



**Generation Interconnection
System Impact Study Report
for
Queue Project AG1-153
HERITAGE 500 KV
30 MW Capacity / 75 MW Energy**

August 2021

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1 Introduction

This System Impact Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 205, as well as the System Impact Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Dominion.

2 Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. 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 System Impact Study is performed.

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

3 General

The Interconnection Customer (IC), has proposed a Storage generating facility located in Brunswick County, Virginia. The installed facilities will have a total capability of 75 MW with 30 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 01, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-153
Project Name	HERITAGE 500 KV
State	Virginia
County	Brunswick
Transmission Owner	Dominion
MFO	75
MWE	75
MWC	30
Fuel	Storage
Basecase Study Year	2024

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

AG1-153 "Heritage 500 kV" will interconnect with the Dominion transmission system. The primary POI is a direct connect to the Heritage 500 kV substation.

The IC is responsible for securing right-of-way, permits, and constructing the proposed attachment line from the generating facility site to the Point of Interconnection. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

Attachment 1 shows a one-line diagram of the proposed interconnection facilities.

5 Cost Summary

The AG1-153 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$4,750,000
Allocation towards System Network Upgrade Costs (PJM Identified - Summer Peak)*	\$10,510,803
Allocation towards System Network Upgrade Costs (PJM Identified - Light Load)*	\$0
Total Costs	\$15,260,803

*As your project progresses through the study process and other projects modify their request or withdraw, then your cost allocation could change.

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.

Note 1: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

Note 2: For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates \$0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently \$0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

6 Transmission Owner Scope of Work

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of AG1-153 to the Dominion Transmission System is detailed in the following sections. The associated one-line showing the generation project attachment facilities and primary direct and non-direct connection is shown in Attachment 1.

Note that the ITO findings were made from a conceptual review of this project. A more detailed review of the connection facilities and their cost will be identified in a future study phase. Further note that the cost estimate data contained in this document should be considered high level estimates since it was produced without a detailed engineering review. The applicant will be responsible for the actual cost of construction. ITO herein reserves the right to return to any issues in this document and, upon appropriate justification, request additional monies to complete any reinforcements to the transmission systems.

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

Description	Total Cost
<i>Attachment Facilities</i>	\$2,750,000
<i>New Breaker</i>	\$2,000,000
Total Physical Interconnection Costs	\$4,750,000

AG1-153 "Heritage 500 kV" will interconnect with the Dominion transmission system. The primary POI is a direct connect to the Heritage 500 kV substation.

To accommodate the proposed Project, Dominion Energy will add one new 500 kV breaker to the existing Heritage 500 kV substation to allow for the proposed interconnection. Dominion will install one span of overhead 500 kV line to the point of interconnection ("POI") including 500 kV interconnection metering.

It is estimated to take 24-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

7 Schedule

Based on the scope of work for the interconnection facilities, it is expected to take a minimum of 24-30 months after the signing of an Interconnection Construction Service Agreement (or "Interconnection Agreement" if non-FERC) and construction kickoff call to complete the installation of the physical connection work. This assumes that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined interconnection work, and that all system outages will be allowed when requested.

The schedule for any required Network Impact Reinforcements will be more clearly identified in future study phases. The estimated time to complete each of the required reinforcements is identified in the "System Reinforcements" section of the report.

8 Transmission Owner Analysis

Dominion assessed the impact of the proposed AG1-153 for compliance with NERC Reliability Criteria on the Dominion Transmission System. The system was assessed using the summer 2024 AG1 case provided to Dominion by PJM.

When performing a generation analysis, Dominion's main analysis includes load flow study results following a single contingency event for both normal and stressed system conditions. Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: <http://www.dominionenergy.com>.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically, in Planning Studies, NERC Planning Event 3 and 6 Contingency Conditions (Loss of generator, transmission circuit, transformer, shunt device, or Single Pole of a DC line followed by the loss of a generator, transmission circuit, transformer, shunt device or single pole of a DC line) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For Dominion Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

8.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2024 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system and no further deficiencies were identified.

9 Interconnection Customer Requirements

9.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in Dominion's "Dominion Energy Electric Transmission Generator Interconnection Requirements" documented in Dominion's Facility Interconnection Requirements "Exhibit C" located at:

<https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. Preliminary Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

9.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with Dominion's "Dominion's Facility Interconnection Requirements" document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC's GSU transformer(s).
2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection section noted above. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.
3. The purchase and installation of supervisory control and data acquisition ("SCADA") equipment to provide information in a compatible format to the Dominion Transmission System Control Center.
4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

The GSU(s) associated with the IC queue request shall meet the grounding requirements as noted in Dominion's "Dominion's Facility Interconnection Requirements" document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

The IC will also be required to meet all PJM, SERC, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and SERC audits. Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the Dominion system.

9.3 Power Factor Requirements

The IC shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading (absorbing VARs) to 0.95 lagging (supplying VARs) measured at the high-side of the facility substation transformer(s) connected to the Dominion transmission system.

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/>

11 Summer Peak Analysis

The Queue Project AG1-153 was evaluated as a 75.0 MW (Capacity 30.00 MW) injection at the Heritage 500 kV substation in the Dominion area. Project AG1-153 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-153 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

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

None

11.2 Multiple Facility Contingency

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

None

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC/D C	MW IMPAC T
179598298	242631	05EDAN 1	138.0	AEP	242620	05DANVL2	138.0	AEP	1	DVP_P4-2: 562T563	breaker	402.0	166.36	167.31	AC	4.51
179611969	242631	05EDAN 1	138.0	AEP	242620	05DANVL2	138.0	AEP	1	DVP_P4-2: 56372	breaker	402.0	166.97	167.66	AC	4.36

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC D C	MW IMPAC T
173813619	314282	6CARSON	230.0	DVP	314285	6CHRL249	230.0	DVP	1	DVP_P4-2: 562T563	breaker	684.0	178.83	179.76	AC	7.43
173813620	314285	6CHRL249	230.0	DVP	314316	6LOCKS	230.0	DVP	1	DVP_P4-2: 562T563	breaker	684.0	176.0	176.93	AC	7.43
174395763	314299	6HARROWG	230.0	DVP	314263	6TYLER1	230.0	DVP	1	DVP_P4-2: 562T563	breaker	541.0	153.23	154.09	AC	5.48
174195661	314301	6HARR205	230.0	DVP	314346	6TYLER	230.0	DVP	1	DVP_P4-2: 562T563	breaker	541.0	126.38	127.38	AC	5.84
173998253	314316	6LOCKS	230.0	DVP	314301	6HARR205	230.0	DVP	1	DVP_P4-2: 562T563	breaker	541.0	149.94	150.86	AC	5.84
174395761	314331	6POE	230.0	DVP	314299	6HARROWG	230.0	DVP	1	DVP_P4-2: 562T563	breaker	541.0	153.24	154.11	AC	5.48
173813621	314902	8CARSON	500.0	DVP	314282	6CARSON	230.0	DVP	1	DVP_P4-2: 562T563	breaker	1039.7	171.86	173.43	AC	15.65

11.4 Steady-State Voltage Requirements

None

11.5 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC D C	MW IMPAC T
168674234	314282	6CARSON	230.0	DVP	314285	6CHRL249	230.0	DVP	1	DVP_P1-2: LN 563	operation	559.3	167.03	167.89	AC	5.66
168674244	314285	6CHRL249	230.0	DVP	314316	6LOCKS	230.0	DVP	1	DVP_P1-2: LN 563	operation	559.3	163.56	164.42	AC	5.66
168674314	314316	6LOCKS	230.0	DVP	314301	6HARR205	230.0	DVP	1	DVP_P1-2: LN 563	operation	441.8	133.85	134.75	AC	4.5

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 LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPAC T
168674224	314902	8CARSON	500.0	DVP	314282	6CARSON	230.0	DVP	1	DVP_P1-2: LN 563	operation	903.9	166.52	167.85	AC	11.71
163570619	314935	8HERITAGE	500.0	DVP	314940	8ROGERS RD	500.0	DVP	1	DVP_P1-2: LN 511-A	operation	3256.2	101.12	102.29	AC	44.61
163570527	314936	8RAWLINGS	500.0	DVP	942930	AE2-313 TAP	500.0	DVP	1	DVP_P1-2: LN 585-A	operation	4070.2	127.0	128.06	AC	44.02
163570595	314940	8ROGERS RD	500.0	DVP	938490	AE1-068_POI	500.0	DVP	1	DVP_P1-2: LN 511-A	operation	4070.2	115.79	116.69	AC	43.97
163570559	938490	AE1-068_POI	500.0	DVP	941030	AE2-094 TAP	500.0	DVP	1	DVP_P1-2: LN 511-A	operation	4070.2	128.42	129.33	AC	43.97
163570466	940470	AE2-031 TAP	500.0	DVP	314902	8CARSON	500.0	DVP	1	DVP_P1-2: LN 585-A	operation	4070.2	136.18	137.13	AC	44.02
163570519	941030	AE2-094 TAP	500.0	DVP	314902	8CARSON	500.0	DVP	1	DVP_P1-2: LN 511-A	operation	4070.2	135.59	136.48	AC	43.97
163570500	942930	AE2-313 TAP	500.0	DVP	940470	AE2-031 TAP	500.0	DVP	1	DVP_P1-2: LN 585-A	operation	4070.2	131.81	132.83	AC	44.02

11.6 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number
179598298,179611969	1	05EDAN 1 138.0 kV - 05DANVL2 138.0 kV Ckt 1	<u>AEPA</u> ProjectId : n6124 Description : PJM Network Upgrade n6124. Increasing the Danville East Danville 138 kV circuit summer rating to 572/572/572 MVA will still require us to rebuild the line. Type : FAC Total Cost : \$7,500,000 Time Estimate : Months Ratings : 337.0/482.0 ProjectId : n7754.1 (AEPA0021g) Description : Replace 5 Sub cond 2000 AAC 91 Str at Danville2 138kV station Type : FAC Total Cost : \$500,000 Time Estimate : 12-18 Months Ratings : 337.0/482.0 ProjectId : n7754.2 (AEPA0021h) Description : Replace 3 Sub cond 2000 AAC 91 Str at East Danville 138kV station Type : FAC Total Cost : \$300,000 Time Estimate : 12-18 Months Ratings : 337.0/482.0 ProjectId : n7754.3 (AEPA0021i) Description : Reconductor/rebuild 2.84 miles of EDanville-Danville line with higher conductor rating Type : FAC Total Cost : \$4,500,000 Time Estimate : 24-36 Months Ratings : 383.0/527.0 ProjectId : n7754.4 (AEPA0021j) Description : Replace 7 Sub cond 2156 ACSR 84/19 STD at Danville station Type : FAC Total Cost : \$700,000 Time Estimate : 12-18 Months Ratings : 410.0/692.0 Per PJM cost allocation rules, Queue Project AG1-153 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc., Queue Project AG1-153 could receive cost allocation. Note 2: Although Queue Project AG1-153 may not have cost responsibility for this upgrade, Queue Project AG1-153 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AG1-153 comes into service prior to completion of the upgrade, Queue Project AG1-153 will need an interim study.	\$7,500,000 + \$500,000 + \$4,500,000 + \$700,000	\$0 + \$0 + \$0 + \$0	n6124.1 n6124.2 n6124.3 n6124.4

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number																																																																																												
174395761	7	6POE 230.0 kV - 6HARROWG 230.0 kV Ckt 1	DVP ProjectId : n6179 (dom-037) Description : Rebuild 12.3 miles of 230 kV Line 2003 from Poe to Harrowgate with 2-636 ACSR. Type : FAC Total Cost : \$30,750,000 Time Estimate : 30-36 Months Ratings : 1047.0/1047.0/1204.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AE1-173</td><td>22.4</td><td>7.95%</td><td>\$2,445,252</td></tr><tr><td>AE2-000B</td><td>13.56</td><td>4.81%</td><td>\$1,480,251</td></tr><tr><td>AE2-031</td><td>22.29</td><td>7.91%</td><td>\$2,433,244</td></tr><tr><td>AE2-033</td><td>21.38</td><td>7.59%</td><td>\$2,333,905</td></tr><tr><td>AE2-040</td><td>7.41</td><td>2.63%</td><td>\$808,898</td></tr><tr><td>AE2-052</td><td>6.17</td><td>2.19%</td><td>\$673,405</td></tr><tr><td>AE2-094</td><td>23.32</td><td>8.28%</td><td>\$2,545,682</td></tr><tr><td>AE2-260</td><td>23.63</td><td>8.39%</td><td>\$2,579,522</td></tr><tr><td>AE2-313</td><td>24.1</td><td>8.56%</td><td>\$2,630,829</td></tr><tr><td>AF1-059</td><td>7.49</td><td>2.66%</td><td>\$817,631</td></tr><tr><td>AF1-069</td><td>7.27</td><td>2.58%</td><td>\$793,615</td></tr><tr><td>AF1-246</td><td>6.43</td><td>2.28%</td><td>\$701,918</td></tr><tr><td>AF1-266</td><td>10.67</td><td>3.79%</td><td>\$1,164,769</td></tr><tr><td>AF2-042</td><td>31.91</td><td>11.33%</td><td>\$3,483,392</td></tr><tr><td>AF2-046</td><td>9.24</td><td>3.28%</td><td>\$1,008,666</td></tr><tr><td>AF2-080</td><td>6.17</td><td>2.19%</td><td>\$673,536</td></tr><tr><td>AF2-242</td><td>6.26</td><td>2.22%</td><td>\$683,360</td></tr><tr><td>AF2-299</td><td>6.06</td><td>2.15%</td><td>\$661,528</td></tr><tr><td>AF2-324</td><td>7.42</td><td>2.63%</td><td>\$809,990</td></tr><tr><td>AG1-027</td><td>7.56</td><td>2.68%</td><td>\$825,272</td></tr><tr><td>AG1-098</td><td>5.47</td><td>1.94%</td><td>\$597,122</td></tr><tr><td>AG1-153</td><td>5.48</td><td>1.95%</td><td>\$598,213</td></tr></table>	Queue	MW	Cost %	Cost \$	AE1-173	22.4	7.95%	\$2,445,252	AE2-000B	13.56	4.81%	\$1,480,251	AE2-031	22.29	7.91%	\$2,433,244	AE2-033	21.38	7.59%	\$2,333,905	AE2-040	7.41	2.63%	\$808,898	AE2-052	6.17	2.19%	\$673,405	AE2-094	23.32	8.28%	\$2,545,682	AE2-260	23.63	8.39%	\$2,579,522	AE2-313	24.1	8.56%	\$2,630,829	AF1-059	7.49	2.66%	\$817,631	AF1-069	7.27	2.58%	\$793,615	AF1-246	6.43	2.28%	\$701,918	AF1-266	10.67	3.79%	\$1,164,769	AF2-042	31.91	11.33%	\$3,483,392	AF2-046	9.24	3.28%	\$1,008,666	AF2-080	6.17	2.19%	\$673,536	AF2-242	6.26	2.22%	\$683,360	AF2-299	6.06	2.15%	\$661,528	AF2-324	7.42	2.63%	\$809,990	AG1-027	7.56	2.68%	\$825,272	AG1-098	5.47	1.94%	\$597,122	AG1-153	5.48	1.95%	\$598,213	\$30,750,000	\$598,213	n6179
Queue	MW	Cost %	Cost \$																																																																																															
AE1-173	22.4	7.95%	\$2,445,252																																																																																															
AE2-000B	13.56	4.81%	\$1,480,251																																																																																															
AE2-031	22.29	7.91%	\$2,433,244																																																																																															
AE2-033	21.38	7.59%	\$2,333,905																																																																																															
AE2-040	7.41	2.63%	\$808,898																																																																																															
AE2-052	6.17	2.19%	\$673,405																																																																																															
AE2-094	23.32	8.28%	\$2,545,682																																																																																															
AE2-260	23.63	8.39%	\$2,579,522																																																																																															
AE2-313	24.1	8.56%	\$2,630,829																																																																																															
AF1-059	7.49	2.66%	\$817,631																																																																																															
AF1-069	7.27	2.58%	\$793,615																																																																																															
AF1-246	6.43	2.28%	\$701,918																																																																																															
AF1-266	10.67	3.79%	\$1,164,769																																																																																															
AF2-042	31.91	11.33%	\$3,483,392																																																																																															
AF2-046	9.24	3.28%	\$1,008,666																																																																																															
AF2-080	6.17	2.19%	\$673,536																																																																																															
AF2-242	6.26	2.22%	\$683,360																																																																																															
AF2-299	6.06	2.15%	\$661,528																																																																																															
AF2-324	7.42	2.63%	\$809,990																																																																																															
AG1-027	7.56	2.68%	\$825,272																																																																																															
AG1-098	5.47	1.94%	\$597,122																																																																																															
AG1-153	5.48	1.95%	\$598,213																																																																																															

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number												
173813621	8	8CARSON 500.0 kV - 6CARSON 230.0 kV Ckt 1	<u>DVP</u> ProjectId : n6209 (dom-030) Description : Add additional 500/230 kV transformer at Carson substation (energizing existing spare transformer). Type : CON Total Cost : \$1,000,000 Time Estimate : 16-18 Months Ratings : 1133.0/1203.0/1365.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AE1-069</td><td>76.05</td><td>36.36%</td><td>\$363,580</td></tr><tr><td>AE1-173</td><td>133.12</td><td>63.64%</td><td>\$636,420</td></tr></table> This project is driven by a prior Queue. Per PJM cost allocation rules, Queue Project AG1-153 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc., Queue Project AG1-153 could receive cost allocation. Note 2: Although Queue Project AG1-153 may not have cost responsibility for this upgrade, Queue Project AG1-153 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AG1-153 comes into service prior to completion of the upgrade, Queue Project AG1-153 will need an interim study. The upgrade will need to be tested during the Facilities Study phase to ensure the upgrade mitigates the identified violations and also does not cause any additional violations.	Queue	MW	Cost %	Cost \$	AE1-069	76.05	36.36%	\$363,580	AE1-173	133.12	63.64%	\$636,420	\$1,000,000	\$0	n6209
Queue	MW	Cost %	Cost \$															
AE1-069	76.05	36.36%	\$363,580															
AE1-173	133.12	63.64%	\$636,420															

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number																												
173998253	6	6LOCKS 230.0 kV - 6HARR205 230.0 kV Ckt 1	DVP ProjectId : n6129 (dom-165) Description : Uprate 5.4 miles of 230 kV Line 205 from Locks to Harrowgate with 1033.5 ACSR. Upgrade Relays at Locks. Type : FAC Total Cost : \$2,280,000 Time Estimate : 30-36 Months Ratings : 1046.0/1046.0/1203.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AE2-031</td><td>15.98</td><td>11.64%</td><td>\$265,383</td></tr><tr><td>AE2-033</td><td>23.45</td><td>17.08%</td><td>\$389,438</td></tr><tr><td>AE2-094</td><td>24.89</td><td>18.13%</td><td>\$413,353</td></tr><tr><td>AE2-250</td><td>21.62</td><td>15.75%</td><td>\$359,047</td></tr><tr><td>AE2-260</td><td>25.63</td><td>18.67%</td><td>\$425,642</td></tr><tr><td>AE2-313</td><td>25.72</td><td>18.73%</td><td>\$427,137</td></tr></table> This project is driven by a prior Queue. Per PJM cost allocation rules, Queue Project AG1-153 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc., Queue Project AG1-153 could receive cost allocation. Note 2: Although Queue Project AG1-153 may not have cost responsibility for this upgrade, Queue Project AG1-153 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AG1-153 comes into service prior to completion of the upgrade, Queue Project AG1-153 will need an interim study.	Queue	MW	Cost %	Cost \$	AE2-031	15.98	11.64%	\$265,383	AE2-033	23.45	17.08%	\$389,438	AE2-094	24.89	18.13%	\$413,353	AE2-250	21.62	15.75%	\$359,047	AE2-260	25.63	18.67%	\$425,642	AE2-313	25.72	18.73%	\$427,137	\$2,280,000	\$0	n6129
Queue	MW	Cost %	Cost \$																															
AE2-031	15.98	11.64%	\$265,383																															
AE2-033	23.45	17.08%	\$389,438																															
AE2-094	24.89	18.13%	\$413,353																															
AE2-250	21.62	15.75%	\$359,047																															
AE2-260	25.63	18.67%	\$425,642																															
AE2-313	25.72	18.73%	\$427,137																															
173813619	2	6CARSON 230.0 kV - 6CHRL249 230.0 kV Ckt 1	DVP ProjectId : n7610 (dom-435) Description : Rebuild 7.47 miles of 230 kV Line 249 from Carson to Chaparral with 2-768.2 ACSS 250C. Replace wave trap and Line Lead at Carson terminal and Line Switch at Chaparral terminal. Type : FAC Total Cost : \$19,125,000 Time Estimate : 36-40 Months Ratings : 1573.0/1573.0/1593.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AG1-098</td><td>7.43</td><td>50.00%</td><td>\$9,562,500</td></tr><tr><td>AG1-153</td><td>7.43</td><td>50.00%</td><td>\$9,562,500</td></tr></table>	Queue	MW	Cost %	Cost \$	AG1-098	7.43	50.00%	\$9,562,500	AG1-153	7.43	50.00%	\$9,562,500	\$19,125,000	\$9,562,500	n7610																
Queue	MW	Cost %	Cost \$																															
AG1-098	7.43	50.00%	\$9,562,500																															
AG1-153	7.43	50.00%	\$9,562,500																															

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number																																																																																												
173813620	3	6CHRL249 230.0 kV - 6LOCKS 230.0 kV Ckt 1	DVP ProjectId : n6116 (dom-079) Description : Rebuild 2.86 miles of 230 kV Line 249 from Chaparral to Locks with 2-636 ACSR. Type : FAC Total Cost : \$7,150,000 Time Estimate : 30-36 Months Ratings : 1047.0/1047.0/1204.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AD2-033</td><td>5.79</td><td>1.42%</td><td>\$101,234</td></tr><tr><td>AD2-063</td><td>10.63</td><td>2.60%</td><td>\$186,019</td></tr><tr><td>AE1-068</td><td>51.71</td><td>12.66%</td><td>\$904,895</td></tr><tr><td>AE1-069</td><td>41.37</td><td>10.13%</td><td>\$723,951</td></tr><tr><td>AE1-148</td><td>6.95</td><td>1.70%</td><td>\$121,621</td></tr><tr><td>AE1-173</td><td>62.31</td><td>15.25%</td><td>\$1,090,389</td></tr><tr><td>AE2-031</td><td>13.81</td><td>3.38%</td><td>\$241,667</td></tr><tr><td>AE2-033</td><td>17.12</td><td>4.19%</td><td>\$299,590</td></tr><tr><td>AE2-051</td><td>6.79</td><td>1.66%</td><td>\$118,821</td></tr><tr><td>AE2-094</td><td>16.61</td><td>4.07%</td><td>\$290,665</td></tr><tr><td>AE2-260</td><td>12.87</td><td>3.15%</td><td>\$225,218</td></tr><tr><td>AE2-313</td><td>14.93</td><td>3.65%</td><td>\$261,266</td></tr><tr><td>AF1-059</td><td>10.19</td><td>2.49%</td><td>\$178,319</td></tr><tr><td>AF1-069</td><td>9.87</td><td>2.42%</td><td>\$172,719</td></tr><tr><td>AF1-236</td><td>24.68</td><td>6.04%</td><td>\$431,886</td></tr><tr><td>AF1-246</td><td>8.72</td><td>2.13%</td><td>\$152,595</td></tr><tr><td>AF1-266</td><td>15.07</td><td>3.69%</td><td>\$263,716</td></tr><tr><td>AF2-042</td><td>43.36</td><td>10.61%</td><td>\$758,775</td></tr><tr><td>AF2-046</td><td>10.6</td><td>2.59%</td><td>\$185,494</td></tr><tr><td>AF2-222</td><td>10.35</td><td>2.53%</td><td>\$181,119</td></tr><tr><td>AG1-098</td><td>7.43</td><td>1.82%</td><td>\$130,021</td></tr><tr><td>AG1-153</td><td>7.43</td><td>1.82%</td><td>\$130,021</td></tr></table>	Queue	MW	Cost %	Cost \$	AD2-033	5.79	1.42%	\$101,234	AD2-063	10.63	2.60%	\$186,019	AE1-068	51.71	12.66%	\$904,895	AE1-069	41.37	10.13%	\$723,951	AE1-148	6.95	1.70%	\$121,621	AE1-173	62.31	15.25%	\$1,090,389	AE2-031	13.81	3.38%	\$241,667	AE2-033	17.12	4.19%	\$299,590	AE2-051	6.79	1.66%	\$118,821	AE2-094	16.61	4.07%	\$290,665	AE2-260	12.87	3.15%	\$225,218	AE2-313	14.93	3.65%	\$261,266	AF1-059	10.19	2.49%	\$178,319	AF1-069	9.87	2.42%	\$172,719	AF1-236	24.68	6.04%	\$431,886	AF1-246	8.72	2.13%	\$152,595	AF1-266	15.07	3.69%	\$263,716	AF2-042	43.36	10.61%	\$758,775	AF2-046	10.6	2.59%	\$185,494	AF2-222	10.35	2.53%	\$181,119	AG1-098	7.43	1.82%	\$130,021	AG1-153	7.43	1.82%	\$130,021	\$7,150,000	\$130,021	n6116
Queue	MW	Cost %	Cost \$																																																																																															
AD2-033	5.79	1.42%	\$101,234																																																																																															
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ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number																																																																																												
174395763	4	6HARROWG 230.0 kV - 6TYLER1 230.0 kV Ckt 1	<u>DVP</u> ProjectId : n6178 (dom-036) Description : Rebuild 4.5 miles of 230 kV Line 2003 from Harrowgate to Tyler with 2-636 ACSR. Type : FAC Total Cost : \$11,250,000 Time Estimate : 30-36 Months Ratings : 1047.0/1047.0/1204.0	\$11,250,000	\$220,069	n6178																																																																																												
			<table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AE1-173</td><td>23.05</td><td>8.23%</td><td>\$925,653</td></tr><tr><td>AE2-000B</td><td>11.36</td><td>4.06%</td><td>\$456,200</td></tr><tr><td>AE2-031</td><td>22.29</td><td>7.96%</td><td>\$895,133</td></tr><tr><td>AE2-033</td><td>21.38</td><td>7.63%</td><td>\$858,589</td></tr><tr><td>AE2-040</td><td>7.41</td><td>2.65%</td><td>\$297,574</td></tr><tr><td>AE2-052</td><td>6.17</td><td>2.20%</td><td>\$247,778</td></tr><tr><td>AE2-094</td><td>23.32</td><td>8.32%</td><td>\$936,496</td></tr><tr><td>AE2-260</td><td>23.63</td><td>8.44%</td><td>\$948,945</td></tr><tr><td>AE2-313</td><td>24.1</td><td>8.60%</td><td>\$967,820</td></tr><tr><td>AF1-059</td><td>7.49</td><td>2.67%</td><td>\$300,787</td></tr><tr><td>AF1-069</td><td>7.27</td><td>2.60%</td><td>\$291,952</td></tr><tr><td>AF1-246</td><td>6.43</td><td>2.30%</td><td>\$258,219</td></tr><tr><td>AF1-266</td><td>10.67</td><td>3.81%</td><td>\$428,491</td></tr><tr><td>AF2-042</td><td>31.91</td><td>11.39%</td><td>\$1,281,457</td></tr><tr><td>AF2-046</td><td>9.24</td><td>3.30%</td><td>\$371,064</td></tr><tr><td>AF2-080</td><td>6.17</td><td>2.20%</td><td>\$247,778</td></tr><tr><td>AF2-242</td><td>6.26</td><td>2.23%</td><td>\$251,392</td></tr><tr><td>AF2-299</td><td>6.06</td><td>2.16%</td><td>\$243,360</td></tr><tr><td>AF2-324</td><td>7.42</td><td>2.65%</td><td>\$297,976</td></tr><tr><td>AG1-027</td><td>7.56</td><td>2.70%</td><td>\$303,598</td></tr><tr><td>AG1-098</td><td>5.47</td><td>1.95%</td><td>\$219,667</td></tr><tr><td>AG1-153</td><td>5.48</td><td>1.96%</td><td>\$220,069</td></tr></table>				Queue	MW	Cost %	Cost \$	AE1-173	23.05	8.23%	\$925,653	AE2-000B	11.36	4.06%	\$456,200	AE2-031	22.29	7.96%	\$895,133	AE2-033	21.38	7.63%	\$858,589	AE2-040	7.41	2.65%	\$297,574	AE2-052	6.17	2.20%	\$247,778	AE2-094	23.32	8.32%	\$936,496	AE2-260	23.63	8.44%	\$948,945	AE2-313	24.1	8.60%	\$967,820	AF1-059	7.49	2.67%	\$300,787	AF1-069	7.27	2.60%	\$291,952	AF1-246	6.43	2.30%	\$258,219	AF1-266	10.67	3.81%	\$428,491	AF2-042	31.91	11.39%	\$1,281,457	AF2-046	9.24	3.30%	\$371,064	AF2-080	6.17	2.20%	\$247,778	AF2-242	6.26	2.23%	\$251,392	AF2-299	6.06	2.16%	\$243,360	AF2-324	7.42	2.65%	\$297,976	AG1-027	7.56	2.70%	\$303,598	AG1-098	5.47	1.95%	\$219,667	AG1-153	5.48	1.96%	\$220,069
			Queue				MW	Cost %	Cost \$																																																																																									
			AE1-173				23.05	8.23%	\$925,653																																																																																									
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ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AG1-153	Upgrade Number																								
174195661	5	6HARR205 230.0 kV - 6TYLER 230.0 kV Ckt 1	<u>DVP</u> ProjectId : n6328 (dom-163) Description : Reconductor 0.64 miles of 230 kV Line 205 from Harrowgate to Tyler with 1033.5 ACSR. Uprate 4.09 miles of 230 kV Line 205 from Harrowgate to Tyler. Type : FAC Total Cost : \$2,148,000 Time Estimate : 30-36 Months Ratings : 705.0/705.0/811.0 <table><tr><th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th></tr><tr><td>AE2-094</td><td>13.93</td><td>13.98%</td><td>\$300,380</td></tr><tr><td>AE2-212</td><td>12.71</td><td>12.76%</td><td>\$274,129</td></tr><tr><td>AE2-250</td><td>21.62</td><td>21.70%</td><td>\$466,204</td></tr><tr><td>AE2-260</td><td>25.63</td><td>25.73%</td><td>\$552,673</td></tr><tr><td>AE2-313</td><td>25.72</td><td>25.82%</td><td>\$554,614</td></tr></table> This project is driven by a prior Queue. Per PJM cost allocation rules, Queue Project AG1-153 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc., Queue Project AG1-153 could receive cost allocation. Note 2: Although Queue Project AG1-153 may not have cost responsibility for this upgrade, Queue Project AG1-153 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AG1-153 comes into service prior to completion of the upgrade, Queue Project AG1-153 will need an interim study.	Queue	MW	Cost %	Cost \$	AE2-094	13.93	13.98%	\$300,380	AE2-212	12.71	12.76%	\$274,129	AE2-250	21.62	21.70%	\$466,204	AE2-260	25.63	25.73%	\$552,673	AE2-313	25.72	25.82%	\$554,614	\$2,148,000	\$0	n6328
Queue	MW	Cost %	Cost \$																											
AE2-094	13.93	13.98%	\$300,380																											
AE2-212	12.71	12.76%	\$274,129																											
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AE2-313	25.72	25.82%	\$554,614																											
			TOTAL COST	\$86,903,000	\$10,510,803																									

Note : For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates \$0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently \$0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

11.7 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".

11.7.1 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
179611969	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	DVP_P4- 2: 56372	breaker	402.0	166.97	167.66	AC	4.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
244012	05PINNACLE	-1.46	Adder	-1.72
313506	AB1-173 C OP	1.97	Adder	2.32
313853	3PONTONDP	0.19	Adder	0.22
314572	3EMPORIA	0.12	Adder	0.14
314594	6PLYMOTH	0.02	Adder	0.02
314713	3PAMPLIN	0.44	Adder	0.52
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.59	Adder	4.22
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.59	Adder	4.22
315293	1DOMTR9	1.97	Adder	2.32
315294	1DOMTR10	2.41	Adder	2.84
316088	AB2-174 E	1.84	Adder	2.16
316118	AC1-105 C	2.2	Adder	2.59
316129	AC1-054 C	2.55	Adder	3.0
316140	AB2-099 C (Suspended)	0.17	Adder	0.2
316141	AB2-099 E (Suspended)	0.07	Adder	0.08
900672	V4-068 E	0.08	Adder	0.09
917332	Z2-043 E	0.33	Adder	0.39
917342	Z2-044 E	0.22	Adder	0.26
917512	Z2-088 E OP1	2.9	Adder	3.41
918492	AA1-063AE OP	1.19	Adder	1.4
918512	AA1-065 E OP	1.16	Adder	1.36
918532	AA1-067 E	0.25	Adder	0.29
919692	AA2-053 E OP	1.15	Adder	1.35
919702	AA2-057 E OP	1.23	Adder	1.45
920042	AA2-088 E OP	2.88	Adder	3.39
920592	AA2-165 E	0.17	Adder	0.2
922923	AB1-081 E OP	1.48	Adder	1.74
923262	AB1-132 C OP	4.18	Adder	4.92
923263	AB1-132 E OP	1.79	Adder	2.11
923573	AB1-173 E OP	0.31	Adder	0.36
923991	AB2-040 C O1	2.15	Adder	2.53
923992	AB2-040 E O1	1.76	Adder	2.07
924022	AB2-043 E O1	0.96	Adder	1.13
924152	AB2-059 E OP	2.1	Adder	2.47
924162	AB2-060 E OP	1.44	Adder	1.69
924301	AB2-077 C O1	0.69	Adder	0.81
924302	AB2-077 E O1	0.46	Adder	0.54
924311	AB2-078 C O1	0.69	Adder	0.81
924312	AB2-078 E O1	0.46	Adder	0.54
924321	AB2-079 C O1	0.69	Adder	0.81

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924322	AB2-079 E O1	0.46	Adder	0.54
925122	AB2-169 E	1.77	Adder	2.08
925591	AC1-034 C	2.64	Adder	3.11
925592	AC1-034 E	1.99	Adder	2.34
925612	AC1-036 E	0.26	Adder	0.31
925785	AC1-054 E	1.18	Adder	1.39
925997	AC1-075 E	1.09	Adder	1.28
926024	AC1-080 E	0.36	Adder	0.42
926051	AC1-083 C O1	4.93	50 50	4.93
926052	AC1-083 E O1	8.05	50 50	8.05
926070	AC1-086 C	6.16	Adder	7.25
926071	AC1-086 E	2.8	Adder	3.29
926201	AC1-098 C (Suspended)	2.05	Adder	2.41
926202	AC1-098 E (Suspended)	1.22	Adder	1.44
926211	AC1-099 C (Suspended)	0.69	Adder	0.81
926212	AC1-099 E (Suspended)	0.4	Adder	0.47
926274	AC1-105 E	1.08	Adder	1.27
927024	AC1-189 C	3.06	Adder	3.6
927025	AC1-189 E	1.52	Adder	1.79
927145	AC1-208 C (Suspended)	3.08	Adder	3.62
927146	AC1-208 E (Suspended)	1.36	Adder	1.6
927251	AC1-221 C	1.65	50 50	1.65
927252	AC1-221 E	1.65	50 50	1.65
927261	AC1-222 C	1.42	Adder	1.67
927262	AC1-222 E	1.36	Adder	1.6
932631	AC2-084 C	2.93	Adder	3.45
932632	AC2-084 E	1.44	Adder	1.69
932761	AC2-100 C	3.79	50 50	3.79
932762	AC2-100 E	1.85	50 50	1.85
933941	AD1-017 C	0.99	50 50	0.99
933942	AD1-017 E	1.61	50 50	1.61
933991	AD1-023 C	3.64	Adder	4.28
933992	AD1-023 E	1.98	Adder	2.33
934311	AD1-055 C	0.99	Adder	1.16
934312	AD1-055 E	0.26	Adder	0.31
934331	AD1-057 C O1	3.47	Adder	4.08
934332	AD1-057 E O1	1.85	Adder	2.18
934341	AD1-058 C	4.13	50 50	4.13
934342	AD1-058 E	1.05	50 50	1.05
934521	AD1-076 C	14.86	Adder	17.48
934522	AD1-076 E	7.57	Adder	8.91
934615	AD1-087 C	2.48	Adder	2.92
934616	AD1-087 E	1.16	Adder	1.36
934625	AD1-088 C	3.5	Adder	4.12
934626	AD1-088 E	0.92	Adder	1.08
934991	AD1-131 C	1.35	50 50	1.35
934992	AD1-131 E	0.9	50 50	0.9
935171	AD1-152 C O1	2.72	Adder	3.2
935172	AD1-152 E O1	1.82	Adder	2.14
936161	AD2-022 C O1	11.59	50 50	11.59
936162	AD2-022 E O1	6.95	50 50	6.95
936171	AD2-023 C O1	6.76	50 50	6.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936172	AD2-023 E O1	3.67	50 50	3.67
936265	AD2-033 C	4.09	Adder	4.81
936266	AD2-033 E	2.72	Adder	3.2
936361	AD2-046 C O1	3.35	Adder	3.94
936362	AD2-046 E O1	1.54	Adder	1.81
936401	AD2-051 C O1	2.53	Adder	2.98
936402	AD2-051 E O1	1.09	Adder	1.28
936485	AD2-063 C	4.92	Adder	5.79
936486	AD2-063 E	3.28	Adder	3.86
937481	AD2-202 C O1	0.73	Adder	0.86
937482	AD2-202 E O1	0.41	Adder	0.48
938222	AE1-035 E	0.32	Adder	0.38
938371	AE1-056 C	1.76	Adder	2.07
938372	AE1-056 E	0.96	Adder	1.13
938494	AE1-068_C1	7.75	Adder	9.12
938497	AE1-068_C2	7.75	Adder	9.12
938498	AE1-068_E1	4.29	Adder	5.05
938499	AE1-068_E2	4.29	Adder	5.05
938504	AE1-069_C1	5.91	Adder	6.95
938507	AE1-069_C2	6.37	Adder	7.49
938508	AE1-069_E1	3.36	Adder	3.95
938509	AE1-069_E2	3.62	Adder	4.26
939181	AE1-148 C	3.29	Adder	3.87
939182	AE1-148 E	2.19	Adder	2.58
940081	AE1-250 C	16.58	50 50	16.58
940082	AE1-250 E	11.06	50 50	11.06
940471	AE2-031 C	8.28	Adder	9.74
940472	AE2-031 E	5.52	Adder	6.49
940571	AE2-044 C	1.73	Adder	2.04
940572	AE2-044 E	0.74	Adder	0.87
940661	AE2-053 O1	1.22	Adder	1.44
941031	AE2-094 C	9.78	Adder	11.51
941032	AE2-094 E	4.38	Adder	5.15
941791	AE2-182 C	0.57	Adder	0.67
941792	AE2-182 E	0.26	Adder	0.31
942451	AE2-258	0.8	Adder	0.94
942751	AE2-291 C	2.77	Adder	3.26
942752	AE2-291 E	1.84	Adder	2.16
942761	AE2-292 C O1	3.44	Adder	4.05
942762	AE2-292 E O1	2.3	Adder	2.71
942931	AE2-313 C	8.98	Adder	10.56
942932	AE2-313 E	5.99	Adder	7.05
943171	AE2-346 C	0.41	Adder	0.48
943172	AE2-346 E	0.18	Adder	0.21
943901	AF1-058 C	0.79	Adder	0.93
943902	AF1-058 E	0.52	Adder	0.61
943911	AF1-059	5.18	Adder	6.09
944011	AF1-069 C	3.2	Adder	3.76
944012	AF1-069 E	1.24	Adder	1.46
944141	AF1-082	1.11	Adder	1.31
945811	AF1-246 C O1	2.27	Adder	2.67
945812	AF1-246 E O1	3.13	Adder	3.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946281	AF1-292 C	0.42	Adder	0.49
946282	AF1-292 E	0.28	Adder	0.33
946301	AF1-294 C	1.2	Adder	1.41
946302	AF1-294 E	0.8	Adder	0.94
957481	AF2-042 C	16.21	Adder	19.07
957482	AF2-042 E	10.81	Adder	12.72
957521	AF2-046 C	4.77	Adder	5.61
957522	AF2-046 E	2.4	Adder	2.82
957861	AF2-080 C	2.78	Adder	3.27
957862	AF2-080 E	1.23	Adder	1.45
958211	AF2-115 C	0.7	Adder	0.82
958212	AF2-115 E	0.47	Adder	0.55
958801	AF2-171 C	4.23	Adder	4.98
958802	AF2-171 E	2.82	Adder	3.32
959311	AF2-222 C	5.07	Adder	5.96
959312	AF2-222 E	3.4	Adder	4.0
960061	AF2-297 C	3.15	Adder	3.71
960062	AF2-297 E	2.1	Adder	2.47
960081	AF2-299 C	0.7	Adder	0.82
960082	AF2-299 E	0.47	Adder	0.55
961671	AG1-007 C	0.36	Adder	0.42
961672	AG1-007 E	0.2	Adder	0.24
961791	AG1-021 C	0.56	Adder	0.66
961792	AG1-021 E	0.37	Adder	0.44
961891	AG1-030 C	4.36	Adder	5.13
961892	AG1-030 E	2.91	Adder	3.42
961941	AG1-037 C	0.15	Adder	0.18
961942	AG1-037 E	0.1	Adder	0.12
962041	AG1-048 C	2.99	Adder	3.52
962042	AG1-048 E	1.99	Adder	2.34
962331	AG1-082 C	0.58	Adder	0.68
962332	AG1-082 E	0.39	Adder	0.46
962341	AG1-083 C	0.58	Adder	0.68
962342	AG1-083 E	0.39	Adder	0.46
962351	AG1-084 C	0.52	Adder	0.61
962352	AG1-084 E	0.34	Adder	0.4
962361	AG1-085 C	0.52	Adder	0.61
962362	AG1-085 E	0.34	Adder	0.4
962491	AG1-098 C O1	3.37	Adder	3.96
962492	AG1-098 E O1	2.25	Adder	2.65
962561	AG1-105 C O1	3.3	Adder	3.88
962562	AG1-105 E O1	2.2	Adder	2.59
963041	AG1-153 C	1.48	Adder	1.74
963042	AG1-153 E	2.22	Adder	2.61
963111	AG1-160 C	1.46	Adder	1.72
963112	AG1-160 E	2.19	Adder	2.58
963171	AG1-166 C	0.56	Adder	0.66
963172	AG1-166 E	0.37	Adder	0.44
963181	AG1-167 C	0.56	Adder	0.66
963182	AG1-167 E	0.37	Adder	0.44
963191	AG1-168 C	0.56	Adder	0.66
963192	AG1-168 E	0.37	Adder	0.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963201	AG1-169 C	0.56	Adder	0.66
963202	AG1-169 E	0.37	Adder	0.44
963211	AG1-170 C	0.56	Adder	0.66
963212	AG1-170 E	0.37	Adder	0.44
963271	AG1-176 C O1	4.3	Adder	5.06
963272	AG1-176 E O1	2.87	Adder	3.38
963301	AG1-179 C	1.7	Adder	2.0
963311	AG1-180	0.83	Adder	0.98
963321	AG1-181 C O1	5.27	Adder	6.2
963361	AG1-185 O1	2.55	Adder	3.0
963641	AG1-215 C	0.26	Adder	0.31
963642	AG1-215 E	0.39	Adder	0.46
964111	AG1-272 C	0.79	Adder	0.93
964112	AG1-272 E	0.24	Adder	0.28
964121	AG1-273 C	0.79	Adder	0.93
964122	AG1-273 E	0.24	Adder	0.28
964131	AG1-274 C	0.79	Adder	0.93
964132	AG1-274 E	0.24	Adder	0.28
964241	AG1-285 C O1	4.14	Adder	4.87
964242	AG1-285 E O1	2.76	Adder	3.25
964501	AG1-313 C O1	1.4	Adder	1.65
964502	AG1-313 E O1	0.93	Adder	1.09
964791	AG1-342 C	1.56	Adder	1.84
964792	AG1-342 E	1.22	Adder	1.44
964801	AG1-343 C	1.64	Adder	1.93
964802	AG1-343 E	1.29	Adder	1.52
964821	AG1-345 C	0.23	Adder	0.27
964822	AG1-345 E	0.15	Adder	0.18
964841	AG1-347 C	2.68	Adder	3.15
964842	AG1-347 E	2.11	Adder	2.48
964931	AG1-357 C	6.26	Adder	7.36
964932	AG1-357 E	4.17	Adder	4.91
965191	AG1-384 C	0.79	Adder	0.93
965192	AG1-384 E	0.24	Adder	0.28
965281	AG1-393 C	0.56	Adder	0.66
965282	AG1-393 E	0.37	Adder	0.44
965291	AG1-394 C	0.56	Adder	0.66
965292	AG1-394 E	0.37	Adder	0.44
965451	AG1-413 C O1	2.18	Adder	2.56
965452	AG1-413 E O1	1.45	Adder	1.71
965591	AG1-427 C	3.92	Adder	4.61
965592	AG1-427 E	2.62	Adder	3.08
965601	AG1-428 C O2	1.42	Adder	1.67
965602	AG1-428 E O2	0.94	Adder	1.11
965691	AG1-437 C O1	2.83	Adder	3.33
965692	AG1-437 E O1	1.89	Adder	2.22
965701	AG1-438 C O1	2.83	Adder	3.33
965702	AG1-438 E O1	1.89	Adder	2.22
965711	AG1-439 C O1	8.77	Adder	10.32
965712	AG1-439 E O1	5.85	Adder	6.88
965721	AG1-440 C	2.71	Adder	3.19
965722	AG1-440 E	1.81	Adder	2.13

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965731	AG1-441 C	2.71	Adder	3.19
965732	AG1-441 E	1.81	Adder	2.13
965741	AG1-442 O1	1.65	Adder	1.94
965751	AG1-443 O1	1.65	Adder	1.94
965761	AG1-444 O1	4.68	Adder	5.51
965771	AG1-445	1.57	Adder	1.85
965781	AG1-446	1.57	Adder	1.85
965811	AG1-449	5.8	Adder	6.82
966361	AG1-505 C	4.5	Adder	5.29
966362	AG1-505 E	3.0	Adder	3.53
966371	AG1-506 C	4.5	Adder	5.29
966372	AG1-506 E	3.0	Adder	3.53
966621	AG1-532 C	0.38	Adder	0.45
966622	AG1-532 E	0.25	Adder	0.29
966691	AG1-539 C	1.45	Adder	1.71
966692	AG1-539 E	1.94	Adder	2.28
966801	AG1-551 C	0.75	Adder	0.88
966802	AG1-551 E	0.32	Adder	0.38
966811	AG1-552 C	0.65	Adder	0.76
966812	AG1-552 E	0.28	Adder	0.33
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	3.6074	Confirmed LTF	3.6074
LTFEXP_AC1-056	LTFEXP_AC1-056->LTFIMP_AC1-056	0.6492	Confirmed LTF	0.6492
LTFEXP_BlueG	LTFEXP_BlueG->LTFIMP_BlueG	1.8155	Confirmed LTF	1.8155
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.3039	LTF/CBM	0.3039
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.0214	LTF/CBM	0.0214
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	49.4009	LTF/CBM	49.4009
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	5.4814	Confirmed LTF	5.4814
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	0.6457	LTF/CMTX	0.6457
LTFEXP_GIBSON	LTFEXP_GIBSON->LTFIMP_GIBSON	0.4976	Confirmed LTF	0.4976
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	0.7286	Confirmed LTF	0.7286
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.1659	Confirmed LTF	0.1659
LTFEXP_PRAIRIE	LTFEXP_PRAIRIE->LTFIMP_PRAIRIE	1.1591	Confirmed LTF	1.1591
LTFEXP_TRIMBLE	LTFEXP_TRIMBLE->LTFIMP_TRIMBLE	0.5931	Confirmed LTF	0.5931
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	0.4143	Confirmed LTF	0.4143
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	1.7042	Confirmed LTF	1.7042

11.7.2 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
173813619	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P4-2: 562T563	breaker	684.0	178.83	179.76	AC	7.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	4.75	50 50	4.75
314331	6POE	0.82	Adder	0.96
314435	6SAPONY	0.47	50 50	0.47
314572	3EMPORIA	0.32	50 50	0.32
314704	3LAWRENC	0.21	50 50	0.21
315073	1STONECA	-2.41	Adder	-2.84
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.9	Adder	4.59
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.9	Adder	4.59
315136	1ROSEMG1	1.36	50 50	1.36
315137	1ROSEMS1	0.84	50 50	0.84
315138	1ROSEMG2	0.64	50 50	0.64
315139	1GASTONA	2.02	50 50	2.02
315141	1GASTONB	2.02	50 50	2.02
315241	1Z1-086 GT1	5.68	50 50	5.68
315242	1Z1-086 GT2	5.68	50 50	5.68
315243	1Z1-086 GT3	5.68	50 50	5.68
315244	1Z1-086 ST	9.87	50 50	9.87
316087	AB2-174 C	0.84	50 50	0.84
316088	AB2-174 E	4.64	50 50	4.64
316096	AB2-100 C1	0.86	50 50	0.86
316097	AB2-100 E1	2.59	50 50	2.59
316098	AB2-100 C2	0.86	50 50	0.86
316099	AB2-100 E2	2.59	50 50	2.59
316108	AB2-160 C	-6.83	Adder	-8.04
316118	AC1-105 C	1.98	Adder	2.33
316129	AC1-054 C	3.22	Adder	3.79
316140	AB2-099 C (Suspended)	0.21	Adder	0.25
316141	AB2-099 E (Suspended)	0.09	Adder	0.11
900672	V4-068 E	0.1	Adder	0.12
917332	Z2-043 E	0.4	Adder	0.47
917342	Z2-044 E	0.24	Adder	0.28
917512	Z2-088 E OP1	3.1	Adder	3.65
918492	AA1-063AE OP	1.74	Adder	2.05
918512	AA1-065 E OP	1.35	Adder	1.59
918532	AA1-067 E	0.26	Adder	0.31
919692	AA2-053 E OP	1.75	Adder	2.06
919702	AA2-057 E OP	1.46	Adder	1.72
920042	AA2-088 E OP	3.52	Adder	4.14
920592	AA2-165 E	0.2	Adder	0.24
922923	AB1-081 E OP	1.61	Adder	1.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
923262	AB1-132 C OP	9.41	50 50	9.41
923263	AB1-132 E OP	4.03	50 50	4.03
923573	AB1-173 E OP	0.74	50 50	0.74
923852	AB2-025 E	1.29	50 50	1.29
923991	AB2-040 C O1	5.17	50 50	5.17
923992	AB2-040 E O1	4.23	50 50	4.23
924022	AB2-043 E O1	1.05	Adder	1.24
924152	AB2-059 E OP	2.28	Adder	2.68
924162	AB2-060 E OP	1.58	Adder	1.86
924301	AB2-077 C O1	0.75	Adder	0.88
924302	AB2-077 E O1	0.5	Adder	0.59
924311	AB2-078 C O1	0.75	Adder	0.88
924312	AB2-078 E O1	0.5	Adder	0.59
924321	AB2-079 C O1	0.75	Adder	0.88
924322	AB2-079 E O1	0.5	Adder	0.59
925591	AC1-034 C	2.86	Adder	3.36
925592	AC1-034 E	2.16	Adder	2.54
925785	AC1-054 E	1.48	Adder	1.74
926070	AC1-086 C	13.86	50 50	13.86
926071	AC1-086 E	6.31	50 50	6.31
926201	AC1-098 C (Suspended)	2.58	Adder	3.04
926202	AC1-098 E (Suspended)	1.54	Adder	1.81
926211	AC1-099 C (Suspended)	0.86	Adder	1.01
926212	AC1-099 E (Suspended)	0.51	Adder	0.6
926274	AC1-105 E	0.97	Adder	1.14
927024	AC1-189 C	3.25	Adder	3.82
927025	AC1-189 E	1.62	Adder	1.91
927145	AC1-208 C (Suspended)	3.99	Adder	4.69
927146	AC1-208 E (Suspended)	1.76	Adder	2.07
932631	AC2-084 C	3.67	Adder	4.32
932632	AC2-084 E	1.81	Adder	2.13
934331	AD1-057 C O1	4.88	Adder	5.74
934332	AD1-057 E O1	2.6	Adder	3.06
934615	AD1-087 C	2.91	Adder	3.42
934616	AD1-087 E	1.36	Adder	1.6
935171	AD1-152 C O1	3.19	Adder	3.75
935172	AD1-152 E O1	2.13	Adder	2.51
936265	AD2-033 C	4.3	Adder	5.06
936266	AD2-033 E	2.87	Adder	3.38
936361	AD2-046 C O1	3.53	Adder	4.15
936362	AD2-046 E O1	1.62	Adder	1.91
936401	AD2-051 C O1	3.01	Adder	3.54
936402	AD2-051 E O1	1.29	Adder	1.52
936485	AD2-063 C	5.3	Adder	6.24
936486	AD2-063 E	3.53	Adder	4.15
936761	AD2-097 C	-0.69	Adder	-0.81
936762	AD2-097 E	-3.47	Adder	-4.08
937481	AD2-202 C O1	0.85	Adder	1.0
937482	AD2-202 E O1	0.48	Adder	0.56
938222	AE1-035 E	0.37	Adder	0.44
938494	AE1-068_C1	16.37	50 50	16.37
938497	AE1-068_C2	16.37	50 50	16.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938498	AE1-068_E1	9.05	50 50	9.05
938499	AE1-068_E2	9.05	50 50	9.05
938504	AE1-069_C1	12.47	50 50	12.47
938507	AE1-069_C2	13.45	50 50	13.45
938508	AE1-069_E1	7.1	50 50	7.1
938509	AE1-069_E2	7.64	50 50	7.64
939181	AE1-148 C	3.48	Adder	4.09
939182	AE1-148 E	2.32	Adder	2.73
939414	AE1-173_C1	10.87	Adder	12.79
939415	AE1-173_C2	9.31	Adder	10.95
939416	AE1-173_C3	10.87	Adder	12.79
939423	AE1-173_E1	7.24	Adder	8.52
939424	AE1-173_E2	6.21	Adder	7.31
939425	AE1-173_E3	7.24	Adder	8.52
940471	AE2-031 C	17.83	50 50	17.83
940472	AE2-031 E	11.89	50 50	11.89
940481	AE2-033 C	17.89	50 50	17.89
940482	AE2-033 E	12.06	50 50	12.06
940541	AE2-040	3.26	50 50	3.26
940571	AE2-044 C	1.88	Adder	2.21
940572	AE2-044 E	0.8	Adder	0.94
940661	AE2-053 O1	1.29	Adder	1.52
941031	AE2-094 C	21.48	50 50	21.48
941032	AE2-094 E	9.62	50 50	9.62
942161	AE2-228 C	-1.66	Adder	-1.95
942451	AE2-258	0.88	Adder	1.04
942471	AE2-260 C O1	13.45	50 50	13.45
942472	AE2-260 E O1	19.08	50 50	19.08
942931	AE2-313 C	19.27	50 50	19.27
942932	AE2-313 E	12.85	50 50	12.85
943171	AE2-346 C	0.5	Adder	0.59
943172	AE2-346 E	0.22	Adder	0.26
943901	AF1-058 C	0.67	Adder	0.79
943902	AF1-058 E	0.45	Adder	0.53
943911	AF1-059	9.99	50 50	9.99
944011	AF1-069 C	7.02	50 50	7.02
944012	AF1-069 E	2.73	50 50	2.73
944141	AF1-082	1.21	Adder	1.42
945811	AF1-246 C O1	3.05	Adder	3.59
945812	AF1-246 E O1	4.21	Adder	4.95
946011	AF1-266	14.98	50 50	14.98
946261	AF1-291 C	-1.01	Adder	-1.19
946281	AF1-292 C	1.2	50 50	1.2
946282	AF1-292 E	0.81	50 50	0.81
957481	AF2-042 C	21.78	Adder	25.62
957482	AF2-042 E	14.52	Adder	17.08
957521	AF2-046 C	5.9	Adder	6.94
957522	AF2-046 E	2.97	Adder	3.49
957861	AF2-080 C	2.95	Adder	3.47
957862	AF2-080 E	1.31	Adder	1.54
958142	AF2-108 BAT	2.94	50 50	2.94
959651	AF2-256 C	-0.42	Adder	-0.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960061	AF2-297 C	2.69	Adder	3.16
960062	AF2-297 E	1.79	Adder	2.11
960081	AF2-299 C	2.02	50 50	2.02
960082	AF2-299 E	1.34	50 50	1.34
961671	AG1-007 C	0.38	Adder	0.45
961672	AG1-007 E	0.22	Adder	0.26
961941	AG1-037 C	0.18	Adder	0.21
961942	AG1-037 E	0.12	Adder	0.14
962331	AG1-082 C	0.72	Adder	0.85
962332	AG1-082 E	0.48	Adder	0.56
962341	AG1-083 C	0.72	Adder	0.85
962342	AG1-083 E	0.48	Adder	0.56
962351	AG1-084 C	0.63	Adder	0.74
962352	AG1-084 E	0.42	Adder	0.49
962361	AG1-085 C	0.63	Adder	0.74
962362	AG1-085 E	0.42	Adder	0.49
962491	AG1-098 C O1	3.79	Adder	4.46
962492	AG1-098 E O1	2.52	Adder	2.96
962561	AG1-105 C O1	3.2	Adder	3.76
962562	AG1-105 E O1	2.13	Adder	2.51
963041	AG1-153 C	2.53	Adder	2.98
963042	AG1-153 E	3.79	Adder	4.46
963111	AG1-160 C	3.02	50 50	3.02
963112	AG1-160 E	4.53	50 50	4.53
963291	AG1-178 C O2	26.49	Adder	31.16
963292	AG1-178 E O2	14.27	Adder	16.79
963301	AG1-179 C	3.75	50 50	3.75
963311	AG1-180	1.83	50 50	1.83
963321	AG1-181 C O1	5.54	Adder	6.52
963351	AG1-184 O2	14.27	Adder	16.79
963361	AG1-185 O1	2.68	Adder	3.15
964241	AG1-285 C O1	4.49	Adder	5.28
964242	AG1-285 E O1	2.99	Adder	3.52
964501	AG1-313 C O1	2.03	Adder	2.39
964502	AG1-313 E O1	1.35	Adder	1.59
964791	AG1-342 C	1.48	Adder	1.74
964792	AG1-342 E	1.16	Adder	1.36
964801	AG1-343 C	2.05	Adder	2.41
964802	AG1-343 E	1.61	Adder	1.89
964931	AG1-357 C	9.23	Adder	10.86
964932	AG1-357 E	6.16	Adder	7.25
965291	AG1-394 C	0.7	Adder	0.82
965292	AG1-394 E	0.47	Adder	0.55
965451	AG1-413 C O1	4.2	50 50	4.2
965452	AG1-413 E O1	2.8	50 50	2.8
965591	AG1-427 C	4.25	Adder	5.0
965592	AG1-427 E	2.84	Adder	3.34
965601	AG1-428 C O2	3.13	50 50	3.13
965602	AG1-428 E O2	2.08	50 50	2.08
965711	AG1-439 C O1	9.37	Adder	11.02
965712	AG1-439 E O1	6.24	Adder	7.34
965721	AG1-440 C	3.04	Adder	3.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965722	AG1-440 E	2.03	Adder	2.39
965731	AG1-441 C	3.04	Adder	3.58
965732	AG1-441 E	2.03	Adder	2.39
965761	AG1-444 O1	4.99	Adder	5.87
965771	AG1-445	1.76	Adder	2.07
965781	AG1-446	1.76	Adder	2.07
965811	AG1-449	12.5	50 50	12.5
966361	AG1-505 C	7.36	Adder	8.66
966362	AG1-505 E	4.91	Adder	5.78
966371	AG1-506 C	7.36	Adder	8.66
966372	AG1-506 E	4.91	Adder	5.78
966621	AG1-532 C	1.09	50 50	1.09
966622	AG1-532 E	0.73	50 50	0.73
966801	AG1-551 C	0.78	Adder	0.92
966802	AG1-551 E	0.33	Adder	0.39
966811	AG1-552 C	1.03	Adder	1.21
966812	AG1-552 E	0.44	Adder	0.52
LTFEXP_AA2-074	LTFEXP_AA2-074- >LTFIMP_AA2-074	2.5491	Confirmed LTF	2.5491
LTFEXP_CBM-S1	LTFEXP_CBM-S1- >LTFIMP_CBM-S1	0.7635	LTF/CBM	0.7635
LTFEXP_CBM-S2	LTFEXP_CBM-S2- >LTFIMP_CBM-S2	46.0139	LTF/CBM	46.0139
LTFEXP_CBM-W1	LTFEXP_CBM-W1- >LTFIMP_CBM-W1	15.3898	LTF/CBM	15.3898
LTFEXP_CBM-W2	LTFEXP_CBM-W2- >LTFIMP_CBM-W2	16.2131	LTF/CBM	16.2131
LTFEXP_CPLE	LTFEXP_CPLE- >LTFIMP_CPLE	3.8592	Confirmed LTF	3.8592
LTFEXP_G-007	LTFEXP_G-007- >LTFIMP_G-007	1.1593	LTF/CMTX NF	1.1593
LTFEXP_LAGN	LTFEXP_LAGN- >LTFIMP_LAGN	3.8077	Confirmed LTF	3.8077
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019- >LTFIMP_LGE-0012019	0.2065	Confirmed LTF	0.2065
LTFEXP_LGEE	LTFEXP_LGEE- >LTFIMP_LGEE	0.757	Confirmed LTF	0.757
LTFEXP_MEC	LTFEXP_MEC- >LTFIMP_MEC	2.2088	Confirmed LTF	2.2088
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.5234	Confirmed LTF	0.5234
LTFEXP_O-066	LTFEXP_O-066- >LTFIMP_O-066	7.3721	LTF/CMTX NF	7.3721
LTFEXP_SIGE	LTFEXP_SIGE- >LTFIMP_SIGE	0.1353	Confirmed LTF	0.1353
LTFEXP_TVA	LTFEXP_TVA- >LTFIMP_TVA	3.0627	Confirmed LTF	3.0627
LTFEXP_WEC	LTFEXP_WEC- >LTFIMP_WEC	0.368	Confirmed LTF	0.368

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
173813620	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P4-2: 562T563	breaker	684.0	176.0	176.93	AC	7.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	4.75	50 50	4.75
314331	6POE	0.82	Adder	0.96
314435	6SAPONY	0.47	50 50	0.47
314572	3EMPORIA	0.32	50 50	0.32
314704	3LAWRENC	0.21	50 50	0.21
315073	1STONECA	-2.41	Adder	-2.84
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.9	Adder	4.59
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.9	Adder	4.59
315136	1ROSEMG1	1.36	50 50	1.36
315137	1ROSEMS1	0.84	50 50	0.84
315138	1ROSEMG2	0.64	50 50	0.64
315139	1GASTONA	2.02	50 50	2.02
315141	1GASTONB	2.02	50 50	2.02
315241	1Z1-086 GT1	5.68	50 50	5.68
315242	1Z1-086 GT2	5.68	50 50	5.68
315243	1Z1-086 GT3	5.68	50 50	5.68
315244	1Z1-086 ST	9.87	50 50	9.87
316087	AB2-174 C	0.84	50 50	0.84
316088	AB2-174 E	4.64	50 50	4.64
316096	AB2-100 C1	0.86	50 50	0.86
316097	AB2-100 E1	2.59	50 50	2.59
316098	AB2-100 C2	0.86	50 50	0.86
316099	AB2-100 E2	2.59	50 50	2.59
316108	AB2-160 C	-6.83	Adder	-8.04
316118	AC1-105 C	1.98	Adder	2.33
316129	AC1-054 C	3.22	Adder	3.79
316140	AB2-099 C (Suspended)	0.21	Adder	0.25
316141	AB2-099 E (Suspended)	0.09	Adder	0.11
900672	V4-068 E	0.1	Adder	0.12
917332	Z2-043 E	0.4	Adder	0.47
917342	Z2-044 E	0.24	Adder	0.28
917512	Z2-088 E OP1	3.1	Adder	3.65
918492	AA1-063AE OP	1.74	Adder	2.05
918512	AA1-065 E OP	1.35	Adder	1.59
918532	AA1-067 E	0.26	Adder	0.31
919692	AA2-053 E OP	1.75	Adder	2.06
919702	AA2-057 E OP	1.46	Adder	1.72
920042	AA2-088 E OP	3.52	Adder	4.14
920592	AA2-165 E	0.2	Adder	0.24
922923	AB1-081 E OP	1.61	Adder	1.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
923262	AB1-132 C OP	9.41	50 50	9.41
923263	AB1-132 E OP	4.03	50 50	4.03
923573	AB1-173 E OP	0.74	50 50	0.74
923852	AB2-025 E	1.29	50 50	1.29
923991	AB2-040 C O1	5.17	50 50	5.17
923992	AB2-040 E O1	4.23	50 50	4.23
924022	AB2-043 E O1	1.05	Adder	1.24
924152	AB2-059 E OP	2.28	Adder	2.68
924162	AB2-060 E OP	1.58	Adder	1.86
924301	AB2-077 C O1	0.75	Adder	0.88
924302	AB2-077 E O1	0.5	Adder	0.59
924311	AB2-078 C O1	0.75	Adder	0.88
924312	AB2-078 E O1	0.5	Adder	0.59
924321	AB2-079 C O1	0.75	Adder	0.88
924322	AB2-079 E O1	0.5	Adder	0.59
925591	AC1-034 C	2.86	Adder	3.36
925592	AC1-034 E	2.16	Adder	2.54
925785	AC1-054 E	1.48	Adder	1.74
926070	AC1-086 C	13.86	50 50	13.86
926071	AC1-086 E	6.31	50 50	6.31
926201	AC1-098 C (Suspended)	2.58	Adder	3.04
926202	AC1-098 E (Suspended)	1.54	Adder	1.81
926211	AC1-099 C (Suspended)	0.86	Adder	1.01
926212	AC1-099 E (Suspended)	0.51	Adder	0.6
926274	AC1-105 E	0.97	Adder	1.14
927024	AC1-189 C	3.25	Adder	3.82
927025	AC1-189 E	1.62	Adder	1.91
927145	AC1-208 C (Suspended)	3.99	Adder	4.69
927146	AC1-208 E (Suspended)	1.76	Adder	2.07
932631	AC2-084 C	3.67	Adder	4.32
932632	AC2-084 E	1.81	Adder	2.13
934331	AD1-057 C O1	4.88	Adder	5.74
934332	AD1-057 E O1	2.6	Adder	3.06
934615	AD1-087 C	2.91	Adder	3.42
934616	AD1-087 E	1.36	Adder	1.6
935171	AD1-152 C O1	3.19	Adder	3.75
935172	AD1-152 E O1	2.13	Adder	2.51
936265	AD2-033 C	4.3	Adder	5.06
936266	AD2-033 E	2.87	Adder	3.38
936361	AD2-046 C O1	3.53	Adder	4.15
936362	AD2-046 E O1	1.62	Adder	1.91
936401	AD2-051 C O1	3.01	Adder	3.54
936402	AD2-051 E O1	1.29	Adder	1.52
936485	AD2-063 C	5.3	Adder	6.24
936486	AD2-063 E	3.53	Adder	4.15
936761	AD2-097 C	-0.69	Adder	-0.81
936762	AD2-097 E	-3.47	Adder	-4.08
937481	AD2-202 C O1	0.85	Adder	1.0
937482	AD2-202 E O1	0.48	Adder	0.56
938222	AE1-035 E	0.37	Adder	0.44
938494	AE1-068_C1	16.37	50 50	16.37
938497	AE1-068_C2	16.37	50 50	16.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938498	AE1-068_E1	9.05	50 50	9.05
938499	AE1-068_E2	9.05	50 50	9.05
938504	AE1-069_C1	12.47	50 50	12.47
938507	AE1-069_C2	13.45	50 50	13.45
938508	AE1-069_E1	7.1	50 50	7.1
938509	AE1-069_E2	7.64	50 50	7.64
939181	AE1-148 C	3.48	Adder	4.09
939182	AE1-148 E	2.32	Adder	2.73
939414	AE1-173_C1	10.87	Adder	12.79
939415	AE1-173_C2	9.31	Adder	10.95
939416	AE1-173_C3	10.87	Adder	12.79
939423	AE1-173_E1	7.24	Adder	8.52
939424	AE1-173_E2	6.21	Adder	7.31
939425	AE1-173_E3	7.24	Adder	8.52
940471	AE2-031 C	17.83	50 50	17.83
940472	AE2-031 E	11.89	50 50	11.89
940481	AE2-033 C	17.89	50 50	17.89
940482	AE2-033 E	12.06	50 50	12.06
940541	AE2-040	3.26	50 50	3.26
940571	AE2-044 C	1.88	Adder	2.21
940572	AE2-044 E	0.8	Adder	0.94
940661	AE2-053 O1	1.29	Adder	1.52
941031	AE2-094 C	21.48	50 50	21.48
941032	AE2-094 E	9.62	50 50	9.62
942161	AE2-228 C	-1.66	Adder	-1.95
942451	AE2-258	0.88	Adder	1.04
942471	AE2-260 C O1	13.45	50 50	13.45
942472	AE2-260 E O1	19.08	50 50	19.08
942931	AE2-313 C	19.27	50 50	19.27
942932	AE2-313 E	12.85	50 50	12.85
943171	AE2-346 C	0.5	Adder	0.59
943172	AE2-346 E	0.22	Adder	0.26
943901	AF1-058 C	0.67	Adder	0.79
943902	AF1-058 E	0.45	Adder	0.53
943911	AF1-059	9.99	50 50	9.99
944011	AF1-069 C	7.02	50 50	7.02
944012	AF1-069 E	2.73	50 50	2.73
944141	AF1-082	1.21	Adder	1.42
945811	AF1-246 C O1	3.05	Adder	3.59
945812	AF1-246 E O1	4.21	Adder	4.95
946011	AF1-266	14.98	50 50	14.98
946261	AF1-291 C	-1.01	Adder	-1.19
946281	AF1-292 C	1.2	50 50	1.2
946282	AF1-292 E	0.81	50 50	0.81
957481	AF2-042 C	21.78	Adder	25.62
957482	AF2-042 E	14.52	Adder	17.08
957521	AF2-046 C	5.9	Adder	6.94
957522	AF2-046 E	2.97	Adder	3.49
957861	AF2-080 C	2.95	Adder	3.47
957862	AF2-080 E	1.31	Adder	1.54
958142	AF2-108 BAT	2.94	50 50	2.94
959651	AF2-256 C	-0.42	Adder	-0.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960061	AF2-297 C	2.69	Adder	3.16
960062	AF2-297 E	1.79	Adder	2.11
960081	AF2-299 C	2.02	50 50	2.02
960082	AF2-299 E	1.34	50 50	1.34
961671	AG1-007 C	0.38	Adder	0.45
961672	AG1-007 E	0.22	Adder	0.26
961941	AG1-037 C	0.18	Adder	0.21
961942	AG1-037 E	0.12	Adder	0.14
962331	AG1-082 C	0.72	Adder	0.85
962332	AG1-082 E	0.48	Adder	0.56
962341	AG1-083 C	0.72	Adder	0.85
962342	AG1-083 E	0.48	Adder	0.56
962351	AG1-084 C	0.63	Adder	0.74
962352	AG1-084 E	0.42	Adder	0.49
962361	AG1-085 C	0.63	Adder	0.74
962362	AG1-085 E	0.42	Adder	0.49
962491	AG1-098 C O1	3.79	Adder	4.46
962492	AG1-098 E O1	2.52	Adder	2.96
962561	AG1-105 C O1	3.2	Adder	3.76
962562	AG1-105 E O1	2.13	Adder	2.51
963041	AG1-153 C	2.53	Adder	2.98
963042	AG1-153 E	3.79	Adder	4.46
963111	AG1-160 C	3.02	50 50	3.02
963112	AG1-160 E	4.53	50 50	4.53
963291	AG1-178 C O2	26.49	Adder	31.16
963292	AG1-178 E O2	14.27	Adder	16.79
963301	AG1-179 C	3.75	50 50	3.75
963311	AG1-180	1.83	50 50	1.83
963321	AG1-181 C O1	5.54	Adder	6.52
963351	AG1-184 O2	14.27	Adder	16.79
963361	AG1-185 O1	2.68	Adder	3.15
964241	AG1-285 C O1	4.49	Adder	5.28
964242	AG1-285 E O1	2.99	Adder	3.52
964501	AG1-313 C O1	2.03	Adder	2.39
964502	AG1-313 E O1	1.35	Adder	1.59
964791	AG1-342 C	1.48	Adder	1.74
964792	AG1-342 E	1.16	Adder	1.36
964801	AG1-343 C	2.05	Adder	2.41
964802	AG1-343 E	1.61	Adder	1.89
964931	AG1-357 C	9.23	Adder	10.86
964932	AG1-357 E	6.16	Adder	7.25
965291	AG1-394 C	0.7	Adder	0.82
965292	AG1-394 E	0.47	Adder	0.55
965451	AG1-413 C O1	4.2	50 50	4.2
965452	AG1-413 E O1	2.8	50 50	2.8
965591	AG1-427 C	4.25	Adder	5.0
965592	AG1-427 E	2.84	Adder	3.34
965601	AG1-428 C O2	3.13	50 50	3.13
965602	AG1-428 E O2	2.08	50 50	2.08
965711	AG1-439 C O1	9.37	Adder	11.02
965712	AG1-439 E O1	6.24	Adder	7.34
965721	AG1-440 C	3.04	Adder	3.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965722	AG1-440 E	2.03	Adder	2.39
965731	AG1-441 C	3.04	Adder	3.58
965732	AG1-441 E	2.03	Adder	2.39
965761	AG1-444 O1	4.99	Adder	5.87
965771	AG1-445	1.76	Adder	2.07
965781	AG1-446	1.76	Adder	2.07
965811	AG1-449	12.5	50 50	12.5
966361	AG1-505 C	7.36	Adder	8.66
966362	AG1-505 E	4.91	Adder	5.78
966371	AG1-506 C	7.36	Adder	8.66
966372	AG1-506 E	4.91	Adder	5.78
966621	AG1-532 C	1.09	50 50	1.09
966622	AG1-532 E	0.73	50 50	0.73
966801	AG1-551 C	0.78	Adder	0.92
966802	AG1-551 E	0.33	Adder	0.39
966811	AG1-552 C	1.03	Adder	1.21
966812	AG1-552 E	0.44	Adder	0.52
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	2.5491	Confirmed LTF	2.5491
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.7635	LTF/CBM	0.7635
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	46.0139	LTF/CBM	46.0139
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	15.3898	LTF/CBM	15.3898
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	16.2131	LTF/CBM	16.2131
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	3.8592	Confirmed LTF	3.8592
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	1.1593	LTF/CMTX NF	1.1593
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	3.8077	Confirmed LTF	3.8077
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.2065	Confirmed LTF	0.2065
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.757	Confirmed LTF	0.757
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	2.2088	Confirmed LTF	2.2088
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.5234	Confirmed LTF	0.5234
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	7.3721	LTF/CMTX NF	7.3721
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.1353	Confirmed LTF	0.1353
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	3.0627	Confirmed LTF	3.0627
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.368	Confirmed LTF	0.368

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174395763	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	153.23	154.09	AC	5.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	3.02	Adder	3.55
314331	6POE	4.81	50 50	4.81
314435	6SAPONY	0.33	50 50	0.33
314539	3UNCAMP	1.85	Adder	2.18
314541	3WATKINS	0.21	Adder	0.25
314572	3EMPORIA	0.2	Adder	0.24
315073	1STONECA	-1.65	Adder	-1.94
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.0	Adder	3.53
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.0	Adder	3.53
316083	AB2-161 C	3.6	50 50	3.6
316084	AB2-161 E	5.88	50 50	5.88
316088	AB2-174 E	2.92	Adder	3.44
316096	AB2-100 C1	0.62	50 50	0.62
316097	AB2-100 E1	1.86	50 50	1.86
316098	AB2-100 C2	0.62	50 50	0.62
316099	AB2-100 E2	1.86	50 50	1.86
316103	AB2-015 C	2.67	Adder	3.14
316104	AB2-015 E	2.19	Adder	2.58
316118	AC1-105 C	1.47	Adder	1.73
316129	AC1-054 C	2.47	Adder	2.91
316140	AB2-099 C (Suspended)	0.18	Adder	0.21
316141	AB2-099 E (Suspended)	0.08	Adder	0.09
900672	V4-068 E	0.1	Adder	0.12
917332	Z2-043 E	0.33	Adder	0.39
917342	Z2-044 E	0.19	Adder	0.22
917512	Z2-088 E OP1	2.44	Adder	2.87
918492	AA1-063AE OP	1.46	Adder	1.72
918512	AA1-065 E OP	1.15	Adder	1.35
918532	AA1-067 E	0.21	Adder	0.25
919692	AA2-053 E OP	1.38	Adder	1.62
919702	AA2-057 E OP	1.14	Adder	1.34
920042	AA2-088 E OP	3.46	Adder	4.07
920592	AA2-165 E	0.16	Adder	0.19
922923	AB1-081 E OP	1.24	Adder	1.46
923262	AB1-132 C OP	6.0	Adder	7.06
923263	AB1-132 E OP	2.57	Adder	3.02
923573	AB1-173 E OP	0.47	Adder	0.55
923852	AB2-025 E	0.9	50 50	0.9
923991	AB2-040 C O1	3.29	Adder	3.87
923992	AB2-040 E O1	2.69	Adder	3.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924022	AB2-043 E O1	0.78	Adder	0.92
924152	AB2-059 E OP	1.75	Adder	2.06
924162	AB2-060 E OP	1.18	Adder	1.39
924301	AB2-077 C O1	0.56	Adder	0.66
924302	AB2-077 E O1	0.37	Adder	0.44
924311	AB2-078 C O1	0.56	Adder	0.66
924312	AB2-078 E O1	0.37	Adder	0.44
924321	AB2-079 C O1	0.56	Adder	0.66
924322	AB2-079 E O1	0.37	Adder	0.44
925122	AB2-169 E	1.53	Adder	1.8
925591	AC1-034 C	2.2	Adder	2.59
925592	AC1-034 E	1.66	Adder	1.95
925785	AC1-054 E	1.14	Adder	1.34
926070	AC1-086 C	8.84	Adder	10.4
926071	AC1-086 E	4.02	Adder	4.73
926201	AC1-098 C (Suspended)	2.05	Adder	2.41
926202	AC1-098 E (Suspended)	1.22	Adder	1.44
926211	AC1-099 C (Suspended)	0.69	Adder	0.81
926212	AC1-099 E (Suspended)	0.4	Adder	0.47
926274	AC1-105 E	0.72	Adder	0.85
927024	AC1-189 C	2.58	Adder	3.04
927025	AC1-189 E	1.29	Adder	1.52
927145	AC1-208 C (Suspended)	3.12	Adder	3.67
927146	AC1-208 E (Suspended)	1.38	Adder	1.62
932591	AC2-079 C O1	4.15	50 50	4.15
932592	AC2-079 E O1	6.77	50 50	6.77
932631	AC2-084 C	2.92	Adder	3.44
932632	AC2-084 E	1.44	Adder	1.69
933991	AD1-023 C	3.33	Adder	3.92
933992	AD1-023 E	1.81	Adder	2.13
934331	AD1-057 C O1	3.7	Adder	4.35
934332	AD1-057 E O1	1.98	Adder	2.33
934575	AD1-082 C	8.21	50 50	8.21
934576	AD1-082 E	4.68	50 50	4.68
934615	AD1-087 C	2.15	Adder	2.53
934616	AD1-087 E	1.01	Adder	1.19
935171	AD1-152 C O1	2.36	Adder	2.78
935172	AD1-152 E O1	1.57	Adder	1.85
936361	AD2-046 C O1	2.67	Adder	3.14
936362	AD2-046 E O1	1.23	Adder	1.45
936401	AD2-051 C O1	2.54	Adder	2.99
936402	AD2-051 E O1	1.09	Adder	1.28
936485	AD2-063 C	3.95	Adder	4.65
936486	AD2-063 E	2.63	Adder	3.09
936661	AD2-085 C	1.62	Adder	1.91
936662	AD2-085 E	2.65	Adder	3.12
936761	AD2-097 C	-0.6	Adder	-0.71
936762	AD2-097 E	-3.0	Adder	-3.53
937481	AD2-202 C O1	0.63	Adder	0.74
937482	AD2-202 E O1	0.35	Adder	0.41
938222	AE1-035 E	0.32	Adder	0.38
938494	AE1-068_C1	10.26	Adder	12.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938497	AE1-068_C2	10.26	Adder	12.07
938498	AE1-068_E1	5.67	Adder	6.67
938499	AE1-068_E2	5.67	Adder	6.67
938504	AE1-069_C1	7.82	Adder	9.2
938507	AE1-069_C2	8.43	Adder	9.92
938508	AE1-069_E1	4.45	Adder	5.24
938509	AE1-069_E2	4.79	Adder	5.64
938634	AE1-085 C	9.87	50 50	9.87
938635	AE1-085 E	4.94	50 50	4.94
938771	AE1-103 C	1.1	Adder	1.29
938772	AE1-103 E	1.51	Adder	1.78
939181	AE1-148 C	2.62	Adder	3.08
939182	AE1-148 E	1.75	Adder	2.06
939195	AE1-149 C	12.93	50 50	12.93
939196	AE1-149 E	8.62	50 50	8.62
939414	AE1-173_C1	8.5	Adder	10.0
939415	AE1-173_C2	7.29	Adder	8.58
939416	AE1-173_C3	8.5	Adder	10.0
939423	AE1-173_E1	5.67	Adder	6.67
939424	AE1-173_E2	4.86	Adder	5.72
939425	AE1-173_E3	5.67	Adder	6.67
940471	AE2-031 C	11.17	Adder	13.14
940472	AE2-031 E	7.44	Adder	8.75
940481	AE2-033 C	12.58	50 50	12.58
940482	AE2-033 E	8.48	50 50	8.48
940541	AE2-040	2.29	50 50	2.29
940571	AE2-044 C	1.44	Adder	1.69
940572	AE2-044 E	0.62	Adder	0.73
940651	AE2-052	4.31	50 50	4.31
940661	AE2-053 O1	0.97	Adder	1.14
941031	AE2-094 C	13.45	Adder	15.82
941032	AE2-094 E	6.03	Adder	7.09
941101	AE2-104 C O1	0.93	Adder	1.09
941102	AE2-104 E O1	1.48	Adder	1.74
942161	AE2-228 C	-1.08	Adder	-1.27
942341	AE2-247 C	0.71	Adder	0.84
942342	AE2-247 E	0.98	Adder	1.15
942451	AE2-258	0.65	Adder	0.76
942471	AE2-260 C O1	9.64	50 50	9.64
942472	AE2-260 E O1	13.67	50 50	13.67
942931	AE2-313 C	12.07	Adder	14.2
942932	AE2-313 E	8.05	Adder	9.47
943171	AE2-346 C	0.43	Adder	0.51
943172	AE2-346 E	0.19	Adder	0.22
943461	AF1-017 C	0.64	Adder	0.75
943462	AF1-017 E	1.04	Adder	1.22
943911	AF1-059	6.25	Adder	7.35
944011	AF1-069 C	4.4	Adder	5.18
944012	AF1-069 E	1.71	Adder	2.01
944141	AF1-082	0.93	Adder	1.09
945811	AF1-246 C O1	2.25	Adder	2.65
945812	AF1-246 E O1	3.11	Adder	3.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946011	AF1-266	10.53	50 50	10.53
946261	AF1-291 C	-1.84	Adder	-2.16
946281	AF1-292 C	0.74	Adder	0.87
946282	AF1-292 E	0.5	Adder	0.59
957481	AF2-042 C	16.07	Adder	18.91
957482	AF2-042 E	10.71	Adder	12.6
957521	AF2-046 C	5.38	Adder	6.33
957522	AF2-046 E	2.7	Adder	3.18
957861	AF2-080 C	2.34	Adder	2.75
957862	AF2-080 E	1.04	Adder	1.22
958161	AF2-110 C	0.38	Adder	0.45
958162	AF2-110 E	0.6	Adder	0.71
959651	AF2-256 C	-0.27	Adder	-0.32
960081	AF2-299 C	1.25	Adder	1.47
960082	AF2-299 E	0.83	Adder	0.98
961091	AF2-400 C	0.14	Adder	0.16
961092	AF2-400 E	0.24	Adder	0.28
961671	AG1-007 C	0.3	Adder	0.35
961672	AG1-007 E	0.17	Adder	0.2
961851	AG1-027 C	4.14	Adder	4.87
961852	AG1-027 E	2.29	Adder	2.69
961941	AG1-037 C	0.15	Adder	0.18
961942	AG1-037 E	0.1	Adder	0.12
962331	AG1-082 C	0.62	Adder	0.73
962332	AG1-082 E	0.41	Adder	0.48
962341	AG1-083 C	0.62	Adder	0.73
962342	AG1-083 E	0.41	Adder	0.48
962351	AG1-084 C	0.53	Adder	0.62
962352	AG1-084 E	0.36	Adder	0.42
962361	AG1-085 C	0.53	Adder	0.62
962362	AG1-085 E	0.36	Adder	0.42
962491	AG1-098 C O1	2.79	Adder	3.28
962492	AG1-098 E O1	1.86	Adder	2.19
962561	AG1-105 C O1	2.38	Adder	2.8
962562	AG1-105 E O1	1.59	Adder	1.87
963041	AG1-153 C	1.86	Adder	2.19
963042	AG1-153 E	2.8	Adder	3.29
963111	AG1-160 C	1.89	Adder	2.22
963112	AG1-160 E	2.84	Adder	3.34
963291	AG1-178 C O2	19.87	Adder	23.38
963292	AG1-178 E O2	10.71	Adder	12.6
963301	AG1-179 C	2.34	Adder	2.75
963311	AG1-180	1.14	Adder	1.34
963351	AG1-184 O2	10.71	Adder	12.6
964241	AG1-285 C O1	3.35	Adder	3.94
964242	AG1-285 E O1	2.23	Adder	2.62
964501	AG1-313 C O1	1.62	Adder	1.91
964502	AG1-313 E O1	1.08	Adder	1.27
964791	AG1-342 C	1.1	Adder	1.29
964792	AG1-342 E	0.86	Adder	1.01
964801	AG1-343 C	1.95	Adder	2.29
964802	AG1-343 E	1.53	Adder	1.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964931	AG1-357 C	6.81	Adder	8.01
964932	AG1-357 E	4.54	Adder	5.34
965291	AG1-394 C	0.67	Adder	0.79
965292	AG1-394 E	0.45	Adder	0.53
965451	AG1-413 C O1	2.63	Adder	3.09
965452	AG1-413 E O1	1.75	Adder	2.06
965591	AG1-427 C	3.16	Adder	3.72
965592	AG1-427 E	2.11	Adder	2.48
965601	AG1-428 C O2	1.95	Adder	2.29
965602	AG1-428 E O2	1.3	Adder	1.53
965691	AG1-437 C O1	2.65	Adder	3.12
965692	AG1-437 E O1	1.77	Adder	2.08
965701	AG1-438 C O1	2.65	Adder	3.12
965702	AG1-438 E O1	1.77	Adder	2.08
965711	AG1-439 C O1	7.38	Adder	8.68
965712	AG1-439 E O1	4.92	Adder	5.79
965721	AG1-440 C	2.31	Adder	2.72
965722	AG1-440 E	1.54	Adder	1.81
965731	AG1-441 C	2.31	Adder	2.72
965732	AG1-441 E	1.54	Adder	1.81
965741	AG1-442 O1	1.55	Adder	1.82
965751	AG1-443 O1	1.55	Adder	1.82
965761	AG1-444 O1	3.93	Adder	4.62
965771	AG1-445	1.34	Adder	1.58
965781	AG1-446	1.34	Adder	1.58
965811	AG1-449	7.83	Adder	9.21
966361	AG1-505 C	5.43	Adder	6.39
966362	AG1-505 E	3.62	Adder	4.26
966371	AG1-506 C	5.43	Adder	6.39
966372	AG1-506 E	3.62	Adder	4.26
966621	AG1-532 C	0.68	Adder	0.8
966622	AG1-532 E	0.45	Adder	0.53
966731	AG1-544 C	7.71	50 50	7.71
966732	AG1-544 E	4.14	50 50	4.14
966741	AG1-545 C	2.55	50 50	2.55
966742	AG1-545 E	1.37	50 50	1.37
966801	AG1-551 C	0.64	Adder	0.75
966802	AG1-551 E	0.27	Adder	0.32
966811	AG1-552 C	0.8	Adder	0.94
966812	AG1-552 E	0.34	Adder	0.4
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	1.9216	Confirmed LTF	1.9216
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.5691	LTF/CBM	0.5691
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	34.5696	LTF/CBM	34.5696
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	11.3555	LTF/CBM	11.3555
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	12.0704	LTF/CBM	12.0704
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	2.9093	Confirmed LTF	2.9093

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_G-007	LTFEXP_G-007- >LTFIMP_G-007	0.8923	LTF/CMTX NF	0.8923
LTFEXP_LAGN	LTFEXP_LAGN- >LTFIMP_LAGN	2.8415	Confirmed LTF	2.8415
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019- >LTFIMP_LGE-0012019	0.1558	Confirmed LTF	0.1558
LTFEXP_LGEE	LTFEXP_LGEE- >LTFIMP_LGEE	0.5596	Confirmed LTF	0.5596
LTFEXP_MEC	LTFEXP_MEC- >LTFIMP_MEC	1.6375	Confirmed LTF	1.6375
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.4043	Confirmed LTF	0.4043
LTFEXP_O-066	LTFEXP_O-066- >LTFIMP_O-066	5.6753	LTF/CMTX NF	5.6753
LTFEXP_SIGE	LTFEXP_SIGE- >LTFIMP_SIGE	0.1001	Confirmed LTF	0.1001
LTFEXP_TVA	LTFEXP_TVA- >LTFIMP_TVA	2.2855	Confirmed LTF	2.2855
LTFEXP_WEC	LTFEXP_WEC- >LTFIMP_WEC	0.2719	Confirmed LTF	0.2719

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174195661	314301	6HARR205	DVP	314346	6TYLER	DVP	1	DVP_P4-2: 562T563	breaker	541.0	126.38	127.38	AC	5.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	3.18	Adder	3.74
314314	3LOCKS	0.43	50 50	0.43
314435	6SAPONY	0.36	50 50	0.36
314572	3EMPORIA	0.25	50 50	0.25
316088	AB2-174 E	3.1	Adder	3.65
316096	AB2-100 C1	0.67	50 50	0.67
316097	AB2-100 E1	2.02	50 50	2.02
316098	AB2-100 C2	0.67	50 50	0.67
316099	AB2-100 E2	2.02	50 50	2.02
316108	AB2-160 C	7.88	50 50	7.88
316109	AB2-160 E	12.85	50 50	12.85
316129	AC1-054 C	2.55	Adder	3.0
918492	AA1-063AE OP	1.41	Adder	1.66
919692	AA2-053 E OP	1.4	Adder	1.65
919702	AA2-057 E OP	1.16	Adder	1.36
920592	AA2-165 E	0.16	Adder	0.19
923262	AB1-132 C OP	6.31	Adder	7.42
923263	AB1-132 E OP	2.7	Adder	3.18
923573	AB1-173 E OP	0.5	Adder	0.59
923852	AB2-025 E	1.0	50 50	1.0
923991	AB2-040 C O1	3.46	Adder	4.07
923992	AB2-040 E O1	2.83	Adder	3.33
925785	AC1-054 E	1.18	Adder	1.39
926070	AC1-086 C	9.29	Adder	10.93
926071	AC1-086 E	4.23	Adder	4.98
926201	AC1-098 C (Suspended)	2.07	Adder	2.44
926202	AC1-098 E (Suspended)	1.23	Adder	1.45
926211	AC1-099 C (Suspended)	0.69	Adder	0.81
926212	AC1-099 E (Suspended)	0.41	Adder	0.48
927145	AC1-208 C (Suspended)	3.18	Adder	3.74
927146	AC1-208 E (Suspended)	1.41	Adder	1.66
932631	AC2-084 C	2.94	Adder	3.46
932632	AC2-084 E	1.45	Adder	1.71
934331	AD1-057 C O1	3.86	Adder	4.54
934332	AD1-057 E O1	2.06	Adder	2.42
936761	AD2-097 C	-0.62	Adder	-0.73
936762	AD2-097 E	-3.12	Adder	-3.67
938494	AE1-068_C1	10.93	Adder	12.86
938497	AE1-068_C2	10.93	Adder	12.86
938498	AE1-068_E1	6.04	Adder	7.11
938499	AE1-068_E2	6.04	Adder	7.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938504	AE1-069_C1	8.33	Adder	9.8
938507	AE1-069_C2	8.98	Adder	10.56
938508	AE1-069_E1	4.74	Adder	5.58
938509	AE1-069_E2	5.11	Adder	6.01
940431	AE2-027 C O1	11.69	50 50	11.69
940432	AE2-027 E O1	7.79	50 50	7.79
940471	AE2-031 C	11.91	Adder	14.01
940472	AE2-031 E	7.94	Adder	9.34
940481	AE2-033 C	13.87	50 50	13.87
940482	AE2-033 E	9.35	50 50	9.35
940541	AE2-040	2.53	50 50	2.53
941031	AE2-094 C	14.35	Adder	16.88
941032	AE2-094 E	6.42	Adder	7.55
942001	AE2-212 C	7.6	50 50	7.6
942002	AE2-212 E	5.07	50 50	5.07
942161	AE2-228 C	-2.07	Adder	-2.44
942371	AE2-250 C O1	13.99	50 50	13.99
942372	AE2-250 E O1	7.39	50 50	7.39
942471	AE2-260 C O1	10.48	50 50	10.48
942472	AE2-260 E O1	14.86	50 50	14.86
942931	AE2-313 C	12.87	Adder	15.14
942932	AE2-313 E	8.58	Adder	10.09
943911	AF1-059	6.66	Adder	7.84
944011	AF1-069 C	4.69	Adder	5.52
944012	AF1-069 E	1.82	Adder	2.14
945811	AF1-246 C O1	2.4	Adder	2.82
945812	AF1-246 E O1	3.31	Adder	3.89
946011	AF1-266	11.61	50 50	11.61
946261	AF1-291 C	-1.26	Adder	-1.48
946281	AF1-292 C	0.94	50 50	0.94
946282	AF1-292 E	0.63	50 50	0.63
957481	AF2-042 C	17.11	Adder	20.13
957482	AF2-042 E	11.41	Adder	13.42
958141	AF2-108	4.49	50 50	4.49
959651	AF2-256 C	-0.52	Adder	-0.61
959671	AF2-258 C	1.9	50 50	1.9
959672	AF2-258 E	1.27	50 50	1.27
959681	AF2-259 C	6.73	50 50	6.73
959682	AF2-259 E	4.49	50 50	4.49
960081	AF2-299 C	1.58	50 50	1.58
960082	AF2-299 E	1.05	50 50	1.05
963041	AG1-153 C	1.99	Adder	2.34
963042	AG1-153 E	2.98	Adder	3.51
963111	AG1-160 C	2.02	Adder	2.38
963112	AG1-160 E	3.02	Adder	3.55
963291	AG1-178 C O2	20.93	Adder	24.62
963292	AG1-178 E O2	11.28	Adder	13.27
963301	AG1-179 C	2.5	Adder	2.94
963311	AG1-180	1.22	Adder	1.44
963351	AG1-184 O2	11.28	Adder	13.27
964501	AG1-313 C O1	1.63	Adder	1.92
964502	AG1-313 E O1	1.08	Adder	1.27

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964931	AG1-357 C	7.25	Adder	8.53
964932	AG1-357 E	4.84	Adder	5.69
965451	AG1-413 C O1	2.8	Adder	3.29
965452	AG1-413 E O1	1.87	Adder	2.2
965601	AG1-428 C O2	2.08	Adder	2.45
965602	AG1-428 E O2	1.39	Adder	1.64
965811	AG1-449	8.35	Adder	9.82
966361	AG1-505 C	5.79	Adder	6.81
966362	AG1-505 E	3.86	Adder	4.54
966371	AG1-506 C	5.79	Adder	6.81
966372	AG1-506 E	3.86	Adder	4.54
966621	AG1-532 C	0.85	50 50	0.85
966622	AG1-532 E	0.57	50 50	0.57
966811	AG1-552 C	0.82	Adder	0.96
966812	AG1-552 E	0.35	Adder	0.41
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	2.0132	Confirmed LTF	2.0132
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.6003	LTF/CBM	0.6003
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	36.2996	LTF/CBM	36.2996
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	12.0454	LTF/CBM	12.0454
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	12.7399	LTF/CBM	12.7399
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	3.048	Confirmed LTF	3.048
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	0.9232	LTF/CMTX NF	0.9232
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	2.9952	Confirmed LTF	2.9952
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.1632	Confirmed LTF	0.1632
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.5929	Confirmed LTF	0.5929
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	1.7324	Confirmed LTF	1.7324
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.4175	Confirmed LTF	0.4175
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	5.8713	LTF/CMTX NF	5.8713
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.106	Confirmed LTF	0.106
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	2.4091	Confirmed LTF	2.4091
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.2882	Confirmed LTF	0.2882

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
173998253	314316	6LOCKS	DVP	314301	6HARR205	DVP	1	DVP_P4-2: 562T563	breaker	541.0	149.94	150.86	AC	5.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	3.18	Adder	3.74
314314	3LOCKS	0.43	50 50	0.43
314331	6POE	0.61	Adder	0.72
314435	6SAPONY	0.36	50 50	0.36
314572	3EMPORIA	0.25	50 50	0.25
315073	1STONECA	-2.07	Adder	-2.44
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.1	Adder	3.65
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.1	Adder	3.65
316088	AB2-174 E	3.1	Adder	3.65
316096	AB2-100 C1	0.67	50 50	0.67
316097	AB2-100 E1	2.02	50 50	2.02
316098	AB2-100 C2	0.67	50 50	0.67
316099	AB2-100 E2	2.02	50 50	2.02
316108	AB2-160 C	7.88	50 50	7.88
316109	AB2-160 E	12.85	50 50	12.85
316129	AC1-054 C	2.55	Adder	3.0
316140	AB2-099 C (Suspended)	0.17	Adder	0.2
316141	AB2-099 E (Suspended)	0.07	Adder	0.08
900672	V4-068 E	0.09	Adder	0.11
917332	Z2-043 E	0.33	Adder	0.39
917342	Z2-044 E	0.19	Adder	0.22
917512	Z2-088 E OP1	2.48	Adder	2.92
918492	AA1-063AE OP	1.41	Adder	1.66
919692	AA2-053 E OP	1.4	Adder	1.65
919702	AA2-057 E OP	1.16	Adder	1.36
920592	AA2-165 E	0.16	Adder	0.19
922923	AB1-081 E OP	1.28	Adder	1.51
923262	AB1-132 C OP	6.31	Adder	7.42
923263	AB1-132 E OP	2.7	Adder	3.18
923573	AB1-173 E OP	0.5	Adder	0.59
923852	AB2-025 E	1.0	50 50	1.0
923991	AB2-040 C O1	3.46	Adder	4.07
923992	AB2-040 E O1	2.83	Adder	3.33
924022	AB2-043 E O1	0.83	Adder	0.98
924152	AB2-059 E OP	1.81	Adder	2.13
924301	AB2-077 C O1	0.59	Adder	0.69
924302	AB2-077 E O1	0.39	Adder	0.46
924311	AB2-078 C O1	0.59	Adder	0.69
924312	AB2-078 E O1	0.39	Adder	0.46
924321	AB2-079 C O1	0.59	Adder	0.69

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924322	AB2-079 E O1	0.39	Adder	0.46
925591	AC1-034 C	2.27	Adder	2.67
925592	AC1-034 E	1.72	Adder	2.02
925785	AC1-054 E	1.18	Adder	1.39
926070	AC1-086 C	9.29	Adder	10.93
926071	AC1-086 E	4.23	Adder	4.98
926201	AC1-098 C (Suspended)	2.07	Adder	2.44
926202	AC1-098 E (Suspended)	1.23	Adder	1.45
926211	AC1-099 C (Suspended)	0.69	Adder	0.81
926212	AC1-099 E (Suspended)	0.41	Adder	0.48
927145	AC1-208 C (Suspended)	3.18	Adder	3.74
927146	AC1-208 E (Suspended)	1.41	Adder	1.66
932631	AC2-084 C	2.94	Adder	3.46
932632	AC2-084 E	1.45	Adder	1.71
934331	AD1-057 C O1	3.86	Adder	4.54
934332	AD1-057 E O1	2.06	Adder	2.42
934615	AD1-087 C	2.28	Adder	2.68
934616	AD1-087 E	1.07	Adder	1.26
935171	AD1-152 C O1	2.51	Adder	2.95
935172	AD1-152 E O1	1.67	Adder	1.96
936361	AD2-046 C O1	2.79	Adder	3.28
936362	AD2-046 E O1	1.28	Adder	1.51
936761	AD2-097 C	-0.62	Adder	-0.73
936762	AD2-097 E	-3.12	Adder	-3.67
937481	AD2-202 C O1	0.67	Adder	0.79
937482	AD2-202 E O1	0.38	Adder	0.45
938494	AE1-068_C1	10.93	Adder	12.86
938497	AE1-068_C2	10.93	Adder	12.86
938498	AE1-068_E1	6.04	Adder	7.11
938499	AE1-068_E2	6.04	Adder	7.11
938504	AE1-069_C1	8.33	Adder	9.8
938507	AE1-069_C2	8.98	Adder	10.56
938508	AE1-069_E1	4.74	Adder	5.58
938509	AE1-069_E2	5.11	Adder	6.01
939181	AE1-148 C	2.74	Adder	3.22
939182	AE1-148 E	1.83	Adder	2.15
939195	AE1-149 C	3.08	Adder	3.62
939196	AE1-149 E	2.05	Adder	2.41
939414	AE1-173_C1	8.7	Adder	10.24
939415	AE1-173_C2	7.45	Adder	8.76
939416	AE1-173_C3	8.7	Adder	10.24
939423	AE1-173_E1	5.8	Adder	6.82
939424	AE1-173_E2	4.97	Adder	5.85
939425	AE1-173_E3	5.8	Adder	6.82
940431	AE2-027 C O1	11.69	50 50	11.69
940432	AE2-027 E O1	7.79	50 50	7.79
940471	AE2-031 C	11.91	Adder	14.01
940472	AE2-031 E	7.94	Adder	9.34
940481	AE2-033 C	13.87	50 50	13.87
940482	AE2-033 E	9.35	50 50	9.35
940541	AE2-040	2.53	50 50	2.53
940571	AE2-044 C	1.49	Adder	1.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940572	AE2-044 E	0.64	Adder	0.75
940651	AE2-052	1.03	Adder	1.21
940661	AE2-053 O1	1.02	Adder	1.2
941031	AE2-094 C	14.35	Adder	16.88
941032	AE2-094 E	6.42	Adder	7.55
942161	AE2-228 C	-2.07	Adder	-2.44
942371	AE2-250 C O1	13.99	50 50	13.99
942372	AE2-250 E O1	7.39	50 50	7.39
942451	AE2-258	0.69	Adder	0.81
942471	AE2-260 C O1	10.48	50 50	10.48
942472	AE2-260 E O1	14.86	50 50	14.86
942931	AE2-313 C	12.87	Adder	15.14
942932	AE2-313 E	8.58	Adder	10.09
943171	AE2-346 C	0.41	Adder	0.48
943172	AE2-346 E	0.18	Adder	0.21
943911	AF1-059	6.66	Adder	7.84
944011	AF1-069 C	4.69	Adder	5.52
944012	AF1-069 E	1.82	Adder	2.14
944141	AF1-082	0.96	Adder	1.13
945811	AF1-246 C O1	2.4	Adder	2.82
945812	AF1-246 E O1	3.31	Adder	3.89
946011	AF1-266	11.61	50 50	11.61
946261	AF1-291 C	-1.26	Adder	-1.48
946281	AF1-292 C	0.94	50 50	0.94
946282	AF1-292 E	0.63	50 50	0.63
957481	AF2-042 C	17.11	Adder	20.13
957482	AF2-042 E	11.41	Adder	13.42
957521	AF2-046 C	4.92	Adder	5.79
957522	AF2-046 E	2.47	Adder	2.91
958141	AF2-108	4.49	50 50	4.49
959651	AF2-256 C	-0.52	Adder	-0.61
959681	AF2-259 C	6.73	50 50	6.73
959682	AF2-259 E	4.49	50 50	4.49
960081	AF2-299 C	1.58	50 50	1.58
960082	AF2-299 E	1.05	50 50	1.05
961671	AG1-007 C	0.3	Adder	0.35
961672	AG1-007 E	0.17	Adder	0.2
961941	AG1-037 C	0.15	Adder	0.18
961942	AG1-037 E	0.1	Adder	0.12
962331	AG1-082 C	0.59	Adder	0.69
962332	AG1-082 E	0.39	Adder	0.46
962341	AG1-083 C	0.59	Adder	0.69
962342	AG1-083 E	0.39	Adder	0.46
962351	AG1-084 C	0.51	Adder	0.6
962352	AG1-084 E	0.34	Adder	0.4
962361	AG1-085 C	0.51	Adder	0.6
962362	AG1-085 E	0.34	Adder	0.4
963041	AG1-153 C	1.99	Adder	2.34
963042	AG1-153 E	2.98	Adder	3.51
963111	AG1-160 C	2.02	Adder	2.38
963112	AG1-160 E	3.02	Adder	3.55
963291	AG1-178 C O2	20.93	Adder	24.62

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963292	AG1-178 E O2	11.28	Adder	13.27
963301	AG1-179 C	2.5	Adder	2.94
963311	AG1-180	1.22	Adder	1.44
963351	AG1-184 O2	11.28	Adder	13.27
964501	AG1-313 C O1	1.63	Adder	1.92
964502	AG1-313 E O1	1.08	Adder	1.27
964801	AG1-343 C	1.73	Adder	2.04
964802	AG1-343 E	1.36	Adder	1.6
964931	AG1-357 C	7.25	Adder	8.53
964932	AG1-357 E	4.84	Adder	5.69
965291	AG1-394 C	0.59	Adder	0.69
965292	AG1-394 E	0.4	Adder	0.47
965451	AG1-413 C O1	2.8	Adder	3.29
965452	AG1-413 E O1	1.87	Adder	2.2
965601	AG1-428 C O2	2.08	Adder	2.45
965602	AG1-428 E O2	1.39	Adder	1.64
965711	AG1-439 C O1	7.49	Adder	8.81
965712	AG1-439 E O1	4.99	Adder	5.87
965721	AG1-440 C	2.41	Adder	2.84
965722	AG1-440 E	1.6	Adder	1.88
965731	AG1-441 C	2.41	Adder	2.84
965732	AG1-441 E	1.6	Adder	1.88
965761	AG1-444 O1	3.99	Adder	4.69
965771	AG1-445	1.39	Adder	1.64
965781	AG1-446	1.39	Adder	1.64
965811	AG1-449	8.35	Adder	9.82
966361	AG1-505 C	5.79	Adder	6.81
966362	AG1-505 E	3.86	Adder	4.54
966371	AG1-506 C	5.79	Adder	6.81
966372	AG1-506 E	3.86	Adder	4.54
966621	AG1-532 C	0.85	50 50	0.85
966622	AG1-532 E	0.57	50 50	0.57
966811	AG1-552 C	0.82	Adder	0.96
966812	AG1-552 E	0.35	Adder	0.41
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	2.0132	Confirmed LTF	2.0132
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.6003	LTF/CBM	0.6003
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	36.2996	LTF/CBM	36.2996
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	12.0454	LTF/CBM	12.0454
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	12.7399	LTF/CBM	12.7399
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	3.048	Confirmed LTF	3.048
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	0.9232	LTF/CMTX NF	0.9232
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	2.9952	Confirmed LTF	2.9952
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.1632	Confirmed LTF	0.1632

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.5929	Confirmed LTF	0.5929
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	1.7324	Confirmed LTF	1.7324
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.4175	Confirmed LTF	0.4175
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	5.8713	LTF/CMTX NF	5.8713
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.106	Confirmed LTF	0.106
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	2.4091	Confirmed LTF	2.4091
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.2882	Confirmed LTF	0.2882

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174395761	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	153.24	154.11	AC	5.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	3.02	Adder	3.55
314331	6POE	4.81	50 50	4.81
314435	6SAPONY	0.33	50 50	0.33
314539	3UNCAMP	1.85	Adder	2.18
314541	3WATKINS	0.21	Adder	0.25
314572	3EMPORIA	0.2	Adder	0.24
315073	1STONECA	-1.65	Adder	-1.94
315131	1EDGECEMA (Deactivation : 22/04/2019)	3.0	Adder	3.53
315132	1EDGECEMB (Deactivation : 22/04/2019)	3.0	Adder	3.53
316083	AB2-161 C	3.6	50 50	3.6
316084	AB2-161 E	5.88	50 50	5.88
316088	AB2-174 E	2.92	Adder	3.44
316096	AB2-100 C1	0.62	50 50	0.62
316097	AB2-100 E1	1.86	50 50	1.86
316098	AB2-100 C2	0.62	50 50	0.62
316099	AB2-100 E2	1.86	50 50	1.86
316103	AB2-015 C	2.67	Adder	3.14
316104	AB2-015 E	2.19	Adder	2.58
316118	AC1-105 C	1.47	Adder	1.73
316129	AC1-054 C	2.47	Adder	2.91
316140	AB2-099 C (Suspended)	0.18	Adder	0.21
316141	AB2-099 E (Suspended)	0.08	Adder	0.09
900672	V4-068 E	0.1	Adder	0.12
917332	Z2-043 E	0.33	Adder	0.39
917342	Z2-044 E	0.19	Adder	0.22
917512	Z2-088 E OP1	2.44	Adder	2.87
918492	AA1-063AE OP	1.46	Adder	1.72
918512	AA1-065 E OP	1.15	Adder	1.35
918532	AA1-067 E	0.21	Adder	0.25
919692	AA2-053 E OP	1.38	Adder	1.62
919702	AA2-057 E OP	1.14	Adder	1.34
920042	AA2-088 E OP	3.46	Adder	4.07
920592	AA2-165 E	0.16	Adder	0.19
922923	AB1-081 E OP	1.24	Adder	1.46
923262	AB1-132 C OP	6.0	Adder	7.06
923263	AB1-132 E OP	2.57	Adder	3.02
923573	AB1-173 E OP	0.47	Adder	0.55
923852	AB2-025 E	0.9	50 50	0.9
923991	AB2-040 C O1	3.29	Adder	3.87
923992	AB2-040 E O1	2.69	Adder	3.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924022	AB2-043 E O1	0.78	Adder	0.92
924152	AB2-059 E OP	1.75	Adder	2.06
924162	AB2-060 E OP	1.18	Adder	1.39
924301	AB2-077 C O1	0.56	Adder	0.66
924302	AB2-077 E O1	0.37	Adder	0.44
924311	AB2-078 C O1	0.56	Adder	0.66
924312	AB2-078 E O1	0.37	Adder	0.44
924321	AB2-079 C O1	0.56	Adder	0.66
924322	AB2-079 E O1	0.37	Adder	0.44
925122	AB2-169 E	1.53	Adder	1.8
925591	AC1-034 C	2.2	Adder	2.59
925592	AC1-034 E	1.66	Adder	1.95
925785	AC1-054 E	1.14	Adder	1.34
926070	AC1-086 C	8.84	Adder	10.4
926071	AC1-086 E	4.02	Adder	4.73
926201	AC1-098 C (Suspended)	2.05	Adder	2.41
926202	AC1-098 E (Suspended)	1.22	Adder	1.44
926211	AC1-099 C (Suspended)	0.69	Adder	0.81
926212	AC1-099 E (Suspended)	0.4	Adder	0.47
926274	AC1-105 E	0.72	Adder	0.85
927024	AC1-189 C	2.58	Adder	3.04
927025	AC1-189 E	1.29	Adder	1.52
927145	AC1-208 C (Suspended)	3.12	Adder	3.67
927146	AC1-208 E (Suspended)	1.38	Adder	1.62
932591	AC2-079 C O1	4.15	50 50	4.15
932592	AC2-079 E O1	6.77	50 50	6.77
932631	AC2-084 C	2.92	Adder	3.44
932632	AC2-084 E	1.44	Adder	1.69
933991	AD1-023 C	3.33	Adder	3.92
933992	AD1-023 E	1.81	Adder	2.13
934331	AD1-057 C O1	3.7	Adder	4.35
934332	AD1-057 E O1	1.98	Adder	2.33
934575	AD1-082 C	8.21	50 50	8.21
934576	AD1-082 E	4.68	50 50	4.68
934615	AD1-087 C	2.15	Adder	2.53
934616	AD1-087 E	1.01	Adder	1.19
935171	AD1-152 C O1	2.36	Adder	2.78
935172	AD1-152 E O1	1.57	Adder	1.85
936361	AD2-046 C O1	2.67	Adder	3.14
936362	AD2-046 E O1	1.23	Adder	1.45
936401	AD2-051 C O1	2.54	Adder	2.99
936402	AD2-051 E O1	1.09	Adder	1.28
936485	AD2-063 C	3.95	Adder	4.65
936486	AD2-063 E	2.63	Adder	3.09
936661	AD2-085 C	1.62	Adder	1.91
936662	AD2-085 E	2.65	Adder	3.12
936761	AD2-097 C	-0.6	Adder	-0.71
936762	AD2-097 E	-3.0	Adder	-3.53
937481	AD2-202 C O1	0.63	Adder	0.74
937482	AD2-202 E O1	0.35	Adder	0.41
938222	AE1-035 E	0.32	Adder	0.38
938494	AE1-068_C1	10.26	Adder	12.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938497	AE1-068_C2	10.26	Adder	12.07
938498	AE1-068_E1	5.67	Adder	6.67
938499	AE1-068_E2	5.67	Adder	6.67
938504	AE1-069_C1	7.82	Adder	9.2
938507	AE1-069_C2	8.43	Adder	9.92
938508	AE1-069_E1	4.45	Adder	5.24
938509	AE1-069_E2	4.79	Adder	5.64
938634	AE1-085 C	9.87	50 50	9.87
938635	AE1-085 E	4.94	50 50	4.94
938771	AE1-103 C	1.1	Adder	1.29
938772	AE1-103 E	1.51	Adder	1.78
939181	AE1-148 C	2.62	Adder	3.08
939182	AE1-148 E	1.75	Adder	2.06
939195	AE1-149 C	12.93	50 50	12.93
939196	AE1-149 E	8.62	50 50	8.62
939414	AE1-173_C1	8.5	Adder	10.0
939415	AE1-173_C2	7.29	Adder	8.58
939416	AE1-173_C3	8.5	Adder	10.0
939423	AE1-173_E1	5.67	Adder	6.67
939424	AE1-173_E2	4.86	Adder	5.72
939425	AE1-173_E3	5.67	Adder	6.67
940471	AE2-031 C	11.17	Adder	13.14
940472	AE2-031 E	7.44	Adder	8.75
940481	AE2-033 C	12.58	50 50	12.58
940482	AE2-033 E	8.48	50 50	8.48
940541	AE2-040	2.29	50 50	2.29
940571	AE2-044 C	1.44	Adder	1.69
940572	AE2-044 E	0.62	Adder	0.73
940651	AE2-052	4.31	50 50	4.31
940661	AE2-053 O1	0.97	Adder	1.14
941031	AE2-094 C	13.45	Adder	15.82
941032	AE2-094 E	6.03	Adder	7.09
941101	AE2-104 C O1	0.93	Adder	1.09
941102	AE2-104 E O1	1.48	Adder	1.74
942161	AE2-228 C	-1.08	Adder	-1.27
942341	AE2-247 C	0.71	Adder	0.84
942342	AE2-247 E	0.98	Adder	1.15
942451	AE2-258	0.65	Adder	0.76
942471	AE2-260 C O1	9.64	50 50	9.64
942472	AE2-260 E O1	13.67	50 50	13.67
942931	AE2-313 C	12.07	Adder	14.2
942932	AE2-313 E	8.05	Adder	9.47
943171	AE2-346 C	0.43	Adder	0.51
943172	AE2-346 E	0.19	Adder	0.22
943461	AF1-017 C	0.64	Adder	0.75
943462	AF1-017 E	1.04	Adder	1.22
943911	AF1-059	6.25	Adder	7.35
944011	AF1-069 C	4.4	Adder	5.18
944012	AF1-069 E	1.71	Adder	2.01
944141	AF1-082	0.93	Adder	1.09
945811	AF1-246 C O1	2.25	Adder	2.65
945812	AF1-246 E O1	3.11	Adder	3.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946011	AF1-266	10.53	50 50	10.53
946261	AF1-291 C	-1.84	Adder	-2.16
946281	AF1-292 C	0.74	Adder	0.87
946282	AF1-292 E	0.5	Adder	0.59
957481	AF2-042 C	16.07	Adder	18.91
957482	AF2-042 E	10.71	Adder	12.6
957521	AF2-046 C	5.38	Adder	6.33
957522	AF2-046 E	2.7	Adder	3.18
957861	AF2-080 C	2.34	Adder	2.75
957862	AF2-080 E	1.04	Adder	1.22
958161	AF2-110 C	0.38	Adder	0.45
958162	AF2-110 E	0.6	Adder	0.71
959651	AF2-256 C	-0.27	Adder	-0.32
960081	AF2-299 C	1.25	Adder	1.47
960082	AF2-299 E	0.83	Adder	0.98
961091	AF2-400 C	0.14	Adder	0.16
961092	AF2-400 E	0.24	Adder	0.28
961671	AG1-007 C	0.3	Adder	0.35
961672	AG1-007 E	0.17	Adder	0.2
961851	AG1-027 C	4.14	Adder	4.87
961852	AG1-027 E	2.29	Adder	2.69
961941	AG1-037 C	0.15	Adder	0.18
961942	AG1-037 E	0.1	Adder	0.12
962331	AG1-082 C	0.62	Adder	0.73
962332	AG1-082 E	0.41	Adder	0.48
962341	AG1-083 C	0.62	Adder	0.73
962342	AG1-083 E	0.41	Adder	0.48
962351	AG1-084 C	0.53	Adder	0.62
962352	AG1-084 E	0.36	Adder	0.42
962361	AG1-085 C	0.53	Adder	0.62
962362	AG1-085 E	0.36	Adder	0.42
962491	AG1-098 C O1	2.79	Adder	3.28
962492	AG1-098 E O1	1.86	Adder	2.19
962561	AG1-105 C O1	2.38	Adder	2.8
962562	AG1-105 E O1	1.59	Adder	1.87
963041	AG1-153 C	1.86	Adder	2.19
963042	AG1-153 E	2.8	Adder	3.29
963111	AG1-160 C	1.89	Adder	2.22
963112	AG1-160 E	2.84	Adder	3.34
963291	AG1-178 C O2	19.87	Adder	23.38
963292	AG1-178 E O2	10.71	Adder	12.6
963301	AG1-179 C	2.34	Adder	2.75
963311	AG1-180	1.14	Adder	1.34
963351	AG1-184 O2	10.71	Adder	12.6
964241	AG1-285 C O1	3.35	Adder	3.94
964242	AG1-285 E O1	2.23	Adder	2.62
964501	AG1-313 C O1	1.62	Adder	1.91
964502	AG1-313 E O1	1.08	Adder	1.27
964791	AG1-342 C	1.1	Adder	1.29
964792	AG1-342 E	0.86	Adder	1.01
964801	AG1-343 C	1.95	Adder	2.29
964802	AG1-343 E	1.53	Adder	1.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964931	AG1-357 C	6.81	Adder	8.01
964932	AG1-357 E	4.54	Adder	5.34
965291	AG1-394 C	0.67	Adder	0.79
965292	AG1-394 E	0.45	Adder	0.53
965451	AG1-413 C O1	2.63	Adder	3.09
965452	AG1-413 E O1	1.75	Adder	2.06
965591	AG1-427 C	3.16	Adder	3.72
965592	AG1-427 E	2.11	Adder	2.48
965601	AG1-428 C O2	1.95	Adder	2.29
965602	AG1-428 E O2	1.3	Adder	1.53
965691	AG1-437 C O1	2.65	Adder	3.12
965692	AG1-437 E O1	1.77	Adder	2.08
965701	AG1-438 C O1	2.65	Adder	3.12
965702	AG1-438 E O1	1.77	Adder	2.08
965711	AG1-439 C O1	7.38	Adder	8.68
965712	AG1-439 E O1	4.92	Adder	5.79
965721	AG1-440 C	2.31	Adder	2.72
965722	AG1-440 E	1.54	Adder	1.81
965731	AG1-441 C	2.31	Adder	2.72
965732	AG1-441 E	1.54	Adder	1.81
965741	AG1-442 O1	1.55	Adder	1.82
965751	AG1-443 O1	1.55	Adder	1.82
965761	AG1-444 O1	3.93	Adder	4.62
965771	AG1-445	1.34	Adder	1.58
965781	AG1-446	1.34	Adder	1.58
965811	AG1-449	7.83	Adder	9.21
966361	AG1-505 C	5.43	Adder	6.39
966362	AG1-505 E	3.62	Adder	4.26
966371	AG1-506 C	5.43	Adder	6.39
966372	AG1-506 E	3.62	Adder	4.26
966621	AG1-532 C	0.68	Adder	0.8
966622	AG1-532 E	0.45	Adder	0.53
966731	AG1-544 C	7.71	50 50	7.71
966732	AG1-544 E	4.14	50 50	4.14
966741	AG1-545 C	2.55	50 50	2.55
966742	AG1-545 E	1.37	50 50	1.37
966801	AG1-551 C	0.64	Adder	0.75
966802	AG1-551 E	0.27	Adder	0.32
966811	AG1-552 C	0.8	Adder	0.94
966812	AG1-552 E	0.34	Adder	0.4
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	1.9216	Confirmed LTF	1.9216
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.5691	LTF/CBM	0.5691
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	34.5696	LTF/CBM	34.5696
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	11.3555	LTF/CBM	11.3555
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	12.0704	LTF/CBM	12.0704
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	2.9093	Confirmed LTF	2.9093

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	0.8923	LTF/CMTX NF	0.8923
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	2.8415	Confirmed LTF	2.8415
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.1558	Confirmed LTF	0.1558
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.5596	Confirmed LTF	0.5596
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	1.6375	Confirmed LTF	1.6375
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.4043	Confirmed LTF	0.4043
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	5.6753	LTF/CMTX NF	5.6753
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.1001	Confirmed LTF	0.1001
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	2.2855	Confirmed LTF	2.2855
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.2719	Confirmed LTF	0.2719

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
173813621	314902	8CARSON	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 562T563	breaker	1039.7	171.86	173.43	AC	15.65

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	-4.04	Adder	-4.75
315073	1STONECA	-3.61	Adder	-4.25
315102	1BRUNSWICKG1	9.28	50 50	9.28
315103	1BRUNSWICKG2	9.28	50 50	9.28
315104	1BRUNSWICKG3	9.28	50 50	9.28
315105	1BRUNSWICKS1	19.28	50 50	19.28
315153	1CLOVER1	10.65	50 50	10.65
315154	1CLOVER2	10.54	50 50	10.54
315241	1Z1-086 GT1	12.06	50 50	12.06
315242	1Z1-086 GT2	12.06	50 50	12.06
315243	1Z1-086 GT3	12.06	50 50	12.06
315244	1Z1-086 ST	20.95	50 50	20.95
316083	AB2-161 C	-2.73	Adder	-3.21
316108	AB2-160 C	-5.69	Adder	-6.69
316132	AB2-190 C	-6.92	Adder	-8.14
923262	AB1-132 C OP	-7.5	Adder	-8.82
923991	AB2-040 C O1	-4.4	Adder	-5.18
927251	AC1-221 C	1.01	Adder	1.19
927252	AC1-221 E	1.01	Adder	1.19
927261	AC1-222 C	1.49	Adder	1.75
927262	AC1-222 E	1.42	Adder	1.67
932761	AC2-100 C	2.32	Adder	2.73
932762	AC2-100 E	1.13	Adder	1.33
934311	AD1-055 C	1.04	Adder	1.22
934312	AD1-055 E	0.27	Adder	0.32
934341	AD1-058 C	2.53	Adder	2.98
934342	AD1-058 E	0.64	Adder	0.75
934575	AD1-082 C	-6.22	Adder	-7.32
934615	AD1-087 C	6.4	50 50	6.4
934616	AD1-087 E	3.0	50 50	3.0
934625	AD1-088 C	7.89	50 50	7.89
934626	AD1-088 E	2.07	50 50	2.07
934991	AD1-131 C	0.83	Adder	0.98
934992	AD1-131 E	0.55	Adder	0.65
935171	AD1-152 C O1	7.03	50 50	7.03
935172	AD1-152 E O1	4.69	50 50	4.69
936761	AD2-097 C	-0.92	Adder	-1.08
936762	AD2-097 E	-4.62	Adder	-5.44
937481	AD2-202 C O1	1.88	50 50	1.88
937482	AD2-202 E O1	1.05	50 50	1.05
938494	AE1-068_C1	34.95	50 50	34.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938497	AE1-068_C2	34.95	50 50	34.95
938498	AE1-068_E1	19.32	50 50	19.32
938499	AE1-068_E2	19.32	50 50	19.32
938504	AE1-069_C1	26.64	50 50	26.64
938507	AE1-069_C2	28.72	50 50	28.72
938508	AE1-069_E1	15.15	50 50	15.15
938509	AE1-069_E2	16.33	50 50	16.33
939414	AE1-173_C1	27.37	50 50	27.37
939415	AE1-173_C2	23.46	50 50	23.46
939416	AE1-173_C3	27.37	50 50	27.37
939423	AE1-173_E1	18.25	50 50	18.25
939424	AE1-173_E2	15.64	50 50	15.64
939425	AE1-173_E3	18.25	50 50	18.25
940471	AE2-031 C	38.33	50 50	38.33
940472	AE2-031 E	25.56	50 50	25.56
940542	AE2-040 BAT	5.26	50 50	5.26
940652	AE2-052 BAT	4.03	50 50	4.03
941031	AE2-094 C	46.37	50 50	46.37
941032	AE2-094 E	20.77	50 50	20.77
941791	AE2-182 C	1.28	50 50	1.28
941792	AE2-182 E	0.6	50 50	0.6
942151	AE2-227 C	-0.81	Adder	-0.95
942161	AE2-228 C	-1.9	Adder	-2.24
942931	AE2-313 C	41.4	50 50	41.4
942932	AE2-313 E	27.6	50 50	27.6
943901	AF1-058 C	0.83	Adder	0.98
943902	AF1-058 E	0.55	Adder	0.65
944011	AF1-069 C	15.15	50 50	15.15
944012	AF1-069 E	5.89	50 50	5.89
945811	AF1-246 C O1	7.06	50 50	7.06
945812	AF1-246 E O1	9.75	50 50	9.75
946012	AF1-266 BAT	23.75	50 50	23.75
946261	AF1-291 C	-1.88	Adder	-2.21
957481	AF2-042 C	50.45	50 50	50.45
957482	AF2-042 E	33.63	50 50	33.63
958142	AF2-108 BAT	1.98	50 50	1.98
959641	AF2-255 C	-0.2	Adder	-0.24
959651	AF2-256 C	-0.48	Adder	-0.56
960061	AF2-297 C	3.31	Adder	3.89
960062	AF2-297 E	2.21	Adder	2.6
962193	AG1-064 BAT	1.5	Adder	1.76
962203	AG1-065 BAT	1.5	Adder	1.76
962491	AG1-098 C O1	8.19	50 50	8.19
962492	AG1-098 E O1	5.46	50 50	5.46
963041	AG1-153 C	6.26	50 50	6.26
963042	AG1-153 E	9.39	50 50	9.39
963111	AG1-160 C	6.41	50 50	6.41
963112	AG1-160 E	9.61	50 50	9.61
963271	AG1-176 C O1	9.45	50 50	9.45
963272	AG1-176 E O1	6.3	50 50	6.3
963291	AG1-178 C O2	68.16	50 50	68.16
963292	AG1-178 E O2	36.72	50 50	36.72

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963312	AG1-180 BAT	2.78	Adder	3.27
963351	AG1-184 O2	36.72	50 50	36.72
964841	AG1-347 C	5.88	50 50	5.88
964842	AG1-347 E	4.62	50 50	4.62
964931	AG1-357 C	22.04	50 50	22.04
964932	AG1-357 E	14.69	50 50	14.69
965811	AG1-449	26.88	50 50	26.88
966361	AG1-505 C	18.09	50 50	18.09
966362	AG1-505 E	12.06	50 50	12.06
966371	AG1-506 C	18.09	50 50	18.09
966372	AG1-506 E	12.06	50 50	12.06
966733	AG1-544 BAT	2.68	50 50	2.68
966743	AG1-545 BAT	0.88	50 50	0.88
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	2.924	Confirmed LTF	2.924
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.9474	LTF/CBM	0.9474
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	55.7935	LTF/CBM	55.7935
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	18.9954	LTF/CBM	18.9954
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	20.0986	LTF/CBM	20.0986
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	4.4261	Confirmed LTF	4.4261
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	1.4736	LTF/CMTX NF	1.4736
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	4.7248	Confirmed LTF	4.7248
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.258	Confirmed LTF	0.258
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.9357	Confirmed LTF	0.9357
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	2.7329	Confirmed LTF	2.7329
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.6667	Confirmed LTF	0.6667
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	9.3722	LTF/CMTX NF	9.3722
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.1673	Confirmed LTF	0.1673
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	3.8024	Confirmed LTF	3.8024
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.4546	Confirmed LTF	0.4546

11.8 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
AA1-063A	Carolina–Seaboard 115kV	In Service
AA1-065	Earleys 230kV	In Service
AA1-067	Everetts 34.5kV	In Service
AA2-053	Carolina-Jackson 115kV	In Service
AA2-057	Hornertown-Whitakers 115kV	In Service
AA2-074	CPL- PJM	Confirmed
AA2-088	Boykins-Handsome 115kV	In Service
AA2-165	Hornertown-Whitakers 115kV	In Service
AB1-081	Anaconda-Mayo Dunbar 115kV	In Service
AB1-132	Thelma 230kV	Engineering and Procurement
AB1-173	Brink-Trego 115kV	Engineering and Procurement
AB2-015	Franklin 115kV	Engineering and Procurement
AB2-025	Sapony 34.5kV	In Service
AB2-040	Brink 115kV	Engineering and Procurement
AB2-043	Chase City 115kV	In Service
AB2-059	Benson-Dunbar 115kV	In Service
AB2-060	Chase City-Lunenburg 115kV	In Service
AB2-077	Buggs Island-Chase City 115kV	Engineering and Procurement
AB2-078	Buggs Island-Chase City 115kV	Engineering and Procurement
AB2-079	Buggs Island-Chase City 115kV	Engineering and Procurement
AB2-099	Ahoskie 34.5kV	Suspended
AB2-100	Clubhouse-Lakeview 230kV	Partially in Service - Under Construction
AB2-160	Reams 115kV	Engineering and Procurement
AB2-161	Waverly #2 DP 115kV	Engineering and Procurement
AB2-169	Pantago-Five Points 115kV	Partially in Service - Under Construction
AB2-174	Emporia-Trego 115kV	In Service
AB2-190	Hopewell-Surry 230kV	Under Construction
AC1-034	Heartsease DP - Mayo Dunbar 115kV	Engineering and Procurement
AC1-036	Twittys Creek 34.5kV	In Service
AC1-054	Kerr Dam–Eatons Ferry 115 kV	Under Construction
AC1-056	PJM-AMIL	Confirmed
AC1-075	Perth-Hickory Grove 115kV	Partially in Service - Under Construction
AC1-080	Perth-Hickory Grove 115kV	Under Construction
AC1-083	Smith Mountain-Bearskin 138kV	Under Construction
AC1-086	Thelma 230kV	Active
AC1-098	Dawson-South Justice 115kV	Suspended
AC1-099	Dawson-South Justice 115kV	Suspended
AC1-105	Halifax-Mt. Laurel 115kV	Engineering and Procurement
AC1-189	Chinquapin-Everetts 230kV	Active

Queue Number	Project Name	Status
AC1-208	Cox-Whitakers 115kV	Suspended
AC1-221	Halifax-Person 230kV	Engineering and Procurement
AC1-222	Crystal Hill-Halifax 115kV	Engineering and Procurement
AC2-079	Ivor-Oak Ridge 115kV	Active
AC2-084	Dawson-South Justice 115kV	Active
AC2-100	Halifax-Person 230kV	Engineering and Procurement
AD1-017	Smith Mountain-Bearskin 138 kV	Under Construction
AD1-023	Cashie-Trowbridge 230 kV	Active
AD1-055	Crystal Hill-Halifax 115 kV	Engineering and Procurement
AD1-057	Hornertown-Hathaway 230 kV	Active
AD1-058	Halifax-Person 230 kV	Engineering and Procurement
AD1-076	Trowbridge 230 kV	Active
AD1-082	Bakers Pond-Ivor 115kV	Engineering and Procurement
AD1-087	Clover-Sedge Hill 230 kV	Active
AD1-088	Briery-Clover 230 kV	Active
AD1-131	Sedge Hill-Person 230 kV	Engineering and Procurement
AD1-152	Clover-Sedge Hill 230 kV	Active
AD2-022	East Danville-Roxborough 230 kV	Active
AD2-023	E. Danville-Roxborough 230 kV	Active
AD2-033	Chase City-Lunenburg 115 kV	Active
AD2-046	Boydton DP-Kerr Dam 115 kV	Active
AD2-051	Earleys – Northampton 230kV	Active
AD2-063	Central-Chase City 115kV	Active
AD2-085	Myrtle-Windsor DP 115kV	Engineering and Procurement
AD2-097	Spruance NUG 230kV	In Service
AD2-202	Clover-Sedge Hill 230kV	Active
AE1-035	Earleys 230 kV	Partially in Service - Under Construction
AE1-056	Red House-South Creek 115 kV	Active
AE1-068	Carson-Rogers Rd 500 kV	Active
AE1-069	Carson-Rogers Road 500 kV	Active
AE1-085	Bakers Pond-Bell Ave 115 kV	Active
AE1-103	Holland-Union Camp 115 kV	Active
AE1-148	Kerr Dam-Ridge Rd 115 kV	Active
AE1-149	Disputanta-Poe 115 kV	Active
AE1-173	Carson-Suffolk 500 kV	Active
AE1-250	Smith Mountain-E. Danville 138 kV	Active
AE2-027	Harrowgate-Locks 115kV	Active
AE2-031	Carson-Rawlings 500 kV	Active
AE2-033	Clubhouse-Sappony 230 kV	Active
AE2-040	Sapony 34.5 kV	Active
AE2-044	Anaconda-Dunbar 115 kV	Active
AE2-052	Disputanta-Poe 115 kV	Active
AE2-053	Kerr Dam-Ridge Road 115 kV	Active
AE2-094	Carson-Rogers Road 500 kV	Active
AE2-104	Suffolk 115 kV	Active
AE2-182	Briery-Clover 230 kV	Active
AE2-212	Harrowgate 34 kV	Active
AE2-227	Iron Bridge 34 kV	Engineering and Procurement
AE2-228	Tyler 34 kV	Engineering and Procurement
AE2-247	Myrtle-Windsor 115 kV	Active
AE2-250	Purdy Sw.-Reams 115 kV	Active
AE2-258	Chase City 115 kV	Active

Queue Number	Project Name	Status
AE2-260	Clubhouse 230 kV	Active
AE2-291	Grit DP-Perth 115 kV	Active
AE2-292	Grit DP-Perth 115 kV	Active
AE2-313	Carson-Rawlings 500 kV	Active
AE2-346	Ahoskie 34.5 kV	Active
AF1-017	Myrtle-Windsor 115 kV	Active
AF1-058	Welco 34.5 kV	Engineering and Procurement
AF1-059	Brodnax-South Hill 115 kV	Active
AF1-069	Carson-Rogers Rd 500 kV	Active
AF1-082	Heartsease-Mayo Dunbar DP	Active
AF1-246	Clover-Rawlings 500 kV	Active
AF1-266	Clubhouse-Sapony 230 kV	Active
AF1-291	Tyler 34.5 kV	Engineering and Procurement
AF1-292	Fields 34.5kV	Active
AF1-294	Jetersville-Ponton 115 kV	Active
AF2-042	Clover-Rawlings 500 kV	Active
AF2-046	Tunis-Mapleton 115 kV	Active
AF2-080	Chinquapin-Everetts 230 kV	Active
AF2-108	Locks 34.5 kV	Active
AF2-110	Suffolk 115 kV	Active
AF2-115	Jetersville-Ponton 115 kV	Active
AF2-171	Madisonville 115 kV	Active
AF2-222	Madisonville DP-Twitty's Creek 115 kV	Active
AF2-255	Iron Bridge 34.5 kV	Engineering and Procurement
AF2-256	Tyler 34.5 kV	Engineering and Procurement
AF2-258	Harrowgate 34.5 kV	Active
AF2-259	Locks 34.5 kV	Active
AF2-297	Sedge Hill 115 kV	Active
AF2-299	Fields 34.5 kV	Active
AF2-400	Franklin 13.2 kV	Engineering and Procurement
AG1-007	Tar River 12.5 kV	Active
AG1-021	Jetersville-Ponton 115 kV	Active
AG1-027	Suffolk-Holland 115 kV	Active
AG1-030	Victoria DP-Martin DP 115 kV	Active
AG1-037	Ahoskie 34.5 kV	Active
AG1-048	Jetersville-Ponton 115 kV	Active
AG1-064	Plaza 34.5 kV	Engineering and Procurement
AG1-065	Plaza 34.5 kV	Engineering and Procurement
AG1-082	Ahoskie 34.5 kV	Active
AG1-083	Ahoskie 34.5 kV	Active
AG1-084	Earlys 34.5 kV	Active
AG1-085	Earlys 34.5	Active
AG1-098	Briery-Clover 230 kV	Active
AG1-105	Mount Laurel-Barnes Junction 115 kV	Active
AG1-153	Heritage 500 kV	Active
AG1-160	Rogers Road 500 kV	Active
AG1-166	Lone Pine 115 kV	Active
AG1-167	Lone Pine 115 kV	Active
AG1-168	Lone Pine 115 kV	Active
AG1-169	Lone Pine 115 kV	Active
AG1-170	Lone Pine 115 kV	Active
AG1-176	Briery-Clover 230 kV	Active

Queue Number	Project Name	Status
AG1-178	Carson-Suffolk 500 kV	Active
AG1-179	Brunswick-Gasburg 69 kV	Active
AG1-180	Brunswick-Gasburg 69 kV	Active
AG1-181	Pamplin-Chase City 115 kV	Active
AG1-184	Carson-Suffolk 500 kV	Active
AG1-185	Pamplin-Chase City 115 kV	Active
AG1-215	Fort Pickett 13.2 kV	Active
AG1-272	Twitty's Creek 115 kV	Active
AG1-273	Twitty's Creek 115 kV	Active
AG1-274	Twitty's Creek 115 kV	Active
AG1-285	Chase City-Central 115 kV	Active
AG1-313	Jackson DP-Occoneechee 115 kV	Active
AG1-342	Dryburg 115 kV	Active
AG1-343	Boykins-Murphy 115 kV	Active
AG1-345	Crewe 12.5 kV	Active
AG1-347	Briery DP-Clover 230 kV	Active
AG1-357	Clover-Rawlins 500 kV	Active
AG1-384	Twitty's Creek 115 kV	Active
AG1-393	Fort Pickett DP 34.5 kV	Active
AG1-394	Boykins 34.5 kV	Active
AG1-413	South Hill-Bordnax 115 kV	Active
AG1-427	Chase City-Drakes Branch 115 kV	Active
AG1-428	Danieltown DP-Brunswick 69 kV	Active
AG1-437	Cashie-Earleys 230 kV	Active
AG1-438	Cashie-Earleys 230 kV	Active
AG1-439	Chinquapin 230 kV	Active
AG1-440	Palmer Springs 115 kV	Active
AG1-441	Palmer Springs 115 kV	Active
AG1-442	Cashie-Earleys 230 kV	Active
AG1-443	Cashie-Earleys 230 kV	Active
AG1-444	Chinquapin 230 kV	Active
AG1-445	Palmer Spring 115 kV	Active
AG1-446	Palmer Springs 115 kV	Active
AG1-449	Rawlings-Carson 500 kV	Active
AG1-505	Rawlings-Clover 500 kV	Active
AG1-506	Rawlings-Clover 500 kV	Active
AG1-532	Fields 34.5 kV	Active
AG1-539	Grit DP-Perth 115 kV	Active
AG1-544	Bakers Pond DP 115 kV	Active
AG1-545	W. Quaker Rd-Disputanta 34.5 kV	Active
AG1-551	Parme 12.5 kV	Active
AG1-552	Carolina 13.2 kV	Active
V4-068	Murphy's 34.5kV	In Service
Z1-086	Heritage-Carson	In Service
Z2-043	Kelford 34.5kV	In Service
Z2-044	Whitakers 34.5kV	In Service
Z2-088	Tarboro-Everetts 230kV	In Service

11.9 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 585-A	CONTINGENCY 'DVP_P1-2: LN 585-A' OPEN BRANCH FROM BUS 314902 TO BUS 941030 CKT 1 /* 8CARSON 500.00 - AE2-094 TAP 500.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV /* OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 940640 CKT 1 /* 8CARSON 500.00 - AE2-051 TAP 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 /* SET PRECONTRATING 2650 BRANCH FROM BUS 314902 TO BUS 314923 CKT 1/* RATE A OF LN 562 IS DE-RATED! /* SET POSTCONTRATING 2858 BRANCH FROM BUS 314902 TO BUS 314923 CKT 1/* RATE B OF LN 562 IS DE-RATED! END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 511-A	CONTINGENCY 'DVP_P1-2: LN 511-A' OPEN BRANCH FROM BUS 314902 TO BUS 940470 CKT 1 /* 8CARSON 500.00 - AE2-031 TAP 500.00 /* SET PRECONTRATING 3533 BRANCH FROM BUS 314935 TO BUS 314936 CKT 1/* RATE A OF LN 591 IS DE-RATED! /* SET POSTCONTRATING 3811 BRANCH FROM BUS 314935 TO BUS 314936 CKT 1/* RATE B OF LN 591 IS DE-RATED! END

12 Light Load Analysis

The Queue Project AG1-153 was evaluated as a 75.0 MW (Capacity 75.0 MW) injection at the Heritage 500 kV substation in the Dominion area. Project AG1-153 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-153 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

12.1 Generation Deliverability

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

None

12.2 Multiple Facility Contingency

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

None

12.3 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)

None

12.4 Steady-State Voltage Requirements

None

12.5 Potential Congestion due to Local Energy Deliverability

None

12.6 System Reinforcements

None

12.7 Queue Dependencies

None

13 Short Circuit Analysis

Requires further study as part of the Facilities stage due to impact from reinforcement:

- n6209: Add additional 500/230 kV transformer at Carson substation (energizing existing spare

13.1 System Reinforcements - Short Circuit

To be determined in the Facilities Study Phase

14 Stability and Reactive Power

To be determined in the Facilities Study Phase.

15 Affected Systems

15.1 Carolina Power and Light (CPL)

This project has been identified by PJM as having greater than 3% DFAX contribution (or 10% DFAX for over 500kV) to flow gates in the Carolina Power and Light (CPL) area. Carolina Power and Light (CPL) is evaluating the need for affected system study. Results will be provided in the Facilities phase. (Reference PJM Manual 14A Section 4.2.4 for Affected System Coordination.)

15.2 Duke Energy Progress

This project has been identified by PJM as having greater than 3% DFAX contribution (or 10% DFAX for over 500kV) to flow gates in the Duke Energy Progress area. Duke Energy Progress is evaluating the need for affected system study. Results will be provided in the Facilities phase. (Reference PJM Manual 14A Section 4.2.4 for Affected System Coordination.)

16 Attachment 1: One Line Diagram

