active
AB2-133	Chestertown-Church 69kV	Active
AB2-135	Church-Kent 69kV	Active
AB2-136	West Cambridge-Vienna 69kV	Active
AB2-153	Church-Wye Mills 138 kV	Engineering and Procurement
AB2-172	Todd 69kV	Active
AB2-179	Townsend 138kV	Engineering and Procurement
AB2-180	Rockawalkin 69kV	Active
AB2-185	Wye Mills 25kV	Active
AC1-091	Cedar Creek 138kV I	Active
AC1-092	Cedar Creek 138kV II	Active
AC1-093	Cedar Creek 138kV III	Active
AC1-094	Cedar Creek 138kV IV	Active
AC1-190	East New Market 69kV	Active
AC1-213	North Salisbury 25kV	Active
AC2-023	Hebron 69kV	Active
AC2-185	Cedar Creek 138kV II	Active
AC2-186	Harrington 25kV	Active
AD2-076	Centreville 69 kV	Active
AE1-087	Todd 69 kV	Active
AE1-117	Bethany 138 kV	Active
AE1-118	Bethany-138th Street 138 kV	Withdrawn
AE1-145	Wallops Island 69 kV	Active
AE1-192	Belle Haven-Tasley 69 kV	Active
AE2-093	Easton-Steele 138 kV	Active
AE2-112	Carville 138 kV	Active
AE2-257	Cedar Neck 69 kV	Active
AF1-007	Indian River 230 kV I	Active

Queue Number	Project Name	Status
AF1-015	Easton-Steele 138 kV	Active
AF1-036	Carville 138 kV	Active
AF1-157	Laurel-Sussex 69 kV	Active
AF1-231	New Church 138 kV	Active
AF1-243	Tasley 25 kV	Active
AF1-244	Kingston 25 kV	Active
AF1-258	Rockawalkin 69 kV	Active
AF1-259	Price 25 kV	Active
AF1-269	Airey-Golden Hill 69 kV	Withdrawn
AF2-055	Plantation 69 kV	Active
AF2-060	Wattsville 12 kV	Active
AF2-061	Wattsville 69kV	Active
AF2-109	Church 69 kV	Active
AF2-193	Indian River 230 kV I	Active
AF2-194	Indian River 230 kV II	Active
AF2-196	Cedar Neck 69 kV II	Active
AF2-207	Nelson 69 kV	Active
AF2-248	Edgewood 12 kV I	Active
AF2-249	Edgewood 12 kV II	Active
AF2-250	Edgewood 12 kV III	Active
AF2-313	Price 69 kV	Active
AF2-325	Jacktown 12 kV	Active
AF2-358	Airey-Vienna 69 kV	Active
AF2-378	Cambridge 12 kV	Active
AF2-379	Princess Anne 25 kV	Active
AF2-385	Nelson 69 kV	Active
AF2-387	Hillsboro 138 kV	Active
AF2-409	Vienna 138 kV	Active
W1-003	Oak Hall	In Service
W1-004	Oak Hall	In Service
W1-005	Oak Hall	In Service
W1-006	Oak Hall	In Service
W1-062	Clayton 138kV	In Service
X1-032	Costen 25kV	In Service
X3-008	Todd 69kV	Under Construction
X3-066	Church Hill 69kV	In Service
Y1-079	Wye Mills 69kV	In Service
Y1-080	Dorchester 12kV	In Service
Y3-058	Rockawalkin 69kV	In Service
Z2-012	Weirwood-Eastville 69kV	In Service
Z2-076	Worcester South 25kV	In Service
Z2-077	Worcester North 25kV	In Service

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
CKT 23030B	CONTINGENCY 'CKT 23030B' OPEN LINE FROM BUS 232002 TO BUS 232013 CIRCUIT 1 /CEDAR CREEK - SILVER RUN 230 END
DPL_P4-2_DP6	CONTINGENCY 'DPL_P4-2_DP6' /*MILFORD BUS BREAKER TO STEELE DISCONNECT BRANCH FROM BUS 232000 TO BUS 232004 CKT 1 /*MILFORD STEELE 230 230 DISCONNECT BRANCH FROM BUS 232003 TO BUS 232004 CKT 1 /*CARTANZA MILFORD 230 230 END
DPL_P4-2_DP24	CONTINGENCY 'DPL_P4-2_DP24' /*CEDAR CREEK BUS BREAKER TO SILVER RUN DISCONNECT BRANCH FROM BUS 232013 TO BUS 232002 CKT 1 /*SILVER RUN CEDAR CK 230 230 DISCONNECT BRANCH FROM BUS 232002 TO BUS 232108 CKT 1 /*CEDAR CK CEDAR CK 230 138 AT20 END
DPL_P4-2_DP36	CONTINGENCY 'DPL_P4-2_DP36' /*COOL SPRINGS BUS BREAKER TO IR 2 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232006 CKT 1 /*COOL SPRINGS INDIV 4 230 230 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232004 CKT 1 /*COOL SPRINGS MILFORD 230 230 END
DPL_P4-2_DP3	CONTINGENCY 'DPL_P4-2_DP3' /*MILFORD BUS BREAKER TO STEELE DISCONNECT BRANCH FROM BUS 232004 TO BUS 232000 CKT 1 /*MILFORD STEELE 230 230 DISCONNECT BRANCH FROM BUS 232006 TO BUS 232004 CKT 1 /*MILFORD INDIAN RIVER 230 230 END
DPL_P4-2_DP15	CONTINGENCY 'DPL_P4-2_DP15' /*INDIAN RIVER BUS BREAKER TO PINEY GROVE DISCONNECT BRANCH FROM BUS 232007 TO BUS 232006 CKT 1 /*PINEY GR INDIV 4 230 230 DISCONNECT BRANCH FROM BUS 232007 TO BUS 232128 CKT 1 /*PINEY GR PINEY GR 230 138 DISCONNECT BRANCH FROM BUS 232006 TO BUS 232004 CKT 1 /*MILFORD INDIAN RIVER 230 230 END

Contingency Name	Contingency Definition
DPL_P4-2_DP25B	CONTINGENCY 'DPL_P4-2_DP25B' /*CEDAR CREEK 230 BUS BREAKER TO MILFORD DISCONNECT BRANCH FROM BUS 232002 TO BUS 232004 CKT 1 /*CEDAR CK MILFORD 230 230 DISCONNECT BRANCH FROM BUS 232002 TO BUS 232108 CKT 1 /*CEDAR CK CEDAR CK 230 138 AT20 END
DPL_P1_2_CKT 23034	CONTINGENCY 'DPL_P1_2_CKT 23034' OPEN LINE FROM BUS 232006 TO BUS 232004 CIRCUIT 1 /INDIAN RIVER - MILFORD 230 END
CKT 23032B	CONTINGENCY 'CKT 23032B' OPEN LINE FROM BUS 232013 TO BUS 232003 CIRCUIT 1 /SILVER RUN - CARTANZA 230 END
DPL_P4-2_DP11	CONTINGENCY 'DPL_P4-2_DP11' /*STEELE BUS BREAKER TO MILFORD DISCONNECT BRANCH FROM BUS 232004 TO BUS 232000 CKT 1 /*MILFORD STEELE 230 230 DISCONNECT BRANCH FROM BUS 232000 TO BUS 232005 CKT 1 /*STEELE VIENNA 230 230 END
CKT 23032A	CONTINGENCY 'CKT 23032A' OPEN LINE FROM BUS 231004 TO BUS 232013 CIRCUIT 2 /RED LION - SILVER RUN 230 END
Base Case	
DPL_P1_2_CKT 23069	CONTINGENCY 'DPL_P1_2_CKT 23069' OPEN LINE FROM BUS 232001 TO BUS 232004 CIRCUIT 1 /COOL SPRINGS - MILFORD 230 END
DPL_P7_1_DBL_1NCB_FSA-A	CONTINGENCY 'DPL_P7_1_DBL_1NCB_FSA-A' /* #1 & #2 KEENEY-STEELE 230 OPEN LINE FROM BUS 231003 TO BUS 232000 CKT 1 OPEN LINE FROM BUS 231003 TO BUS 923960 CKT 2 OPEN LINE FROM BUS 232000 TO BUS 923960 CKT 2 DISCONNECT BUS 923961 DISCONNECT BUS 923962 END

Contingency Name	Contingency Definition
DPL_P4-2_DP23	CONTINGENCY 'DPL_P4-2_DP23' /*CEDAR CREEK BUS BREAKER TO SILVER RUN DISCONNECT BRANCH FROM BUS 232002 TO BUS 232013 CKT 1 /*CEDAR CK SILVER RUN 230 230 DISCONNECT BRANCH FROM BUS 232002 TO BUS 232004 CKT 1 /*CEDAR CK MILFORD 230 230 END

12 Short Circuit Analysis

Short circuit will be studied in the System Impact Study phase.

13 Affected Systems

None