Generation Interconnection

Feasibility Study Report

for

Queue Project AF1-074

WAVERLY-WAKEFIELD 115 KV

40.8 MW Capacity / 68 MW Energy

January, 2020

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1 Introduction

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

2 Preface

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

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

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a solar generating facility located in Sussex County, Virginia. The installed facilities will have a total capability of 68 MW with 40.8 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 06/30/2022. This study does not imply a TO commitment to this in-service date.

Queue Number	**AF1-074**
Project Name	WAVERLY-WAKEFIELD 115 KV
State	Virginia
County	Sussex
Transmission Owner	Dominion
MFO	68
MWE	68
MWC	40.8
Fuel	Solar
Basecase Study Year	2023

3.1 Primary Point of Interconnection

The AF1-074 project will interconnect with the Dominion transmission system at a new 115 kV substation tapping the Waverly to Wakefield 115 kV line. This is the primary Point of Interconnection (POI) chosen by the IC. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the solar facility site to the proposed new substation. Attachment 1 shows a one-line diagram of the proposed interconnection facilities. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

3.2 Primary Point of Interconnection

The AF1-074 project chose a new 115 kV substation tapping the Bakers Pond to Belle Ave (Ivor) 115 kV line as the secondary POI.

This report does not provide costs for the physical interconnection of the secondary point of interconnection. It was just analyzed for network impacts. Results are shown in the Network Impacts – Secondary Point of Interconnection section of this report.

3.3 Cost Summary

The AF1-074 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$ 1,700,000
Direct Connection Network Upgrade	$ 5,500,000
Non Direct Connection Network Upgrades	$ 1,600,000
Total Costs	**$ 8,800,000**

In addition, the AF1-074 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	**$ 70,482,000**

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

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

(a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;

(b) the time required to complete detailed design and construction of the facilities and upgrades; and

(c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

4 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AF1-074. The project was evaluated as a 40.8 MW Capacity (60 MW energy) injection at a single line tap between Waverly 115 kV substation and Wakefield 115 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2023 AF1 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (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.

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AF1-074 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are 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 phases. 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.

5 Attachment Facilities

To accommodate the proposed AF1-074 Project, Dominion Energy will install one span of overhead 115 kV line to the point of interconnection ("POI") including 115 kV interconnection metering.

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

Description	Total Cost
Substation (Metering)	$ 500,000
Transmission (One span)	$ 1,200,000
	$
Total Attachment Facility Costs	**$ 1,700,000**

It is estimated to take 18-24 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. See Attachment 1.

6 Direct Connection Cost Estimate

To accommodate the proposed AF1-074 Project, Dominion Energy will build a new three breaker 115 kV substation.

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

Description	Total Cost
Substation	$ 5,500,000
Total Direct Connection Facility Costs	**$ 5,500,000**

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. See Attachment 1.

7 Non-Direct Connection Cost Estimate

To accommodate the proposed AF1-074 Project, Dominion Energy will re-arrange the existing section of the line between Waverly and Wakefield substations.

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

Description	Total Cost
Transmission (one span)	$ 1,600,000
Total Direct Connection Facility Costs	**$ 1,600,000**

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.

8 Schedule

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

9 Transmission Owner Analysis

9.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2023 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.

9.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by Dominion. The connection of AF1-069 project to the system does not result in any newly overdutied circuit breakers on the Dominion transmission system and does not have a significant fault current contribution to existing overdutied circuit breakers

9.3 Stability Analysis

PJM will complete a dynamic stability analysis, if necessary, as part of the System Impact Study. The results of this analysis will be reviewed by Dominion. Should stability concerns be identified in PJM's study, Dominion will develop appropriate system reinforcement(s) and included the estimated cost of any reinforcement(s) in Dominion's System Impact Study report.

10 Interconnection Customer Requirements

10.1 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.

10.2 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 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.

10.3 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.

11 Revenue Metering and SCADA Requirements

11.1 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.

11.1.1 Meteorological Data Reporting Requirement

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

11.2 Dominion Requirements

See Section 3.4.6 “Metering and telecommunications” of Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access.

12 Network Impacts – Primary Point of Interconnection

The Queue Project AF1-074 was evaluated as a 68.0 MW (Capacity 40.8 MW) injection tapping the Waverly to Wakefield 115 kV line in the Dominion area. Project AF1-074 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-074 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

12.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044022	313803	3OAKRI44	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 15-B	single	110.92	66.79	103.57	DC	40.8
46039283	313803	3OAKRI44	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	3142923DISPUTN 115 932580 AC2-078 TAP 1151	single	110.92	66.79	103.57	DC	40.8
43044085	314292	3DISPUTN	115.0	DVP	939190	AE1-149 TAP	115.0	DVP	1	DVP_P1-2: LN 44-A	single	110.92	73.46	110.24	DC	40.8
46039373	314292	3DISPUTN	115.0	DVP	939190	AE1-149 TAP	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 1151	single	110.92	73.46	110.24	DC	40.8
43044143	314351	3WAVERLY	115.0	DVP	314350	3WVLY DP	115.0	DVP	1	DVP_P1-2: LN 44-A	single	110.92	65.43	102.22	DC	40.8
46039473	314351	3WAVERLY	115.0	DVP	314350	3WVLY DP	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 1151	single	110.92	65.43	102.22	DC	40.8
43044014	314531	3MYRTLE	115.0	DVP	313803	3OAKRI44	115.0	DVP	1	DVP_P1-2: LN 15-B	single	110.92	66.88	103.66	DC	40.8
46039271	314531	3MYRTLE	115.0	DVP	313803	3OAKRI44	115.0	DVP	1	3142923DISPUTN 115 932580 AC2-078 TAP 1151	single	110.92	66.88	103.66	DC	40.8
43044076	932580	AC2-078 TAP	115.0	DVP	314292	3DISPUTN	115.0	DVP	1	DVP_P1-2: LN 44-A	single	110.92	77.06	113.85	DC	40.8
46039363	932580	AC2-078 TAP	115.0	DVP	314292	3DISPUTN	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 1151	single	110.92	77.06	113.85	DC	40.8
43044004	936660	AD2-085 TAP	115.0	DVP	314531	3MYRTLE	115.0	DVP	1	DVP_P1-2: LN 15-B	single	110.92	77.06	113.85	DC	40.8
46039261	936660	AD2-085 TAP	115.0	DVP	314531	3MYRTLE	115.0	DVP	1	3142923DISPUTN 115 932580 AC2-078 TAP 1151	single	110.92	77.06	113.85	DC	40.8
43043996	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	Base Case	single	110.92	86.06	108.59	DC	24.98

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044101	944060	AF1-074 TAP	115.0	DVP	314351	3WAVERLY	115.0	DVP	1	DVP_P1-2: LN 44-A	single	110.92	69.76	106.55	DC	40.8
43044152	944060	AF1-074 TAP	115.0	DVP	941600	AE2-157 TAP	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	75.73	112.51	DC	40.8
46039427	944060	AF1-074 TAP	115.0	DVP	314351	3WAVERLY	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 1151	single	110.92	69.76	106.55	DC	40.8

12.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043680	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P2-2: BASIN B7	bus	169.0	99.98	100.94	DC	3.58
43043886	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P4-2: 2002T2003	breaker	301.0	97.58	108.82	DC	33.86
43044566	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P7-1: LN 2002-2003	tower	301.0	97.58	108.82	DC	33.86
43044567	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P7-1: LN 23-44-B	tower	301.0	97.92	106.73	DC	26.52

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)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044017	313803	3OAKRI44	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	135.21	172.0	DC	40.8
43044049	313878	3BELL AVE 1	115.0	DVP	314542	3WINDSOR	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	122.79	159.57	DC	40.8
43043890	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P4-2: 562T563	breaker	169.0	109.75	110.67	DC	3.44
43043891	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P4-6: T672	breaker	169.0	104.3	105.23	DC	3.47
43044546	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P7-1: LN 23-44-B	tower	169.0	102.08	103.43	DC	5.04
43044547	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P7-1: LN 208-259	tower	169.0	100.21	101.2	DC	3.69
43043885	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P4-2: 23T44	breaker	301.0	108.39	117.2	DC	26.52

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044041	314347	3WAKEFLD	115.0	DVP	313878	3BELL AVE 1	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	122.79	159.57	DC	40.8
43044009	314531	3MYRTLE	115.0	DVP	313803	3OAKRI44	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	135.3	172.09	DC	40.8
43044025	314542	3WINDSOR	115.0	DVP	936660	AD2-085 TAP	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	128.02	164.8	DC	40.8
43043999	936660	AD2-085 TAP	115.0	DVP	314531	3MYRTLE	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	145.49	182.28	DC	40.8
43043730	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P4-4: SUFFOLSC142	breaker	136.0	245.74	295.74	DC	68.0
43043731	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P4-2: L1T44	breaker	136.0	245.74	295.74	DC	68.0
43043732	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P4-2: 23T44	breaker	136.0	245.74	295.74	DC	68.0
43043992	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 15-E	single	110.92	129.82	166.61	DC	40.8
43043993	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 44-B	single	110.92	122.79	159.57	DC	40.8
46039303	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	314347 3WAKEFLD 115 941600 AE2-157 TAP 115 1	single	110.92	129.82	166.61	DC	40.8
43043846	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P4-2: 562T563	breaker	169.0	145.18	146.1	DC	3.44
43043847	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P4-6: T672	breaker	169.0	138.8	139.73	DC	3.47
43044225	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P1-2: LN 259	single	138.18	121.18	122.77	DC	2.2
43044226	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P1-2: LN 563	single	138.18	117.79	119.29	DC	2.07
43044540	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P7-1: LN 208-259	tower	169.0	135.69	136.67	DC	3.69
43044033	941600	AE2-157 TAP	115.0	DVP	314347	3WAKEFLD	115.0	DVP	1	DVP_P1-2: LN 15-A	single	110.92	129.82	166.61	DC	40.8

12.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044015	313803	3OAKRI44	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	291.02	352.33	DC	68.0
43044021	313803	3OAKRI44	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	Base Case	operation	110.92	120.08	143.84	DC	26.36
43044047	313878	3BELL AVE 1	115.0	DVP	314542	3WINDSOR	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	228.45	289.76	DC	68.0
43044053	313878	3BELL AVE 1	115.0	DVP	314542	3WINDSOR	115.0	DVP	1	Base Case	operation	110.92	79.35	103.12	DC	26.36
43044079	314292	3DISPUTN	115.0	DVP	939190	AE1-149 TAP	115.0	DVP	1	DVP_P1-2: LN 44-A	operation	110.92	193.2	254.51	DC	68.0
43044084	314292	3DISPUTN	115.0	DVP	939190	AE1-149 TAP	115.0	DVP	1	Base Case	operation	110.92	89.64	127.18	DC	41.64
46039367	314292	3DISPUTN	115.0	DVP	939190	AE1-149 TAP	115.0	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	operation	110.92	193.2	254.51	DC	68.0
43044272	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P1-2: LN 259	operation	138.18	121.81	123.01	DC	3.67
43044364	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	246.28	104.92	111.48	DC	16.14
43044039	314347	3WAKEFLD	115.0	DVP	313878	3BELL AVE 1	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	228.45	289.76	DC	68.0
43044045	314347	3WAKEFLD	115.0	DVP	313878	3BELL AVE 1	115.0	DVP	1	Base Case	operation	110.92	79.35	103.12	DC	26.36
43044156	314350	3WVLY DP	115.0	DVP	932580	AC2-078 TAP	115.0	DVP	1	DVP_P1-2: LN 44-A	operation	110.92	142.72	204.02	DC	68.0
46039494	314350	3WVLY DP	115.0	DVP	932580	AC2-078 TAP	115.0	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	operation	110.92	142.72	204.02	DC	68.0
43044140	314351	3WAVERLY	115.0	DVP	314350	3WVLY DP	115.0	DVP	1	DVP_P1-2: LN 44-A	operation	110.92	151.64	212.95	DC	68.0
46039468	314351	3WAVERLY	115.0	DVP	314350	3WVLY DP	115.0	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	operation	110.92	151.64	212.95	DC	68.0
43044007	314531	3MYRTLE	115.0	DVP	313803	3OAKRI44	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	291.11	352.42	DC	68.0
43044013	314531	3MYRTLE	115.0	DVP	313803	3OAKRI44	115.0	DVP	1	Base Case	operation	110.92	120.08	143.84	DC	26.36
43044023	314542	3WINDSOR	115.0	DVP	936660	AD2-085 TAP	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	255.32	316.62	DC	68.0
43044029	314542	3WINDSOR	115.0	DVP	936660	AD2-085 TAP	115.0	DVP	1	Base Case	operation	110.92	96.55	120.32	DC	26.36
43044070	932580	AC2-078 TAP	115.0	DVP	314292	3DISPUTN	115.0	DVP	1	DVP_P1-2: LN 44-A	operation	110.92	196.81	258.11	DC	68.0
43044075	932580	AC2-078 TAP	115.0	DVP	314292	3DISPUTN	115.0	DVP	1	Base Case	operation	110.92	93.24	130.79	DC	41.64

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
46039356	932580	AC2-078 TAP	115.0	DVP	314292	3DISPUTN	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 115 1	operation	110.92	196.81	258.11	DC	68.0
43043997	936660	AD2-085 TAP	115.0	DVP	314531	3MYRTLE	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	301.3	362.6	DC	68.0
43044003	936660	AD2-085 TAP	115.0	DVP	314531	3MYRTLE	115.0	DVP	1	Base Case	operation	110.92	130.35	154.12	DC	26.36
43043986	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 15-E	operation	110.92	235.49	296.79	DC	68.0
43043990	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	Base Case	operation	110.92	174.14	211.68	DC	41.64
46039298	939190	AE1-149 TAP	115.0	DVP	314329	3POE	115.0	DVP	1	3143473WAKEFLD 115 941600 AE2-157 TAP 115 1	operation	110.92	235.49	296.79	DC	68.0
43044222	940430	AE2-027 TAP	115.0	DVP	314298	3HARROWG	115.0	DVP	1	DVP_P1-2: LN 259	operation	138.18	165.24	166.44	DC	3.67
43044031	941600	AE2-157 TAP	115.0	DVP	314347	3WAKEFLD	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	235.49	296.79	DC	68.0
43044037	941600	AE2-157 TAP	115.0	DVP	314347	3WAKEFLD	115.0	DVP	1	Base Case	operation	110.92	86.38	110.15	DC	26.36
43044098	944060	AF1-074 TAP	115.0	DVP	314351	3WAVERLY	115.0	DVP	1	DVP_P1-2: LN 44-A	operation	110.92	155.97	217.27	DC	68.0
43044104	944060	AF1-074 TAP	115.0	DVP	314351	3WAVERLY	115.0	DVP	1	Base Case	operation	110.92	64.98	102.52	DC	41.64
43044151	944060	AF1-074 TAP	115.0	DVP	941600	AE2-157 TAP	115.0	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	145.33	206.64	DC	68.0
46039422	944060	AF1-074 TAP	115.0	DVP	314351	3WAVERLY	115.0	DVP	1	3145313MYRTLE 115 936660 AD2-085 TAP 115 1	operation	110.92	155.97	217.27	DC	68.0

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
46039283,43044017, 43044022	1	3OAKRI44 115.0 kV - 3SUFFOLK 115.0 kV Ckt 1	DVP dom-054 : Rebuild 2.59 miles of 115 kV Line 44 from Oak Ridge to Suffolk with 636 ACSR. Project Type : FAC Cost : $3,367,000 Time Estimate : 30-36 Months	$3,367,000
43044152	9	AF1-074 TAP 115.0 kV - AE2-157 TAP 115.0 kV Ckt 1	DVP dom-195 : Reconductor 3.6 miles of 115 kV Line 15 from AF1-074 Tap to AE2-157 Tap with 636 ACSR Project Type : FAC Cost : $2,160,000 Time Estimate : 30-36 Months	$2,160,000
43043680,43043890, 43044546,43043891, 43044547	10	3LOCKS 115.0 kV - AE2-027 TAP 115.0 kV Ckt 1	DVP dom-098 : Rebuild 4.4 miles of 115 kV Line 100 from Locks to AE2-027 Tap with 768 ACSS. Project Type : FAC Cost : $5,720,000 Time Estimate : 30-36 Months	$5,720,000
43044076,46039363	5	AC2-078 TAP 115.0 kV - 3DISPUTN 115.0 kV Ckt 1	DVP dom-185 : Reconductor 0.6 miles of 115 kV Line 15 from AC2-078 Tap to Disputanta with 636 ACSR. Replace Line switch at Disputanta. Project Type : FAC Cost : $560,000 Time Estimate : 30-36 Months	$560,000
46039427,43044101	8	AF1-074 TAP 115.0 kV - 3WAVERLY 115.0 kV Ckt 1	DVP dom-194 : Reconductor 2.0 miles of 115 kV Line 15 from AF1-074 Tap to Waverly with 636 ACSR Project Type : FAC Cost : $1,200,000 Time Estimate : 30-36 Months	$1,200,000
46039303,43043996, 43043992,43043993, 43043730,43043731, 43043732	7	AE1-149 TAP 115.0 kV - 3POE 115.0 kV Ckt 1	DVP n6154 : Rebuild 6.6 miles of 115 kV Line 15 from AE1-149 Tap to Poe with 636 ACSR. Project Type : FAC Cost : $8,580,000 Time Estimate : 30-36 Months	$8,580,000

ID	Index	Facility	Upgrade Description	Cost
43044049	12	3BELL AVE 1 115.0 kV - 3WINDSOR 115.0 kV Ckt 1	DVP dom-055 : Rebuild 9.39 miles of 115 kV Line 44 from Bell Ave to Windsor DP with 636 ACSR. Project Type : FAC Cost : $12,207,000 Time Estimate : 30-36 Months	$12,207,000
43044041	13	3WAKEFLD 115.0 kV - 3BELL AVE 1 115.0 kV Ckt 1	DVP dom-109 : Rebuild 5.92 miles of 115 kV Line 15 from Wakefield to Bell Ave with 636 ACSR. Project Type : FAC Cost : $7,696,000 Time Estimate : 30-36 Months	$7,696,000
43044025	14	3WINDSOR 115.0 kV - AD2-085 TAP 115.0 kV Ckt 1	DVP dom-172 : Reconductor 0.2 miles of 115 kV Line 44 from Windsor to AD2-085 Tap with 636 ACSR Project Type : FAC Cost : $120,000 Time Estimate : 30-36 Months	$120,000
43044014,46039271, 43044009	4	3MYRTLE 115.0 kV - 3OAKRI44 115.0 kV Ckt 1	DVP dom-053 : Rebuild 5.24 miles of 115 kV Line 44 from Myrtle to Oak Ridge with 636 ACSR. Project Type : FAC Cost : $6,812,000 Time Estimate : 30-36 Months	$6,812,000
43043886,43043885, 43044566,43044567	11	3POE 115.0 kV - 3PRGEORG 115.0 kV Ckt 1	DVP dom-043 : Rebuild 3.45 miles of 115 kV Line 121 from Poe to Prince George with 768 ACSS. Project Type : FAC Cost : $4,485,000 Time Estimate : 30-36 Months	$4,485,000
43044226,43044225, 43043846,43043847, 43044540	15	AE2-027 TAP 115.0 kV - 3HARROWG 115.0 kV Ckt 1	DVP dom-097 : Rebuild 0.90 miles of 115 kV Line 100 from AE2-027 Tap to Harrowgate with 768 ACSS. Project Type : FAC Cost : $1,170,000 Time Estimate : 30-36 Months	$1,170,000
43044004,43043999, 46039261	6	AD2-085 TAP 115.0 kV - 3MYRTLE 115.0 kV Ckt 1	DVP dom-187 : Rebuild 5.7 miles of 115 kV Line 44 from AD2-085 Tap to Myrtle with 636 ACSR. Project Type : FAC Cost : $7,410,000 Time Estimate : 30-36 Months	$7,410,000

ID	Index	Facility	Upgrade Description	Cost
43044033	16	AE2-157 TAP 115.0 kV - 3WAKEFLD 115.0 kV Ckt 1	DVP dom-108 : Rebuild 2.85 miles of 115 kV Line 15 from AE2-157 Tap to Wakefield with 636 ACSR. Project Type : FAC Cost : $3,705,000 Time Estimate : 30-36 Months	$3,705,000
43044085,46039373	2	3DISPUTN 115.0 kV - AE1-149 TAP 115.0 kV Ckt 1	DVP dom-161 : Reconductor 3.4 miles of 115 kV Line 15 from Disputanta to AE1-149 Tap with 636 ACSR Project Type : FAC Cost : $2,040,000 Time Estimate : 30-36 Months	$2,040,000
46039473,43044143	3	3WAVERLY 115.0 kV - 3WVLY DP 115.0 kV Ckt 1	DVP dom-167 : Rebuild 2.5 miles of 115 kV Line 15 from Waverly to Waverly DP with 636 ACSR. Project Type : FAC Cost : $3,250,000 Time Estimate : 30-36 Months	$3,250,000
			TOTAL COST	**$70,482,000**

12.6 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

12.6.1 Contingency Descriptions

Contingency Name	Contingency Definition
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 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV 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 15-E	CONTINGENCY 'DVP_P1-2: LN 15-E' OPEN BRANCH FROM BUS 313878 TO BUS 314347 CKT 1 /* 3BELL AVE 1 115.00 - 3WAKEFLD 115.00 OPEN BRANCH FROM BUS 314347 TO BUS 941600 CKT 1 /* 3WAKEFLD 115.00 - AE2-157 TAP 115.00 OPEN BUS 314347 /* ISLAND: 3WAKEFLD 115.00 END
DVP_P1-2: LN 15-B	CONTINGENCY 'DVP_P1-2: LN 15-B' OPEN BRANCH FROM BUS 314292 TO BUS 939190 CKT 1 /* 3DISPUTN 115.00 - AE1-149 TAP 115.00 OPEN BRANCH FROM BUS 314292 TO BUS 932580 CKT 1 /* 3DISPUTN 115.00 - AC2-078 TAP 115.00 OPEN BUS 314292 /* ISLAND: 3DISPUTN 115.00 END
DVP_P2-2: BASIN B7	CONTINGENCY 'DVP_P2-2: BASIN B7' /* BASIN 230 KV OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314276 TO BUS 314339 CKT 1 /* 6BASIN 230.00 - 6SPRUNCE 230.00 OPEN BRANCH FROM BUS 314274 TO BUS 314276 CKT 2 /* 3BASIN 115.00 - 6BASIN 230.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 2002T2003	CONTINGENCY 'DVP_P4-2: 2002T2003' /* POE 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 END
314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	CONTINGENCY '314531 3MYRTLE 115 936660 AD2-085 TAP 115 1' OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 END
DVP_P1-2: LN 15-A	CONTINGENCY 'DVP_P1-2: LN 15-A' OPEN BRANCH FROM BUS 939190 TO BUS 314329 CKT 1 /* AE1-149 TAP 115.00 - 3POE 115.00 END
DVP_P4-2: 23T44	CONTINGENCY 'DVP_P4-2: 23T44' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - AD2-085 TAP 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P4-2: L1T44	CONTINGENCY 'DVP_P4-2: L1T44' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - AD2-085 TAP 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 END

Contingency Name	Contingency Definition
DVP_P7-1: LN 23-44-B	CONTINGENCY 'DVP_P7-1: LN 23-44-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 313878 TO BUS 314542 CKT 1 /* 3BELL AVE 1 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314542 /* ISLAND: 3WINDSOR 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
314292 3DISPUTN 115 932580 AC2-078 TAP 115 1	CONTINGENCY '314292 3DISPUTN 115 932580 AC2-078 TAP 115 1' OPEN BRANCH FROM BUS 314292 TO BUS 932580 CKT 1 END
DVP_P4-4: SUFFOL SC142	CONTINGENCY 'DVP_P4-4: SUFFOL SC142' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - AD2-085 TAP 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
Base Case	

Contingency Name	Contingency Definition
DVP_P1-2: LN 44-A	CONTINGENCY 'DVP_P1-2: LN 44-A' OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - AD2-085 TAP 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P7-1: LN 208-259	CONTINGENCY 'DVP_P7-1: LN 208-259' /* . OPEN BRANCH FROM BUS 314286 TO BUS 314309 CKT 1 /* 6CHESTF A 230.00 - 6IRON208 230.00 OPEN BRANCH FROM BUS 314309 TO BUS 314338 CKT 1 /* 6IRON208 230.00 - 6SOUWEST 230.00 OPEN BUS 314309 /* ISLAND: 6IRON208 230.00 OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P1-2: LN 44-B	CONTINGENCY 'DVP_P1-2: LN 44-B' OPEN BRANCH FROM BUS 313878 TO BUS 314542 CKT 1 /* 3BELL AVE 1 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 936660 TO BUS 314542 CKT 1 /* AD2-085 TAP 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 314542 /* ISLAND: 3WINDSOR 115.00 END
DVP_P7-1: LN 2002-2003	CONTINGENCY 'DVP_P7-1: LN 2002-2003' /* . OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 END
DVP_P4-6: T672	CONTINGENCY 'DVP_P4-6: T672' /* BASIN 230 KV OPEN BUS 314276 /* 6BASIN 230.00 KV END

Contingency Name	Contingency Definition
DVP_P1-2: LN 23-B	CONTINGENCY 'DVP_P1-2: LN 23-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 END
314347 3WAKEFLD 115 941600 AE2-157 TAP 115 1	CONTINGENCY '314347 3WAKEFLD 115 941600 AE2-157 TAP 115 1' OPEN BRANCH FROM BUS 314347 TO BUS 941600 CKT 1 END

12.6.2 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
43044017	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	single	110.92	135.21	172.0	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
936661	AD2-085 C	19.3800
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.3 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
46039373	314292	3DISPUTN	DVP	939190	AE1-149 TAP	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	single	110.92	73.46	110.24	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
936661	AD2-085 C	19.3800
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.4 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
46039473	314351	3WAVERLY	DVP	314350	3WVLY DP	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	single	110.92	65.43	102.22	DC	40.8

Bus #	Bus	MW Impact
936661	AD2-085 C	19.3800
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.5 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044009	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	single	110.92	135.3	172.09	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
936661	AD2-085 C	19.3800
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.6 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
46039363	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	single	110.92	77.06	113.85	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
936661	AD2-085 C	19.3800
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.7 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043999	936660	AD2-085 TAP	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	single	110.92	145.49	182.28	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
936661	AD2-085 C	19.3800
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.8 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043732	939190	AE1-149 TAP	DVP	314329	3POE	DVP	1	DVP_P4-2: 23T44	breaker	136.0	245.74	295.74	DC	68.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
932582	AC2-078 E O1	37.2000
936661	AD2-085 C	19.3800
936662	AD2-085 E	31.6200
939191	AE1-149 C O1	60.0000
939192	AE1-149 E O1	40.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
941602	AE2-157 E	40.0000
942341	AE2-247 C	8.4000
942342	AE2-247 E	11.6000
943461	AF1-017 C	7.6000
943462	AF1-017 E	12.4000
944061	AF1-074 C O1	40.8000
944062	AF1-074 E O1	27.2000

12.6.9 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
46039427	944060	AF1-074 TAP	DVP	314351	3WAVERLY	DVP	1	314531 3MYRTLE 115 936660 AD2-085 TAP 115 1	single	110.92	69.76	106.55	DC	40.8

Bus #	Bus	MW Impact
936661	AD2-085 C	19.3800
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.10 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044152	944060	AF1-074 TAP	DVP	941600	AE2-157 TAP	DVP	1	DVP_P1-2: LN 15-A	single	110.92	75.73	112.51	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
944061	AF1-074 C O1	40.8000

12.6.11 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043890	314314	3LOCKS	DVP	940430	AE2-027 TAP	DVP	1	DVP_P4-2: 562T563	breaker	169.0	109.75	110.67	DC	3.44

Bus #	Bus	MW Impact
314314	3LOCKS	0.3828
925051	AB2-160 C O1	8.3366
925052	AB2-160 E O1	13.6018
932581	AC2-078 C O1	1.1578
932582	AC2-078 E O1	1.8890
938631	AE1-085 C O1	2.4115
938632	AE1-085 E O1	1.2057
939191	AE1-149 C O1	3.2385
939192	AE1-149 E O1	2.1590
940071	**AE1-249 C (Withdrawn : 01/10/2020)**	**10.9966**
940072	**AE1-249 E (Withdrawn : 01/10/2020)**	**8.1995**
940651	AE2-052	0.5721
942001	AE2-212 C	0.5983
942002	AE2-212 E	0.3989
942371	AE2-250 C O1	14.8084
942372	AE2-250 E O1	7.8156
944061	AF1-074 C O1	0.9297
944062	AF1-074 E O1	0.6198
LGEE	LGEE	0.1506
CPLE	CPLE	0.8917
WEC	WEC	0.0794
CBM-W2	CBM-W2	3.2924
NY	NY	0.1272
CBM-W1	CBM-W1	2.9398
TVA	TVA	0.7028
O-066	O-066	1.7741
CBM-S2	CBM-S2	6.0285
CBM-S1	CBM-S1	3.9022
G-007	G-007	0.2777
MADISON	MADISON	0.2056
MEC	MEC	0.4894

12.6.12 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043885	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P4-2: 23T44	breaker	301.0	108.39	117.2	DC	26.52

Bus #	Bus	MW Impact
925061	AB2-161 C O1	7.4098
925062	AB2-161 E O1	12.0897
932581	AC2-078 C O1	8.8918
932582	AC2-078 E O1	14.5076
932591	AC2-079 C O1	12.5967
932592	AC2-079 E O1	20.5525
934571	AD1-082 C	16.8866
934572	AD1-082 E	9.6328
935211	AD1-156 C	1.2488
935212	AD1-156 E	0.8326
936661	AD2-085 C	7.5580
936662	AD2-085 E	12.3315
938631	AE1-085 C O1	19.4995
938632	AE1-085 E O1	9.7498
939191	AE1-149 C O1	23.3994
939192	AE1-149 E O1	15.5996
940061	AE2-000BC O1	35.0991
940062	AE2-000BE O1	23.3994
940651	AE2-052	7.7998
941601	AE2-157 C	23.3994
941602	AE2-157 E	15.5996
942341	AE2-247 C	3.2759
942342	AE2-247 E	4.5239
943461	AF1-017 C	2.9639
943462	AF1-017 E	4.8359
944061	AF1-074 C O1	15.9116
944062	AF1-074 E O1	10.6077
LGEE	LGEE	0.0685
CPLE	CPLE	0.3155
WEC	WEC	0.0365
CBM-W2	CBM-W2	1.3432
NY	NY	0.0177

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	1.3886
TVA	TVA	0.2744
O-066	O-066	0.2822
CBM-S2	CBM-S2	2.1559
CBM-S1	CBM-S1	1.5506
G-007	G-007	0.0447
MADISON	MADISON	0.0665
MEC	MEC	0.2129

12.6.13 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044049	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	single	110.92	122.79	159.57	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
944061	AF1-074 C O1	40.8000

12.6.14 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044041	314347	3WAKEFLD	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	single	110.92	122.79	159.57	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
944061	AF1-074 C O1	40.8000

12.6.15 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044025	314542	3WINDSOR	DVP	936660	AD2-085 TAP	DVP	1	DVP_P1-2: LN 15-A	single	110.92	128.02	164.8	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
942341	AE2-247 C	8.4000
943461	AF1-017 C	7.6000
944061	AF1-074 C O1	40.8000

12.6.16 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043846	940430	AE2-027 TAP	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	145.18	146.1	DC	3.44

Bus #	Bus	MW Impact
314314	3LOCKS	0.3828
925051	AB2-160 C O1	8.3366
925052	AB2-160 E O1	13.6018
932581	AC2-078 C O1	1.1578
932582	AC2-078 E O1	1.8890
938631	AE1-085 C O1	2.4115
938632	AE1-085 E O1	1.2057
939191	AE1-149 C O1	3.2385
939192	AE1-149 E O1	2.1590
940071	**AE1-249 C (Withdrawn : 01/10/2020)**	**10.9966**
940072	**AE1-249 E (Withdrawn : 01/10/2020)**	**8.1995**
940431	AE2-027 C O1	35.9230
940432	AE2-027 E O1	23.9486
940651	AE2-052	0.5721
942001	AE2-212 C	0.5983
942002	AE2-212 E	0.3989
942371	AE2-250 C O1	14.8084
942372	AE2-250 E O1	7.8156
944061	AF1-074 C O1	0.9297
944062	AF1-074 E O1	0.6198
LGEE	LGEE	0.1506
CPLE	CPLE	0.8917
WEC	WEC	0.0794
CBM-W2	CBM-W2	3.2924
NY	NY	0.1272
CBM-W1	CBM-W1	2.9398
TVA	TVA	0.7028
O-066	O-066	1.7741
CBM-S2	CBM-S2	6.0285
CBM-S1	CBM-S1	3.9022
G-007	G-007	0.2777
MADISON	MADISON	0.2056

Bus #	Bus	MW Impact
MEC	MEC	0.4894

12.6.17 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044033	941600	AE2-157 TAP	DVP	314347	3WAKEFLD	DVP	1	DVP_P1-2: LN 15-A	single	110.92	129.82	166.61	DC	40.8

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8000
939191	AE1-149 C O1	60.0000
940651	AE2-052	20.0000
941601	AE2-157 C	60.0000
944061	AF1-074 C O1	40.8000

Short Circuit

12.7 Short Circuit

The following Breakers are overdutied:

None

13 Network Impacts – Secondary Point of Interconnection

The Queue Project AF1-074 was evaluated as a 68.0 MW (Capacity 40.8 MW) injection tapping the Bakers Pond to Bell Ave 115 kV line in the Dominion area. Project AF1-074 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-074 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

13.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43044213	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRSP	115.0	DVP	1	Base Case	single	110.92	84.45	107.78	DC	25.87

13.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043680	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P2-2: BASIN B7	bus	169.0	99.98	100.96	DC	3.67
43043886	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P4-2: 2002T2003	breaker	301.0	97.32	108.93	DC	34.95
43044566	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P7-1: LN 2002-2003	tower	301.0	97.32	108.93	DC	34.95
43044567	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P7-1: LN 23-44-B	tower	301.0	97.92	106.73	DC	26.52
53275586	944060	AF1-074 TAP	115.0	DVP	313879	3BELL AVE 2	115.0	DVP	1	DVP_P4-2: H8T544	breaker	136.0	86.96	105.14	DC	24.72
53275587	944060	AF1-074 TAP	115.0	DVP	313879	3BELL AVE 2	115.0	DVP	1	DVP_P4-2: H7T544	breaker	136.0	86.96	105.14	DC	24.73

13.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275348	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P4-2: 10652	breaker	136.0	252.06	302.06	DC	68.0
53275761	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P1-2: LN 106-B	single	110.92	137.22	174.0	DC	40.8
53275762	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P1-2: LN 544-B	single	110.92	121.44	134.85	DC	14.88
53275763	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P1-2: LN 544-A	single	110.92	121.44	134.85	DC	14.88
53275765	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	Base Case	single	110.92	112.77	126.22	DC	14.93
53276279	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P7-1: LN 15-106-A-B	tower	136.0	252.06	302.06	DC	68.0
53276280	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P7-1: LN 15-106-B-A	tower	136.0	252.06	302.06	DC	68.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53276281	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P7-1: LN 15-106-A-A	tower	136.0	252.06	302.06	DC	68.0
53275689	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	single	110.92	186.8	223.58	DC	40.8
53275690	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	DVP_P1-2: LN 23-B	single	110.92	186.8	223.58	DC	40.8
53275691	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	DVP_P1-2: LN 23-A	single	110.92	168.05	204.83	DC	40.8
53275701	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 23-B	single	110.92	176.79	213.58	DC	40.8
53275702	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	single	110.92	176.79	213.58	DC	40.8
53275703	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 23-A	single	110.92	157.95	194.73	DC	40.8
43043890	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P4-2: 562T563	breaker	169.0	109.75	110.7	DC	3.53
43043891	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P4-6: T672	breaker	169.0	104.3	105.25	DC	3.56
43044546	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P7-1: LN 23-44-B	tower	169.0	102.08	103.43	DC	5.04
43044547	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P7-1: LN 208-259	tower	169.0	100.21	101.22	DC	3.79
43043885	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P4-2: 23T44	breaker	301.0	108.39	117.2	DC	26.52
53275358	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P4-2: 10652	breaker	136.0	243.68	293.68	DC	68.0
53275778	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P1-2: LN 106-B	single	110.92	126.94	163.72	DC	40.8
53275779	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P1-2: LN 544-B	single	110.92	111.16	124.58	DC	14.88
53275780	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P1-2: LN 544-A	single	110.92	111.16	124.58	DC	14.88
53275782	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	Base Case	single	110.92	102.49	115.95	DC	14.93
53276292	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P7-1: LN 15-106-B-A	tower	136.0	243.68	293.68	DC	68.0
53276293	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P7-1: LN 15-106-A-A	tower	136.0	243.68	293.68	DC	68.0
53276294	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P7-1: LN 15-106-A-B	tower	136.0	243.68	293.68	DC	68.0
53275338	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P4-2: 10652	breaker	136.0	288.38	338.38	DC	68.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
5327574 4	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 106-B	single	110.92	134.24	171.02	DC	40.8
5327574 5	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 544-B	single	110.92	110.9	124.32	DC	14.88
5327574 6	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 544-A	single	110.92	110.9	124.32	DC	14.88
5327574 8	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	Base Case	single	110.92	102.29	115.75	DC	14.93
5327627 0	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P7-1: LN 15-106-A-B	tower	136.0	288.38	338.38	DC	68.0
5327627 1	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P7-1: LN 15-106-B-A	tower	136.0	288.38	338.38	DC	68.0
5327627 2	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P7-1: LN 15-106-A-A	tower	136.0	288.38	338.38	DC	68.0
5327571 3	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	DVP_P1-2: LN 106-B	single	110.92	156.06	192.84	DC	40.8
5327571 4	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	DVP_P1-2: LN 544-B	single	110.92	132.72	146.13	DC	14.88
5327571 5	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	DVP_P1-2: LN 544-A	single	110.92	132.72	146.13	DC	14.88
5327571 7	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	Base Case	single	110.92	124.11	137.56	DC	14.93
5327567 7	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	314532 3OAKRI23 115 932590 AC2-079 TAP 115 1	single	110.92	201.05	237.83	DC	40.8
5327567 8	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	DVP_P1-2: LN 23-B	single	110.92	201.05	237.83	DC	40.8
5327567 9	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	DVP_P1-2: LN 23-A	single	110.92	182.2	218.99	DC	40.8
4304384 6	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P4-2: 562T563	breaker	169.0	145.12	146.06	DC	3.53
4304384 7	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P4-6: T672	breaker	169.0	138.8	139.75	DC	3.56
4304422 5	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P1-2: LN 259	single	138.18	121.18	122.82	DC	2.26
4304422 6	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P1-2: LN 563	single	138.18	117.79	119.33	DC	2.12
4304454 0	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P7-1: LN 208-259	tower	169.0	135.69	136.7	DC	3.79
5327572 2	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	DVP_P1-2: LN 23-B	single	110.92	156.06	192.84	DC	40.8
5327572 3	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	314532 3OAKRI23 115 932590 AC2-079 TAP 115 1	single	110.92	156.06	192.84	DC	40.8

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275725	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	DVP_P1-2: LN 23-A	single	110.92	137.22	174.0	DC	40.8

13.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275756	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	241.53	302.83	DC	68.0
53275760	313879	3BELL AVE 2	115.0	DVP	314528	3IVOR106	115.0	DVP	1	Base Case	operation	110.92	180.73	203.16	DC	24.88
43044231	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	Base Case	operation	110.92	144.28	183.16	DC	43.12
53275685	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	operation	110.92	361.16	422.47	DC	68.0
53275686	314273	3BAKRS P	115.0	DVP	314280	3NEWBOHE	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	361.16	422.47	DC	68.0
43044254	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	Base Case	operation	110.92	134.28	173.15	DC	43.12
53275697	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	operation	110.92	351.15	412.46	DC	68.0
53275698	314280	3NEWBOHE	115.0	DVP	314329	3POE	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	351.15	412.46	DC	68.0
43044272	314314	3LOCKS	115.0	DVP	940430	AE2-027 TAP	115.0	DVP	1	DVP_P1-2: LN 259	operation	138.18	121.81	123.04	DC	3.77
43044364	314329	3POE	115.0	DVP	314291	3PRGEORG	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	246.28	104.92	114.9	DC	24.57
53275773	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	231.25	292.55	DC	68.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275777	314528	3IVOR106	115.0	DVP	932590	AC2-079 TAP	115.0	DVP	1	Base Case	operation	110.92	170.46	192.89	DC	24.88
53275739	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	286.06	347.37	DC	68.0
53275743	314532	3OAKRI23	115.0	DVP	314536	3SUFFOLK	115.0	DVP	1	Base Case	operation	110.92	205.52	227.95	DC	24.88
53275708	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	307.88	369.18	DC	68.0
53275712	932590	AC2-079 TAP	115.0	DVP	314532	3OAKRI23	115.0	DVP	1	Base Case	operation	110.92	227.34	249.77	DC	24.88
43044209	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	Base Case	operation	110.92	158.44	197.31	DC	43.12
53275673	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	375.41	436.71	DC	68.0
53275674	938630	AE1-085 TAP	115.0	DVP	314273	3BAKRS P	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	operation	110.92	375.41	436.71	DC	68.0
43044222	940430	AE2-027 TAP	115.0	DVP	314298	3HARROW G	115.0	DVP	1	DVP_P1-2: LN 259	operation	138.18	165.24	166.47	DC	3.77
43044036	941600	AE2-157 TAP	115.0	DVP	314347	3WAKEFLD	115.0	DVP	1	DVP_P1-2: LN 106-A	operation	110.92	101.58	103.61	DC	4.98
53275718	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	3145323OAKRI23 115 932590 AC2-079 TAP 1151	operation	110.92	307.88	369.18	DC	68.0
53275719	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	307.88	369.18	DC	68.0
53275726	944060	AF1-074 TAP	115.0	DVP	938630	AE1-085 TAP	115.0	DVP	1	Base Case	operation	110.92	120.29	159.17	DC	43.12
53276040	944060	AF1-074 TAP	115.0	DVP	313879	3BELL AVE 2	115.0	DVP	1	Base Case	operation	110.92	95.93	118.36	DC	24.88
61369522	944060	AF1-074 TAP	115.0	DVP	313879	3BELL AVE 2	115.0	DVP	1	DVP_P1-2: LN 544-B	operation	110.92	105.02	127.38	DC	24.8

13.5 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

13.5.1 Contingency Descriptions

Contingency Name	Contingency Definition
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 END
314532 3OAKRI23 115 932590 AC2-079 TAP 115 1	CONTINGENCY '314532 3OAKRI23 115 932590 AC2-079 TAP 115 1' OPEN BRANCH FROM BUS 314532 TO BUS 932590 CKT 1 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV 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

Contingency Name	Contingency Definition
DVP_P7-1: LN 15-106-B-A	CONTINGENCY 'DVP_P7-1: LN 15-106-B-A' OPEN BRANCH FROM BUS 313878 TO BUS 314347 CKT 1 /* 3BELL AVE 1 115.00 - 3WAKEFLD 115.00 OPEN BRANCH FROM BUS 932580 TO BUS 314350 CKT 1 /* AC2-078 TAP 115.00 - 3WVLY DP 115.00 OPEN BRANCH FROM BUS 941600 TO BUS 314351 CKT 1 /* AE2-157 TAP 115.00 - 3WAVERLY 115.00 OPEN BRANCH FROM BUS 314350 TO BUS 314351 CKT 1 /* 3WVLY DP 115.00 - 3WAVERLY 115.00 OPEN BUS 314347 /* ISLAND: 3WAKEFLD 115.00 OPEN BUS 314350 /* ISLAND: 3WVLY DP 115.00 OPEN BUS 314351 /* ISLAND: 3WAVERLY 115.00 OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 END
DVP_P1-2: LN 544-A	CONTINGENCY 'DVP_P1-2: LN 544-A' OPEN BRANCH FROM BUS 314902 TO BUS 939410 CKT 1 /* 8CARSON 500.00 - AE1-173 TAP 500.00 END
DVP_P1-2: LN 544-B	CONTINGENCY 'DVP_P1-2: LN 544-B' OPEN BRANCH FROM BUS 939410 TO BUS 314928 CKT 1 /* AE1-173 TAP 500.00 - 8SUFFOLK 500.00 END
DVP_P4-2: 2002T2003	CONTINGENCY 'DVP_P4-2: 2002T2003' /* POE 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 END
DVP_P4-2: H8T544	CONTINGENCY 'DVP_P4-2: H8T544' /* SUFFOLK 500 KV OPEN BRANCH FROM BUS 939410 TO BUS 314928 CKT 1 /* AE1-173 TAP 500.00 - 8SUFFOLK 500.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 10652	CONTINGENCY 'DVP_P4-2: 10652' /* POE 115 KV OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P1-2: LN 106-B	CONTINGENCY 'DVP_P1-2: LN 106-B' OPEN BRANCH FROM BUS 944060 TO BUS 938630 CKT 1 /* AF1-074 TAP 115.00 - AE1-085 TAP 115.00 END
DVP_P1-2: LN 106-A	CONTINGENCY 'DVP_P1-2: LN 106-A' OPEN BRANCH FROM BUS 313879 TO BUS 944060 CKT 1 /* 3BELL AVE 2 115.00 - AF1-074 TAP 115.00 END
DVP_P4-2: 23T44	CONTINGENCY 'DVP_P4-2: 23T44' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - AD2-085 TAP 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END

Contingency Name	Contingency Definition
DVP_P7-1: LN 23-44-B	CONTINGENCY 'DVP_P7-1: LN 23-44-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 313878 TO BUS 314542 CKT 1 /* 3BELL AVE 1 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 936660 CKT 1 /* 3MYRTLE 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314542 /* ISLAND: 3WINDSOR 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P4-2: H7T544	CONTINGENCY 'DVP_P4-2: H7T544' /* SUFFOLK 500 KV OPEN BRANCH FROM BUS 939410 TO BUS 314928 CKT 1 /* AE1-173 TAP 500.00 - 8SUFFOLK 500.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 1 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
DVP_P7-1: LN 15-106-A-A	CONTINGENCY 'DVP_P7-1: LN 15-106-A-A' OPEN BRANCH FROM BUS 939190 TO BUS 314329 CKT 1 /* AE1-149 TAP 115.00 - 3POE 115.00 OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 END

Contingency Name	Contingency Definition
DVP_P7-1: LN 15-106-A-B	CONTINGENCY 'DVP_P7-1: LN 15-106-A-B' OPEN BRANCH FROM BUS 314292 TO BUS 939190 CKT 1 /* 3DISPUTN 115.00 - AE1-149 TAP 115.00 OPEN BRANCH FROM BUS 314292 TO BUS 932580 CKT 1 /* 3DISPUTN 115.00 - AC2-078 TAP 115.00 OPEN BUS 314292 /* ISLAND: 3DISPUTN 115.00 OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 END
Base Case	
DVP_P7-1: LN 208-259	CONTINGENCY 'DVP_P7-1: LN 208-259' /* . OPEN BRANCH FROM BUS 314286 TO BUS 314309 CKT 1 /* 6CHESTF A 230.00 - 6IRON208 230.00 OPEN BRANCH FROM BUS 314309 TO BUS 314338 CKT 1 /* 6IRON208 230.00 - 6SOUWEST 230.00 OPEN BUS 314309 /* ISLAND: 6IRON208 230.00 OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P7-1: LN 2002-2003	CONTINGENCY 'DVP_P7-1: LN 2002-2003' /* . OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 END
DVP_P4-6: T672	CONTINGENCY 'DVP_P4-6: T672' /* BASIN 230 KV OPEN BUS 314276 /* 6BASIN 230.00 KV END

Contingency Name	Contingency Definition
DVP_P1-2: LN 23-A	CONTINGENCY 'DVP_P1-2: LN 23-A' OPEN BRANCH FROM BUS 313879 TO BUS 314528 CKT 1 /* 3BELL AVE 2 115.00 - 3IVOR106 115.00 OPEN BRANCH FROM BUS 314528 TO BUS 932590 CKT 1 /* 3IVOR106 115.00 - AC2-079 TAP 115.00 OPEN BUS 314528 /* ISLAND: 3IVOR106 115.00 END
DVP_P1-2: LN 23-B	CONTINGENCY 'DVP_P1-2: LN 23-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 END
DVP_P2-2: BASIN B7	CONTINGENCY 'DVP_P2-2: BASIN B7' /* BASIN 230 KV OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314276 TO BUS 314339 CKT 1 /* 6BASIN 230.00 - 6SPRUNCE 230.00 OPEN BRANCH FROM BUS 314274 TO BUS 314276 CKT 2 /* 3BASIN 115.00 - 6BASIN 230.00 END

13.5.2 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
53275678	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	single	110.92	201.05	237.83	DC	40.8

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
932591	AC2-079 C O1	32.3000
934571	AD1-082 C	43.3000
938631	AE1-085 C O1	50.0000
940061	AE2-000BC O1	90.0000
944061	AF1-074 C O2	40.8000

13.5.3 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
43043890	314314	3LOCKS	DVP	940430	AE2-027 TAP	DVP	1	DVP_P4-2: 562T563	breaker	169.0	109.75	110.7	DC	3.53

Bus #	Bus	MW Impact
314314	3LOCKS	0.3828
925051	AB2-160 C O1	8.3366
925052	AB2-160 E O1	13.6018
932581	AC2-078 C O1	1.1578
932582	AC2-078 E O1	1.8890
938631	AE1-085 C O1	2.4115
938632	AE1-085 E O1	1.2057
939191	AE1-149 C O1	3.2385
939192	AE1-149 E O1	2.1590
940071	AE1-249 C	10.9966
940072	AE1-249 E	8.1995
940651	AE2-052	0.5721
942001	AE2-212 C	0.5983
942002	AE2-212 E	0.3989
942371	AE2-250 C O1	14.8084
942372	AE2-250 E O1	7.8156
944061	AF1-074 C O2	0.9534
944062	AF1-074 E O2	0.6356
LGEE	LGEE	0.1506
CPLE	CPLE	0.8917
WEC	WEC	0.0794
CBM-W2	CBM-W2	3.2924
NY	NY	0.1272
CBM-W1	CBM-W1	2.9398
TVA	TVA	0.7028
O-066	O-066	1.7741
CBM-S2	CBM-S2	6.0285
CBM-S1	CBM-S1	3.9022
G-007	G-007	0.2777
MADISON	MADISON	0.2056
MEC	MEC	0.4894

13.5.4 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043885	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P4-2: 23T44	breaker	301.0	108.39	117.2	DC	26.52

Bus #	Bus	MW Impact
925061	AB2-161 C O1	7.4098
925062	AB2-161 E O1	12.0897
932581	AC2-078 C O1	8.8918
932582	AC2-078 E O1	14.5076
932591	AC2-079 C O1	12.5967
932592	AC2-079 E O1	20.5525
934571	AD1-082 C	16.8866
934572	AD1-082 E	9.6328
935211	AD1-156 C	1.2488
935212	AD1-156 E	0.8326
936661	AD2-085 C	7.5580
936662	AD2-085 E	12.3315
938631	AE1-085 C O1	19.4995
938632	AE1-085 E O1	9.7498
939191	AE1-149 C O1	23.3994
939192	AE1-149 E O1	15.5996
940061	AE2-000BC O1	35.0991
940062	AE2-000BE O1	23.3994
940651	AE2-052	7.7998
941601	AE2-157 C	23.3994
941602	AE2-157 E	15.5996
942341	AE2-247 C	3.2759
942342	AE2-247 E	4.5239
943461	AF1-017 C	2.9639
943462	AF1-017 E	4.8359
944061	AF1-074 C O2	15.9116
944062	AF1-074 E O2	10.6077
LGEE	LGEE	0.0685
CPLE	CPLE	0.3155
WEC	WEC	0.0365
CBM-W2	CBM-W2	1.3432
NY	NY	0.0177

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	1.3886
TVA	TVA	0.2744
O-066	O-066	0.2822
CBM-S2	CBM-S2	2.1559
CBM-S1	CBM-S1	1.5506
G-007	G-007	0.0447
MADISON	MADISON	0.0665
MEC	MEC	0.2129

13.5.5 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275587	944060	AF1-074 TAP	DVP	313879	3BELL AVE 2	DVP	1	DVP_P4-2: H7T544	breaker	136.0	86.96	105.14	DC	24.73

Bus #	Bus	MW Impact
938631	AE1-085 C O1	14.0770
938632	AE1-085 E O1	7.0385
939191	AE1-149 C O1	2.5546
939192	AE1-149 E O1	1.7031
940063	AE2-000B BAT	62.8725
940651	AE2-052	0.4513
944061	AF1-074 C O2	14.8353
944062	AF1-074 E O2	9.8902
DUCKCREEK	DUCKCREEK	0.0334
NEWTON	NEWTON	0.0344
FARMERCITY	FARMERCITY	0.0021
G-007A	G-007A	0.0743
VFT	VFT	0.2000
PRAIRIE	PRAIRIE	0.0982
COFFEEN	COFFEEN	0.0169
EDWARDS	EDWARDS	0.0098
CHEOAH	CHEOAH	0.0345
TILTON	TILTON	0.0170
GIBSON	GIBSON	0.0158
CALDERWOOD	CALDERWOOD	0.0338
BLUEG	BLUEG	0.0486
TRIMBLE	TRIMBLE	0.0156
CATAWBA	CATAWBA	0.0392

13.5.6 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53276281	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P7-1: LN 15-106-A-A	tower	136.0	252.06	302.06	DC	68.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
925062	AB2-161 E O1	31.0000
934571	AD1-082 C	43.3000
934572	AD1-082 E	24.7000
938631	AE1-085 C O1	50.0000
938632	AE1-085 E O1	25.0000
940061	AE2-000BC O1	90.0000
940062	AE2-000BE O1	60.0000
944061	AF1-074 C O2	40.8000
944062	AF1-074 E O2	27.2000

13.5.7 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275690	314273	3BAKRSP	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	186.8	223.58	DC	40.8

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
932591	AC2-079 C O1	32.3000
934571	AD1-082 C	43.3000
938631	AE1-085 C O1	50.0000
940061	AE2-000BC O1	90.0000
944061	AF1-074 C O2	40.8000

13.5.8 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275702	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	314532 3OAKRI23 115 932590 AC2-079 TAP 115 1	single	110.92	176.79	213.58	DC	40.8

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
932591	AC2-079 C O1	32.3000
934571	AD1-082 C	43.3000
938631	AE1-085 C O1	50.0000
940061	AE2-000BC O1	90.0000
944061	AF1-074 C O2	40.8000

13.5.9 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53276294	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P7-1: LN 15-106-A-B	tower	136.0	243.68	293.68	DC	68.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
925062	AB2-161 E O1	31.0000
934571	AD1-082 C	43.3000
934572	AD1-082 E	24.7000
938631	AE1-085 C O1	50.0000
938632	AE1-085 E O1	25.0000
940061	AE2-000BC O1	90.0000
940062	AE2-000BE O1	60.0000
944061	AF1-074 C O2	40.8000
944062	AF1-074 E O2	27.2000

13.5.10 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53276272	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P7-1: LN 15-106-A-A	tower	136.0	288.38	338.38	DC	68.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
925062	AB2-161 E O1	31.0000
932591	AC2-079 C O1	32.3000
932592	AC2-079 E O1	52.7000
934571	AD1-082 C	43.3000
934572	AD1-082 E	24.7000
938631	AE1-085 C O1	50.0000
938632	AE1-085 E O1	25.0000
940061	AE2-000BC O1	90.0000
940062	AE2-000BE O1	60.0000
944061	AF1-074 C O2	40.8000
944062	AF1-074 E O2	27.2000

13.5.11 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275713	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	single	110.92	156.06	192.84	DC	40.8

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
932591	AC2-079 C O1	32.3000
934571	AD1-082 C	43.3000
940061	AE2-000BC O1	90.0000
944061	AF1-074 C O2	40.8000

13.5.12 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43043846	940430	AE2-027 TAP	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	145.12	146.06	DC	3.53

Bus #	Bus	MW Impact
314314	3LOCKS	0.3828
925051	AB2-160 C O1	8.3366
925052	AB2-160 E O1	13.6018
932581	AC2-078 C O1	1.1578
932582	AC2-078 E O1	1.8890
938631	AE1-085 C O1	2.4115
938632	AE1-085 E O1	1.2057
939191	AE1-149 C O1	3.2385
939192	AE1-149 E O1	2.1590
940071	AE1-249 C	10.9966
940072	AE1-249 E	8.1995
940431	AE2-027 C O1	35.9230
940432	AE2-027 E O1	23.9486
940651	AE2-052	0.5721
942001	AE2-212 C	0.5983
942002	AE2-212 E	0.3989
942371	AE2-250 C O1	14.8084
942372	AE2-250 E O1	7.8156
944061	AF1-074 C O2	0.9534
944062	AF1-074 E O2	0.6356
LGEE	LGEE	0.1506
CPLE	CPLE	0.8917
WEC	WEC	0.0794
CBM-W2	CBM-W2	3.2924
NY	NY	0.1272
CBM-W1	CBM-W1	2.9398
TVA	TVA	0.7028
O-066	O-066	1.7741
CBM-S2	CBM-S2	6.0285
CBM-S1	CBM-S1	3.9022
G-007	G-007	0.2777

Bus #	Bus	MW Impact
MADISON	MADISON	0.2056
MEC	MEC	0.4894

13.5.13 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
53275723	944060	AF1-074 TAP	DVP	938630	AE1-085 TAP	DVP	1	314532 3OAKRI23 115 932590 AC2-079 TAP 115 1	single	110.92	156.06	192.84	DC	40.8

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0000
932591	AC2-079 C O1	32.3000
934571	AD1-082 C	43.3000
940061	AE2-000BC O1	90.0000
944061	AF1-074 C O2	40.8000

Short Circuit

13.6 Short Circuit

The following Breakers are overdutied:

None

Affected Systems

14 Affected Systems

14.1 Duke Energy Progress

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

Attachment 1

System Configuration