Attachment G

INTERCONNECTION STUDIES

South Fork Solar, LLC

Nicholas County, Kentucky

AH1-570 Phase I Study Report

v1.00 released 2025-10-29 22:08

Headquarters - Millersburg Junction 69 kV
15.6 MW Capacity / 25.0 MW Energy

Introduction

This Phase I System Impact Study Report (PH1) has been prepared in accordance with the PJM Open Access Transmission Tariff, Part VII, Subpart D, sections 307 and 308 for New Service Requests (projects) in Transition Cycle 2. The Project Developer/Eligible Customer (developer) is South Fork Solar, LLC, and the Transmission Provider (TP) is PJM Interconnection, LLC (PJM). The interconnected Transmission Owner (TO) is East Kentucky Power Cooperative, Inc..

Preface

The Phase I System Impact Study is conducted on an aggregate basis within a New Services Request's Cycle, and results are provided in both (i) a single Cycle executive summary format and (ii) an individual project-level basis. The Phase I System Impact Study Results (for both the executive summary and individual reports) will be publicly available on PJM's website. Developers must obtain the results from the website.

In accordance with PJM Manual 14H, section 4.3, PJM takes the following actions during the Phase I System Impact Study:

1. PJM studies each New Service Request on a summer peak, winter peak and light load RTEP base case study. The case year is dependent on the new services cycle under study. PJM will identify the base case year to be used in the study of a specific cycle on its website.
2. PJM will only perform load flow analysis during the Phase I System Impact Study.
3. In Phase I of the Cycle, PJM conducts an Affected System screen to identify any New Service Request with Affected System impacts and provides each Affected System Operator with a list of New Service Request in the Cycle with potential impacts to their respective system.
4. PJM will create both the short circuit and stability base cases to be used in the Phase II System Impact Study.
5. The Phase I System Impact Study results will be publicly available on PJM's website. Project Developers and Eligible Customers must obtain the results from the website.

The Transmission Owner takes the following actions during the Phase I System Impact Study:

1. Identify required Interconnection Facilities to accommodate the New Service Request.
2. Identify required Network Upgrades to mitigate system violations from the Phase I System Impact Study.
3. Provide planning-level preliminary estimates of Interconnection Facilities and Network Upgrades including scope, cost and elapsed time to complete the work.

Decision Point I Requirements

At the close of Phase I System Impact Study, PJM will initiate Decision Point I (DP1). During DP1, the Project Developer will have 30 days to decide whether to proceed with their project. If the Project Developer elects to proceed, they should provide the elements defined in the PJM Open Access Transmission Tariff, Part VII, Subpart D, section 309.A.1. Additional information on these elements is available in PJM Manual 14H sections 4.4, 6, and 7.

Allowable project modifications at Decision Point I are defined in PJM Open Access Transmission Tariff, Part VII, Subpart D, section 309.B. Additional information regarding allowable project modifications can be found in PJM Manual 14H, section 9.8.

General

The Project Developer has proposed a Solar generating facility located in the East Kentucky Power Cooperative, Inc. zone — Kentucky. The installed facilities will have a total capability of 25.0 MW with 15.6 MW of this output being recognized by PJM as Capacity.

Project Information

New Service Request Number: AH1-570

Project Name:	Headquarters - Millersburg Junction 69 kV
Project Developer Name:	South Fork Solar, LLC
State:	Kentucky
County:	Undetermined
Transmission Owner:	East Kentucky Power Cooperative, Inc.
MFO:	25.0
MWE:	25.0
MWC:	15.6
Fuel Type:	Solar
Basecase Study Year:	2028

Physical Interconnection Facility Study

Physical Interconnection Facilities Study is not performed as part of the Phase I System Impact Study. Physical Interconnection Facilities Study will commence in the Phase II System Impact Study.

Point of Interconnection

AH1-570 will interconnect on the East Kentucky Power Cooperative, Inc. transmission system tapping the Headquarters - Millersburg Junction 69 kV line .

Cost Summary

The table below shows a summary of the total cost estimates for this New Service Request project. In the Phase I SIS, the costs shown are subject to change as a result of a facility study performed by the TO during the Phase II or Phase III System Impact Study.

Based on the Phase I SIS results, the AH1-570 project has the following allocation of costs for interconnection. The cost contribution towards Readiness Deposit are also shown below.

Cost Summary		
Description	**Cost Allocated to AH1-570**	**Cost Subject to Readiness***
Transmission Owner Interconnection Facilities (TOIF)	$377,500	$0
Other Scope	$0	$0
Option To Build Oversight	$0	$0
Physical Interconnection Network Upgrades		
Stand Alone Network Upgrades	$3,702,500	$3,702,500
Network Upgrades	$1,065,000	$1,065,000
System Reliability Network Upgrades		
Steady State Thermal & Voltage (SP & LL)	$0	$0
Transient Stability	$0	$0
Short Circuit	$0	$0
Transmission Owner Analysis		
SubRegional	$0	$0
Distribution	$0	$0
Affected System Reinforcements		
AFS - PJM Violatons	$0	$0
AFS - Non-PJM Violations	$0	$0
Total	**$5,145,000**	**$4,767,500**

* Contributes to calculation for Readiness Deposit #2 (RD2). See Readiness Deposit section of report for additional detail.

Definitions

Transmission Owner Interconnection Facilities: Facilities that are owned, controlled, operated and maintained by the Transmission Owner on the Transmission Owner's side of the Point of Change of Ownership to the Point of Interconnection, including any modifications, additions or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Generating Facility with the Transmission System or interconnected distribution facilities.

Stand Alone Network Upgrades: Network Upgrades, which are not part of an Affected System, which a Project Developer may construct without affecting day-to-day operations (e.g. taking a transmission outage) of the Transmission System during their construction.

Network Upgrades: Modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System. Network Upgrades have no impact or potential impact on the Transmission System until the final tie-in is complete.

Notes

Note 1: PJM Open Access Transmission Tariff (OATT), Part VII, Subpart D, section 307.5 outlines cost allocation rules. The rules are further clarified in PJM Manual 14H, section 4.2.6. PJM shall identify the New Service Requests in the Cycle contributing to the need for the required Network Upgrades within the Cycle. All New Service Requests that contribute to the need for a Network Upgrade will receive cost allocation for that upgrade pursuant to each New Service Request's contribution to the reliability violation identified on the transmission system in accordance with PJM Manuals.

Note 2: There will be no inter-Cycle cost allocation for Interconnection Facilities or Network Upgrades identified in the System Impact Study costs identified in a Cycle; all such costs shall be allocated to New Service Requests in that Cycle.

Note 3: For Project Developers with System Reinforcements listed: If this project presents cost allocation to a System Reinforcement indicates $0, then please be aware that as changes to the interconnection process occur, such as other projects withdrawing, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to this project. In addition, although this project presents cost allocation to a System Reinforcement is presently $0, this project may need this system reinforcement completed to be deliverable to the PJM system. If this project desires to come into service prior to completion of the system reinforcement, the Project Developer will need to request PJM to perform an interim deliverability study to determine if they would be deliverable for all or a portion of their output for each delivery year until the system reinforcement is complete.

Readiness Deposit

Per Tariff Part VII, Subpart D, section 309 (Decision Point I) A.1.a.i and PJM Manual 14H, section 6.2, Readiness Deposit #2 (RD2) are funds committed by the Project Developer or Eligible Customer based upon the applicable contribution to Network Upgrades as defined below. Readiness Deposits are not used to fund studies nor to offset Security.

During Decision Point I (DP1), the Project Developer or Eligible Customer is required to submit Readiness Deposit #2, which is calculated as 10% of cost allocation for required Phase I Network Upgrades minus Readiness Deposit #1.

Note 1: "Network Upgrades" referred to in the calculation include both (i) the Physical Interconnection Network Upgrades and (ii) the System Reliability Network Upgrades as shown in the Cost Summary table.

Note 2: Readiness Deposit #1 (RD1) = ($4,000 * Project Size (MW))

Note 3: Readiness Deposit #2 (RD2) = 10% of cost allocation for required Network Upgrades minus RD1. Readiness Deposit #2 (RD2) can be zero, but may not be a negative number.

Readiness Deposit #2 Due for Project AH1-570

Readiness Deposit #2 has been calculated for the project based on the Phase I System Impact Study results and is shown in the table below. This Readiness Deposit #2 must be provided at Decision Point I through either a wire transfer or letter of credit per Manual 14H, Section 6.2.

Readiness Deposit			
Project ID	**10% of cost allocation for Phase I Network Upgrades**	**Readiness Deposit #1 Received (RD1)**	**Readiness Deposit #2 (RD2) for AH1-570 Project due at DP1**
	A	**B**	**A - B**
AH1-570	$476,750	$100,000	$376,750

Note: Failure to provide an acceptable form of Readiness Deposit #2 by the end of Decision Point I will result in withdrawal and termination of the New Service Request.

For additional detail regarding Readiness Deposit Refunds, reference PJM Manual 14H, section 6.2.1. The Readiness Deposit Letter of Credit template can be found here.

Transmission Owner Scope of Work

The total preliminary cost estimate for the Transmission Owner scope of work (including TOIF and Physical Interconnection Network Upgrades) is given in the table below. These costs do not include CIAC Tax Gross-up.

Transmission Owner Interconnection Facilities			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	One (1) 69 kV generator lead line to include, but not limited to, installation of one 69 kV breaker, a 69 kV line monopole dead-end structure and foundation, a 3-pole disconnect switch mounted to the monopole, line conductor from the dead-end structure to the bus position in the switchyard, two (2) 48-strand fiber optic cables, and 69 kV metering equipment.	$755,000	$377,500 (See Note 1)

Stand-Alone Network Upgrades			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	East Nicholas County 69 Switching Station: Construct a new 69 kV switching station along the Headquarters-Millersburg Junction 69 kV line.	$7,405,000	$3,702,500 (See Note 1)

Network Upgrades			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	Revise relay settings/relays at the existing Hunt substation.	$65,000	$32,500 (See Note 1)
(Pending)	Loop the existing Headquarters-Millersburg Junction 69 kV line into the new East Nicholas County interconnection switching station.	$580,000	$290,000 (See Note 1)
(Pending)	Revise relay settings/relays at the existing Headquarters substation.	$65,000	$32,500 (See Note 1)
(Pending)	Install new overhead optical ground wire (OPGW) on the existing Hunt-Sideview 69 kV line (16.45 miles).	$2,130,000	$710,000 (See Note 1)

Based on the scope of work for the Interconnection Facilities, it is expected to take a range of 19 to 31 month(s) after the signing of a Generator Interconnection Agreement (as this is a FERC connection) 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 the Phase II and Phase III System Impact Studies.

Note 1: A Common Use Upgrade is a Network Upgrade that is needed for the interconnection of Generating Facilities or Merchant Transmission Facilities of more than one Project Developer or Eligible Customer and which is the shared responsibility of each Project Developer or Eligible Customer. If multiple Project Developers request to connect to the same interconnection substation, the Transmission Owner will determine the cost to accommodate all the requests at the substation. The cost for the interconnection will be allocated in proportion to the number of required terminations into the substation.

Transmission Owner Analysis

No Transmission Owner impacts identified.

Developer Requirements

The developer is responsible for all design and construction related activities on the developer's side of the Point of Change in Ownership. EKPC interconnection requirements can be found here.

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

Revenue Metering and SCADA Requirements

PJM Requirements

The developer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for their generating Resource. See PJM Manual 01, PJM Manual 14D, and PJM Tariff Part IX, Subpart B, Appendix 2, section 8.

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

Transmission Owner Requirements

The Project Developer will be required to comply with all interconnected Transmission Owner's revenue metering requirements located at the following link: PJM - Transmission Owner Engineering & Construction Standards.

Summer Peak Analysis

The New Service Request AH1-570 was evaluated as a 25.0 MW (15.6 MW Capacity) injection in the EKPC area.

AH1-570 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 25.0 MW (25.0 MW under study).

Note: The capacity portion of Generation Interconnection Requests are evaluated for single or N-1 contingencies. The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

Search

Study	Area	Facility Description	Contingency Name	Contingency Type
GD2	AP	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	AP_P1-2_MP-500-028_SRT-A	Single
GD2	AP	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-502T_SRT-A	Single
GD2	AP	01FLINTRUN-01HARRSN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-502T_SRT-A	Single
GD2	AP	01FLINTRUN-01HARRSN 500.0 kV Ckt 1 line	AP_P1-2_MP-500-028_SRT-A	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#8122_05BEATTY 345_302W_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18136_05CHENOWETH 345_CB1_SRT-A-1	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18138_05CHENOWETH 345_CB3_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	DAY_GREENE_345KV_FB_GJ_EE_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18137_05CHENOWETH 345_CB2_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	495_SRT-A	Tower
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#18134_SRT-A-1	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#18134_SRT-A-2	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	GREENE_345KV_E_SRT-A	Bus
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	34524 34598_SRT-A	Tower
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P2-2_#7222_05MALIS 765_1_SRT-A	Bus
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#3195_05BEATTY 345_304E_SRT-A	Breaker
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#18045_05CYPRUS 345_CB4_SRT-A	Breaker
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#18042_05CYPRUS 345_CB1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#XXXX_05BEATTY 345_304W_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16620_05ADKINS 345_A_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16621_05ADKINS 345_A1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16622_05ADKINS 345_B1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	05CLOV17_XFL-05CLOVRD 345.0 kV Ckt 17 line	AEP_P4_#7421_05CLOVRD 765_BB2_SRT-A	Breaker

GD2	AEP	05CLOV17_XFL-05CLOVRD 345.0 kV Ckt 17 line	AEP_P1-3_#7421_05CLOVRD 765_14_SRT-A	Single
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-501T_SRT-A	Single
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P2-3_MP-500-020_SRT-SL	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P2-3_MP-500-021_SRT-SL	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AEP_P4_#37_05MOUNTN 765_B1_SRT-A	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AEP_P4_#2942_05KAMMER 765_PP_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#8980_05KAMMER 765_QQ2_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P1-2_#17217_SRT-A	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#17219_05GUERNSEY 765_A_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	Base Case	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#7422_05CLOVRD 500_EE2_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P2-2_#7222_05MALIS 765_1_SRT-A	Bus
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P1-2_#7422_16_SRT-A	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P7-1_#10944___SRT-A	Tower
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P7-1_#10856___SRT-A	Tower
GD2	AEP	05WLDCAT-05HILLSB 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#7446_05MARYSV 765_B2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#7441_05SORENS 765_J1_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#1558_05BAKER 765_Q_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#309_05HANG R 765_B2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#1560_05BAKER 765_Q2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P1-2_#7441_100545_SRT-A	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P1-2_#309_15_SRT-A	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P2-2_#6763_05BIERSR 345_2_SRT-A	Bus
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	34569 34598 34524_SRT-A	Tower

GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	34524 34598_SRT-A	Tower
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	Base Case	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AP_P2-2_WP-500-DRT14_SRT-SL	Bus
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P4_#6189_05HANG R 765_D1_SRT-A	Breaker
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P4_#709_05HANG R 765_D2_SRT-A	Breaker
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P1-2_#709_546_SRT-A	Single
GD2	DEO&K	08LONGBR-08MTZION 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	DEO&K/EKPC	4BOONE CO-08LONGBR 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1445_ZIMMER_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1449_ZIMMER_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	34569 34598 34524_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1373_PORTUNION_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1493_RED BANK_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1487_RED BANK_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P_CIRCUIT1883&4545REDBANKSILGRVZIMMER_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P2.2_SILVER GROVE 345 BUS_SRT-A	Bus
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	Base Case	Single
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	EKPC_P2-2_MELD-SPUR 345_SRT-A	Bus
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P1_ZIMMER-MELDAHL 34576_SRT-A	Single
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P1_RED BANK-SILVER GROVE-ZIMMER 4545_SRT-A	Single
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#XXXX_05BEATTY 345_304W_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16622_05ADKINS 345_B1_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16620_05ADKINS 345_A_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16621_05ADKINS 345_A1_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P7-1_#11019___SRT-A-2	Tower

GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#762_8072_SRT-A	Single
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P7-1_#11019___SRT-A-1	Tower

Winter Peak Analysis

The New Service Request AH1-570 was evaluated as a 25.0 MW (15.6 MW Capacity) injection in the EKPC area.

AH1-570 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 25.0 MW (25.0 MW under study).

Note: The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for single or N-1 contingencies and multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

(No impacts were found for this analysis)

Light Load Analysis

The New Service Request AH1-570 was evaluated as a 25.0 MW injection

AH1-570 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 25.0 MW (25.0 MW under study).

Note: The capacity portion of Generation Interconnection Requests are evaluated for single or N-1 contingencies. The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

(No impacts were found for this analysis)

Short Circuit Analysis

Short Circuit analysis is not performed as part of the Phase I System Impact Study. Short Circuit analysis will commence in the Phase II System Impact Study.

Stability Analysis

Stability analysis is not performed as part of the Phase I System Impact Study. Stability analysis will commence in the Phase II System Impact Study.

Reactive Power Analysis

Reactive Power analysis is not performed as part of the Phase I System Impact Study. Reactive Power analysis will commence in the Phase II System Impact Study.

Steady-State Voltage Analysis

Steady State Voltage Analysis is Not Required.

New Service Request Dependencies

The New Service Requests below are listed in one or more dispatch for the overloads identified in this report. These projects contribute to the loading of the overloaded facilities identified in this report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could

vary depending on the action of other projects. The status of each project at the time of the analysis is presented in the table. This list may change as other projects withdraw or modify their requests. This table is valid for load flow analyses only.

New Service Requests Dependencies		
Project ID	**Project Name**	**Status**
AA1-018	Powerton-Goodings Grove	In Service
AA1-038	Lexington-Low Moor 230kV	Under Construction
AA1-095	Halfway-Marlowe 34.5kV	In Service
AA2-184	Atlantic-Red Bank 34kV	In Service
AB1-001	Absecon 12 kV	In Service
AB1-006	Meadow Lake 345kV	In Service
AB1-027	Old Church 34.5 KV	In Service
AB1-096	Carroll-Mt. Airy 34.5kV	In Service
AB1-124	Carroll-Monocacy 34.5kV	Partially in Service - Under Construction
AB1-125	Carroll-Monocacy 34.5kV	In Service
AB1-127	St. Thomas-Guilford 34.5kV	In Service
AB1-128	St. Thomas-Mercersburg 34.5kV	In Service
AB1-138	Navy 34.5kV	In Service
AB1-139	Metuchen 26kV	In Service
AB1-141	Church-Wye Mills 138 kV I	In Service
AB1-142	Church-Wye Mills 138 kV II	In Service
AB1-150	Grassy Falls 138kV	In Service
AB1-176	Price 25kV II	Engineering & Procurement
AB1-180	Pine View 12kV	In Service
AB2-026	Powhatan 34.5kV	In Service
AB2-029	Remington 34.5kV	In Service
AB2-032	Church-Wye Mills 138 kV	In Service
AB2-037	Keeney-Steele 230kV	Under Construction
AB2-045	Buckingham 34.5kV	In Service
AB2-049	Gloucester Township 12kV	In Service
AB2-070	Mt. Pulaski-Brokaw	In Service
AB2-133	Chestertown 69kV	Under Construction
AB2-135	Church-Kent 69kV	In Service
AB2-136	Cambridge-West Cambridge 69kV	Under Construction
AB2-153	Church-Wye Mills 138 kV	In Service
AB2-158	Louisa-South Anna 230kV	In Service
AB2-170	East Lima-Marysville 345kV	In Service
AB2-179	Townsend 138kV	In Service
AC1-001	Delano 138kV	In Service
AC1-010	Gloucester 26kV	Under Construction

AC1-017	Levittown 13 kV	In Service
AC1-030	Cinnaminson 13kV	In Service
AC1-033	Kewanee 138 kV	In Service
AC1-042	Altavista-Mt. Airy 69kV	In Service
AC1-053	Lanesville-Brokaw	Partially in Service - Under Construction
AC1-068	Atlanta 69kV I	In Service
AC1-069	Atlanta 69kV II	In Service
AC1-074	Jacksonville-Renaker 138kV I	In Service
AC1-075	Perth-Hickory Grove 115kV	In Service
AC1-076	Locust Grove-Paytes 115kV	In Service
AC1-078	Beatty-London 138kV	In Service
AC1-082	Ravenswood-Hemlock 69kV	Under Construction
AC1-085	Stuart-Clinton 345kV	In Service
AC1-089	Hillsboro-Wildcat 138kV	In Service
AC1-091	Cedar Creek 138kV I	Engineering & Procurement
AC1-092	Cedar Creek 138kV II	Engineering & Procurement
AC1-093	Cedar Creek 138kV III	Engineering & Procurement
AC1-094	Cedar Creek 138kV IV	Engineering & Procurement
AC1-101	Johns Creek-Excel 138kV I	Suspended
AC1-102	Johns Creek-Excel 138kV II	Suspended
AC1-111	Aurora 138kV	In Service
AC1-118	Westmoreland 34.5kV	In Service
AC1-120	Mitchell-Mountain Run 115kV	Engineering & Procurement
AC1-121	Mitchell-Mountain Run 115kV	Engineering & Procurement
AC1-122	Smith Mountain-Candler's Mountain 138kV	In Service
AC1-145	Gretna DP 69 kV	In Service
AC1-158	Spotsylvania 500kV	In Service
AC1-165	Atlanta 69kV III	In Service
AC1-166	Atlanta 69kV IV	In Service
AC1-167	Mark Center 69kV	Under Construction
AC1-168	Kewanee-Streator	Suspended
AC1-174	Losantville 345kV	In Service
AC1-175	Losantville 345kV	In Service
AC1-188	Rio-Lick 138kV	Engineering & Procurement
AC1-191	Elmont 115kV	Engineering & Procurement
AC1-194	Elk 138kV	Active
AC1-214	Crescent Ridge	In Service
AC2-023	Hebron 69kV	Engineering & Procurement
AC2-029	Circleville 138kV	Suspended

AC2-044	Maddox Creek 345kV	Suspended
AC2-059	Biers Run-Circleville 138kV	In Service
AC2-060	Buckskin 69kV	In Service
AC2-061	Hillsboro-Clinton 138kV	In Service
AC2-067	Camden-Crystal I 69kV	Engineering & Procurement
AC2-068	Camden-Crystal II 69kV	Engineering & Procurement
AC2-075	Jacksonville-Renaker 138 kV	In Service
AC2-088	S. Bethel-Brown 69kV	In Service
AC2-090	Losantville 345kV	In Service
AC2-111	College Corner 138kV	Engineering & Procurement
AC2-123	Jacksons Ferry 138kV	In Service
AC2-136	East Hagerstown 12kV	Under Construction
AC2-137	Elko 34.5kV	In Service
AC2-138	Northern Neck 34.5kV	In Service
AC2-157	Sullivan 345 kV	Under Construction
AC2-165	Bremo-Powhatan 230kV	Suspended
AC2-168	Clinton 23kV	In Service
AC2-176	Jay 138 kV	In Service
AC2-186	Harrington 25kV	Under Construction
AC2-187	Harrington 69kV	Under Construction
AC2-188	Harrington 69 kV	Under Construction
AC2-195	Galion-Roberts South 138 kV	Under Construction
AD1-013	Twombly Road 138kV	Engineering & Procurement
AD1-017	Smith Mountain-Bearskin 138 kV	In Service
AD1-020	Hunterstown-Lincoln 115 kV	In Service
AD1-060	Mercersburg-Milnor 34.5 kV	In Service
AD1-061	McConnelsburg-Mercersburg 34 kV	In Service
AD1-063	Harmony Village 34.5 kV	In Service
AD1-100	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Under Construction
AD1-105	Kings Dominion DP 115 kV	Under Construction
AD1-115	Mountain Run-Mitchell 115 kV	Engineering & Procurement
AD1-119	Payne 69 kV	In Service
AD1-128	Modoc-Delaware 138 kV	Partially in Service - Under Construction
AD1-130	Hardin Switch 345 kV	In Service
AD1-136	South Bethel-Brown 69 kV	In Service
AD1-140	Greene-Clark 138 kV	Engineering & Procurement
AD1-155	Meadow Brook-Strasburg 138 kV	In Service
AD2-009	McConnellsburg 138 kV	In Service

AD2-016	Biers Run-Circleville 138 kV	In Service
AD2-020	Valley 138 kV	Engineering & Procurement
AD2-027	Camden Switch 26 kV	In Service
AD2-031	Martinsville-Wilmington 69 kV	In Service
AD2-038	Powerton-Nevada 345 kV	Under Construction
AD2-042	Camden Switch 26 kV II	In Service
AD2-047	Davis Creek 138 kV	Suspended
AD2-048	Cynthia-Headquarters 69 kV	Under Construction
AD2-060	Davis Creek 138kV	Engineering & Procurement
AD2-065	Atco 12 kV	In Service
AD2-066	Mazon-Crescent Ridge 138 kV	Engineering & Procurement
AD2-067	Centerburg 138kV	Engineering & Procurement
AD2-070	Gilbert-Morris Park 34.5kV	In Service
AD2-071	Strawton-Deer Creek 138 kV	Suspended
AD2-073	Sanders DP 230 kV	In Service
AD2-074	Garner DP-Lancaster 115 kV	Engineering & Procurement
AD2-079	Capitol Ave 34.5kV	In Service
AD2-086	Hardin Switch 345 kV	In Service
AD2-092	Marysville 345kV	Under Construction
AD2-093	Marysville 345kV	Under Construction
AD2-100	Kincaid-Pana 345 kV	Suspended
AD2-115	Lyons-Moselem 69kV	In Service
AD2-116	Hokes-Grantley 69 kV	In Service
AD2-131	Kincaid-Pana 345kV	Suspended
AD2-133	Eagle Valley 115kV	In Service
AD2-134	Shady Oaks	Partially in Service - Under Construction
AD2-135	Williamstown 12kV	Partially in Service - Under Construction
AD2-163	Broadview-Tangy 138 kV	In Service
AD2-172	Lena 138kV	In Service
AD2-179	Morgans Cut-Glen Lyn 138kV	Suspended
AD2-180	Elk Garden-Parr Run 138kV	In Service
AE1-040	Greenfield 69 kV	In Service
AE1-041	Edison 4kV	In Service
AE1-071	Shade Gap-Roxbury 115 kV	In Service
AE1-074	Winterpock 34.5 kV	Under Construction
AE1-075	Powhatan 34.5 kV	In Service
AE1-079	Maysville-Sharon 69 kV	Under Construction
AE1-081	Landing 12.47 kV	In Service

AE1-090	Hardin Switch 345 kV	In Service
AE1-092	Blue Jacket-Kirby 138 kV	Active
AE1-100	Axton 138 kV	In Service
AE1-101	McConnellsburg-Texas Eastern 138 kV	In Service
AE1-102	Maddox Creek 345 kV	Suspended
AE1-109	Frenchs Mill 34 kV	In Service
AE1-113	Mole Creek 345 kV	Engineering & Procurement
AE1-114	Maryland-Lancaster 138 kV	Active
AE1-142	Manitou-Pleasant Plains 34.5 kV	In Service
AE1-155	Garner-Northern Neck 115 kV	In Service
AE1-156	Quakertown Solar II 34.5 kV	Partially in Service - Under Construction
AE1-163	Powerton-Nevada 345 kV	Engineering & Procurement
AE1-166	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Engineering & Procurement
AE1-170	Kenzie Creek-Colby 138 kV	Suspended
AE1-172	Loretto-Wilton Center	Active
AE1-176	Roanoke-Vinton 12 kV (Niagara Hydro)	In Service
AE1-183	Maysville-McDowell 69 kV	Engineering & Procurement
AE1-185	Hokes-Jackson 69 kV	In Service
AE1-196	Hokes-Jackson 69 kV II	In Service
AE1-205	McLean 345 kV	Engineering & Procurement
AE1-207	Mississinewa-Gaston 138 kV	Suspended
AE1-208	Delaware-Van Buren 138 kV	Suspended
AE1-209	Desoto 345 kV	Suspended
AE1-210	Desoto 345 kV	Suspended
AE1-212	Grandview-Clifftop 138 kV	Suspended
AE1-227	South Cumberland 69 kV	Suspended
AE1-229	Deepwater-Upper Pittsgrove 138 kV	Suspended
AE1-237	Andover (Maysville) 69kV I	Under Construction
AE1-245	Haviland 138 kV	Under Construction
AE1-250	Smith Mountain-E. Danville 138 kV	Engineering & Procurement
AE2-029	Grottoes-Merck 115kV	Under Construction
AE2-035	Lena 138 kV	In Service
AE2-042	Milton 69 kV	In Service
AE2-045	Olive-Reynolds 345 kV	Engineering & Procurement
AE2-047	Ridgeway-Solite 69 kV	Engineering & Procurement
AE2-048	Muskingum-W. Millersport 345 kV	Engineering & Procurement
AE2-054	Warfordsburg 34 kV	In Service
AE2-059	Derry Tap-Derry Bus 69 kV	In Service

AE2-060	Mifflintown Bus-Mifflintown Tap 69 kV	In Service
AE2-071	Patton Rd-Summer Shade 69 kV	In Service
AE2-089	Pennville-Adams 138 kV	Engineering & Procurement
AE2-092	Kidds Store-Sherwood 115 kV	Engineering & Procurement
AE2-113	Farmers Valley-Ridgeway 115 kV	Under Construction
AE2-114	Midland 23 kV I	In Service
AE2-115	Midland 23 kV II	In Service
AE2-117	ABW Tap-Alexandria 46 kV	Suspended
AE2-125	Stahlstown-Ligonier 25 kV	In Service
AE2-126	Dubois-Curwensville 34.5 kV	In Service
AE2-129	Philipsburg-Clarence 34.5 kV	In Service
AE2-131	Philipsburg-Karthaus 34.5	Under Construction
AE2-133	Penns Tap-Richfield Tie 69 kV	In Service
AE2-136	Muskingum River-W. Millersport 345 kV	Engineering & Procurement
AE2-139	East Towanda-Grover 230 kV	Engineering & Procurement
AE2-140	Axton-Danville 138 kV	Suspended
AE2-148	Beatty-Greene 345 kV	In Service
AE2-152	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Engineering & Procurement
AE2-160	Kanawha River 138 kV	Engineering & Procurement
AE2-166	Stockton 138 kV	Suspended
AE2-169	Delaware-Van Buren 138 kV	Suspended
AE2-172	Mississinewa-Gaston 138 kV	Suspended
AE2-173	McLean 345 kV	Active
AE2-175	Jackson-Long Pond 69 kV	Partially in Service - Under Construction
AE2-185	Gladys DP-Stonemill Switching Station 69 kV	Active
AE2-187	Shockoe DP-Chatham 69 kV	Active
AE2-206	East Sidney-Quincy 138 kV	In Service
AE2-214	Cole 345 kV	Engineering & Procurement
AE2-217	East Springfield-London 138 kV	Engineering & Procurement
AE2-219	Bluff Point-Randolph 138 kV	Suspended
AE2-220	Losantville 345 kV	Engineering & Procurement
AE2-221	Clinton-Stuart 345 kV	Under Construction
AE2-223	McLean 345 kV	Active
AE2-224	Bear Rock-Johnstown 230 kV	In Service
AE2-226	Millville-Old Chapel 138 kV	Engineering & Procurement
AE2-230	Bartonsville-Meadow Brook 138 kV	In Service
AE2-234	Liberty Center-Buckeye Tap 69 kV	Engineering & Procurement
AE2-236	Columbia-Northeast 138 kV	Suspended

AE2-254	Garrard County-Tommy-Gooch 69 kV	In Service
AE2-255	Molecreek 345 kV	Engineering & Procurement
AE2-261	Kincaid-Pana 345 kV	Active
AE2-262	Moshannon-Milesburg 230 kV	Engineering & Procurement
AE2-263	Moshannon-Milesburg 230 kV II	Engineering & Procurement
AE2-267	Woodsdale 345 kV	Engineering & Procurement
AE2-281	Powerton-Nevada 345 kV	Engineering & Procurement
AE2-283	Gladys-Stone Mill 69 kV	Active
AE2-285	Maysville 69 kV	Engineering & Procurement
AE2-291	Grit DP-Perth 115 kV	Active
AE2-297	Madison-Tanners Creek 138 kV	In Service
AE2-305	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AE2-308	Three Forks-Dale 138 kV	Active
AE2-309	Carlos Junction-Lonaconing 34.5 kV	In Service
AE2-315	Yankee Tap 69 kV	In Service
AE2-318	Ford-Cedarville 138 kV	Suspended
AE2-321	Belvidere-Marengo 138 kV	Active
AE2-323	Twin Branch-Guardian 138 kV	Under Construction
AE2-325	Valley 138 kV	Active
AE2-326	Jacksons Ferry 138 kV	Engineering & Procurement
AE2-339	Avon 138 kV	Engineering & Procurement
AE2-341	Sandwich-Plano 138 kV	Active
AE2-342	Woodstock 69 kV	Engineering & Procurement
AE2-343	Andover (Maysville) 69 kV II	Under Construction
AF1-006	Fairview East 34.5 kV	In Service
AF1-007	Indian River 230 kV I	Suspended
AF1-021	Bethelboro-Connellsville #1 25 kV	In Service
AF1-022	Lake Lynn-Uniontown 25 kV	In Service
AF1-030	Sandwich-Plano 138 kV	Active
AF1-038	Sewellton Jct-Webbs Crossroads 69 kV	Engineering & Procurement
AF1-039	Listonburg-Highpoint 24.9 kV	In Service
AF1-042	Garner DP-Lancaster 115 kV	Engineering & Procurement
AF1-045	Cedarville-Ford 138 kV	Suspended
AF1-049	Berry Hill 138 kV	Under Construction
AF1-050	Summer Shade - Green County 161 kV	Engineering & Procurement
AF1-051	Gavin 765 kV	In Service
AF1-053	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AF1-054	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AF1-071	College Corner 138 kV	Engineering & Procurement

AF1-078	East Sidney-Quincy 138 kV	In Service
AF1-083	Green County-Saloma 161 kV	Engineering & Procurement
AF1-086	Madera-Westover South 115 kV	Under Construction
AF1-088	Sullivan 345 kV	Active
AF1-090	Kincaid-Pana	Engineering & Procurement
AF1-091	Varner - Sowers 138 kV	Engineering & Procurement
AF1-092	Huntington Jct. 138 kV	Suspended
AF1-093	Henderson-Stoneboro 69 kV	Engineering & Procurement
AF1-094	Union City-Cambridge Springs 34.5 kV	Engineering & Procurement
AF1-098	Four Mile Jct-Corry East 115 kV	Engineering & Procurement
AF1-118	Sorenson-Desoto 345 kV	Engineering & Procurement
AF1-119	Keystone-Desoto 345 kV	Engineering & Procurement
AF1-130	Inez 138 kV	Suspended
AF1-134	Philipsburg-Madera 34.5 kV	Engineering & Procurement
AF1-136	Warfordsburg-Purcell Junction 34.5 kV	Engineering & Procurement
AF1-140	Claysburg 23 kV	Engineering & Procurement
AF1-143	Lick Run 115 kV	Engineering & Procurement
AF1-147	Poland Rd-Runway DP 230kV	Under Construction
AF1-153	Motion-Ridgeway 46 kV	Suspended
AF1-158	Edison-Gravel Pit 138 kV	In Service
AF1-162	Inez 138 kV	Engineering & Procurement
AF1-176	Corey 138 kV	Active
AF1-202	Keystone-Desoto 345 kV	Under Construction
AF1-203	Patton Rd-Summer Shade 69 kV	In Service
AF1-204	Eugene 345 kV	Active
AF1-207	Reynolds-Olive #1 345 kV	Engineering & Procurement
AF1-215	Olive-Reynolds 345 kV	In Service
AF1-223	Keystone-Desoto 345 kV	Under Construction
AF1-227	Marysville – Gunn Road 345 kV	In Service
AF1-228	Beatty-Greene 345 kV	Engineering & Procurement
AF1-233	Flemingsburg – Spurlock 138kV	Active
AF1-249	Nickel 12.47 kV	In Service
AF1-254	Milnor-Huyetts 34.5 kV	Under Construction
AF1-262	Upper Pittsgrove 12 kV	In Service
AF1-264	Runnemede 13 kV	In Service
AF1-268	Desoto-Jay 138 kV	Engineering & Procurement
AF1-272	Lucerne 115 kV	Engineering & Procurement
AF1-275	Cole 345 kV	Engineering & Procurement
AF1-282	Stuart-Clinton 345 kV	Engineering & Procurement

AF1-283	Stuart-Clinton 345 kV	Engineering & Procurement
AF1-285	Gunn Road 345 kV	Under Construction
AF1-290	Feagans Mill-Millville 138 kV	In Service
AF1-291A	Bartonsville-Meadow Brook 138 kV	In Service
AF1-296	Garden Plain 138 kV	Active
AF1-299	Otter Point 34.5 kV I	In Service
AF1-300	Otter Point 34.5 kV II	In Service
AF1-302	Brookville-Squab Hollow 138 kV	Engineering & Procurement
AF1-320	Merrill Creek 115 kV	Engineering & Procurement
AF1-322	Meadow Lake 345 kV	Engineering & Procurement
AF1-331	Twombley Road	Engineering & Procurement
AF1-333	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-337	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-338	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-339	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF2-008	Sullivan 345 kV	Active
AF2-014	Maddox Creek 345 kV	Engineering & Procurement
AF2-018	Inez 138 kV	Engineering & Procurement
AF2-032	Kincaid 345 kV	Engineering & Procurement
AF2-039	Shawville-Clearfield 34.5 kV	Engineering & Procurement
AF2-041	Nelson-Electric Junction 345 kV	Active
AF2-048	Rio-Lick 138 kV	Engineering & Procurement
AF2-068	Jay 138 kV	Active
AF2-069	Crescent Ridge 138 kV	Active
AF2-075	Bartonsville-Meadow Brook 138 kV III	In Service
AF2-078	Reynolds-Olive #1 345 kV	Engineering & Procurement
AF2-083	Kenzie Creek-Stone Lake 69 kV	Under Construction
AF2-086	Scott Tap-Bowmans Mill Tap 69 kV	Engineering & Procurement
AF2-088	Shawville-Clearfield 34.5 kV II	Engineering & Procurement
AF2-095	Davis Creek 138 kV	Active
AF2-106	Hazel Hollow-Glen Lyn #1 138 kV	Engineering & Procurement
AF2-107	Clifford 138 kV	Engineering & Procurement
AF2-111	North Clark-Spurlock 345 kV	Active
AF2-122	Kirk 138 kV	Under Construction
AF2-130	Cobalt Corners 34.5 kV	In Service
AF2-132	Reynolds-Olive #1 345 kV	Under Construction
AF2-133	Reynolds-Olive #2 345 kV	Under Construction
AF2-134	Olive-Reynolds #2 345 kV	In Service
AF2-138	Flanders-West Wharton 34.5 kV	In Service

AF2-139	Gilbert-Warren Glen 34.5 kV	In Service
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-144	Powhatan 34.5 kV	In Service
AF2-162	Keystone-Desoto 345 kV	Engineering & Procurement
AF2-173	Desoto 345 kV	Active
AF2-177	Sorenson-DeSoto #2 345 kV	Active
AF2-192	Frenchtown Solar-West Flemington 34.5 kV	Suspended
AF2-199	Nelson-Electric Junction 345 kV	Active
AF2-200	Nelson-Electric Junction 345 kV	Active
AF2-205	Olive-Reynolds #2 345 kV	Engineering & Procurement
AF2-224	Allen 345 kV	Engineering & Procurement
AF2-225	McLean 345 kV	Active
AF2-229	Roxbury 23 kV	Engineering & Procurement
AF2-233	Penns-Richfield Tie #1 69 kV	Engineering & Procurement
AF2-234	Sunbury Yard #1-Richfield Tie #2 69 kV	Engineering & Procurement
AF2-235	Titusville-Oil Creek 34.5 kV	Withdrawn
AF2-238	Mansfield-South Troy 34.5 kV	Engineering & Procurement
AF2-247	Bustleton 13.2 kV	In Service
AF2-250	Edgewood 12 kV III	In Service
AF2-252	Blue Mound 345 kV	Engineering & Procurement
AF2-291	Sporn South-Leon 138 kV	Engineering & Procurement
AF2-298	Crown-New Lebanon 69 kV	Engineering & Procurement
AF2-307	Hope-Belvins Valley Tap 69 kV	Active
AF2-311	Gilboa-Jones Branch 138 kV	Engineering & Procurement
AF2-316	Gilboa-Jones Branch 138 kV II	Engineering & Procurement
AF2-325	Jacktown 12 kV	Engineering & Procurement
AF2-335	Delaware-Royerton 138 kV	Active
AF2-350	Kensington 138 kV	Active
AF2-352	Blue Mound 345 kV	Engineering & Procurement
AF2-354	Washington 34.5 kV II	Engineering & Procurement
AF2-356	Albright-Mt. Zion 138 kV	Under Construction
AF2-359	Olive-University Park 345 kV	Engineering & Procurement
AF2-361	Mifflintown Tap 69 kV	Engineering & Procurement
AF2-365	Munfordville KU Tap-Horse Cave Jct. 69 kV	Active
AF2-371	Harrison-Good Hope 138 kV	Engineering & Procurement
AF2-378	Cambridge 12 kV	Engineering & Procurement
AF2-379	Princess Anne 25 kV	Under Construction
AF2-382	Hurley 69 kV	Engineering & Procurement

AF2-383	Tolna 115 kV	Withdrawn
AF2-388	Keystone-Desoto 345 kV	Active
AF2-392	Nelson-Dixon 138 kV	Active
AF2-396	Stinger 138 kV	Active
AF2-417	West Damascus Tap-West Damascus 69 kV	Engineering & Procurement
AF2-421	East Hazelton-Weatherly Tap 69	Engineering & Procurement
AF2-424	Reed-Reed Tap #1 69 kV	Engineering & Procurement
AF2-425	Reed-Reed Tap#1 69 kV	Engineering & Procurement
AF2-433	Columbia-Geisinger Tap #1 69 kV	Engineering & Procurement
AF2-434	Columbia-Geisinger Tap #1 69 kV	Engineering & Procurement
AF2-440	Hillsboro-Middleboro 138 kV	Engineering & Procurement
AG1-017	Jay 138 kV	Under Construction
AG1-024	Centerburg 138 kV	Engineering & Procurement
AG1-034	Centerburg 138 kV	Engineering & Procurement
AG1-040	Morgan Street-Mount Hope 34.5 kV	Engineering & Procurement
AG1-047	Jay 138 kV	Engineering & Procurement
AG1-054	Potter-Harlan 69 kV	Engineering & Procurement
AG1-066	Bonnyman 69 kV	Engineering & Procurement
AG1-070	Bon Ayr 69 kV	Active
AG1-071	Bon Ayr 69 kV	Active
AG1-100	Venango-Saegertown 34.5 kV	Engineering & Procurement
AG1-107	Hillsboro-Middleboro 138 kV	Engineering & Procurement
AG1-118	Sugar Grove-Waterman 138kV	Active
AG1-124	Gladstone 138 kV	Active
AG1-125	Marysville-Flatlick 765 kV	Engineering & Procurement
AG1-126	Marysville-Flatlick 765 kV	Engineering & Procurement
AG1-127	Crego Rd 138 kV	Active
AG1-156	Jack Frost-Lake Harmony 69 kV	Engineering & Procurement
AG1-164	East Hazelton-Weatherly Tap 69 kV	Engineering & Procurement
AG1-165	East Hazelton-Weatherly Tap 69 kV	Engineering & Procurement
AG1-188	Manitou-Oyster Creek 34.5 kV	Engineering & Procurement
AG1-189	Oyster Creek-Bamber Lake 34.5	Engineering & Procurement
AG1-191	Chester-Pohatcong Mountain 34.5 kV	Partially in Service - Under Construction
AG1-193	Utica Junction 34.5 kV	Suspended
AG1-197	Morgan Street-Cochranton 34.5 kV	Suspended
AG1-198	Union City 34.5 kV	Under Construction
AG1-207	Vandalia 69 kV	Engineering & Procurement
AG1-223	Larrabee-Allaire 34.5 kV	Under Construction
AG1-226	Dequine-Eugene 345 kV	Active

AG1-232	Magley 138 kV	Engineering & Procurement
AG1-236	Lanesville-Brokaw 345 kV	Active
AG1-237	Dequine-Eugene 345 kV	Engineering & Procurement
AG1-254	Salem-Woodstown 69 kV	Engineering & Procurement
AG1-259	Sunbury-Dalmatia 69 kV	Engineering & Procurement
AG1-260	Sunbury-Dalmatia 69 kV	Engineering & Procurement
AG1-281	Claysburg-HCR Tap 46 kV	Engineering & Procurement
AG1-282	Dunnsville 34.5 kV	Engineering & Procurement
AG1-301	Miller REC-Warrior Ridge 46 kV	Engineering & Procurement
AG1-302	Olive-Reynolds #1 345 kV	Under Construction
AG1-320	Glendale-Stephensburg 69 kV	Active
AG1-323	Blue Jacket 138 kV	Active
AG1-324	Jay-Desoto 138 kV	Engineering & Procurement
AG1-341	Summer Shade 161 kV	Active
AG1-348	Pequest River-Washington 34.5 kV	In Service
AG1-349	Olive-Reynolds #2 345 kV	Engineering & Procurement
AG1-351	Harrison-Good Hope 138 kV	Engineering & Procurement
AG1-354	Summershade-Green County 161 kV	Active
AG1-363	Black Oak-Hatfield 500 kV	Engineering & Procurement
AG1-365	Allen 345 kV	Engineering & Procurement
AG1-366	Allen 345 kV	Engineering & Procurement
AG1-367	DeSoto 345 kV	Active
AG1-368	Tillman 138 kV	Engineering & Procurement
AG1-369	Logtown 138 kV	Engineering & Procurement
AG1-374	Blue Mound 345 kV	Active
AG1-375	Sorenson-Desoto 345 kV	Active
AG1-386	Smith-Francis Junction 25 kV	In Service
AG1-397	Walston 12 kV	Withdrawn
AG1-405	Walnut Grove-Asahi 69 kV	Active
AG1-406	Walnut Grove-Asahi 69 kV	Active
AG1-410	Maddox Creek-RP Mone 345 kV	Active
AG1-414	Mississinewa 138 kV	Engineering & Procurement
AG1-433	Keystone-DeSoto 345 kV	Active
AG1-436	Olive-University Park 345 kV	Active
AG1-447	Olive-University Park 345 kV	Active
AG1-460	Kincaid-Pana 345 kV	Active
AG1-462	Cordova 345 kV	Active
AG1-469	Gordonsville 34.5 kV	Engineering & Procurement
AG1-471	Up Church-Wayne County 69 kV	Active

AG1-478	Wilmington 34.5 kV	Engineering & Procurement
AG1-480	Shawnee 34.5 kV	Engineering & Procurement
AG1-482	Hamilton 115 kV	Withdrawn
AG1-494	Boxwood-Riverville 138 kV	Active
AG1-495	Gilbert-Rocktown 34.5 kV	Engineering & Procurement
AG1-499	Lambs 12.47 kV	Under Construction
AG1-508	Point Lookout 69 kV	Engineering & Procurement
AG1-526	West Garrard 345 kV	Active
AG1-555	Dequine 345 kV	Engineering & Procurement
AG1-558	Buckner 34.5 kV	Engineering & Procurement
AG1-559	Caroline Pines 22 kV	Engineering & Procurement
AG2-029	Forest G. Hipple-Collingwood 345 kV	Active
AG2-063	North Hampton 69 kV	Active
AG2-072	Rockport 765 kV	Active
AG2-073	Crooksville 69 kV	Active
AG2-081	Mt. Sterling-Fogg Pike 69 kV	Active
AG2-085	Delaware-Royerton 138 kV	Active
AG2-104	Marysville-Flatlick 765 kV	Active
AG2-106	Marysville-Flatlick 765 kV	Active
AG2-107	Marysville-Flatlick 765 kV	Active
AG2-111	Perth 34.5 kV Substation (Circuit 408)	Active
AG2-112	Perth 34.5 kV Substation (Circuit 404)	Active
AG2-114	Dresden-Pontiac Midpoint 345 kV	Active
AG2-119	Galion-Roberts South 138 kV II	Active
AG2-125	Camden-Crystal 69 kV	Active
AG2-126	Eugene 345 kV	Active
AG2-152	Banister-Bear Skin 138 kV	Active
AG2-159	Williamstown 69 kV	Active
AG2-162	Jefferson-Greentown 765 kV	Active
AG2-163	Dequine-Eugene 345 kV	Active
AG2-164	Jefferson-Greentown 765 kV	Active
AG2-165	Dumont-Greentown 765 kV	Active
AG2-179	Sewellton Junction 69 kV	Active
AG2-184	Harbert Metering 138 kV	Active
AG2-191	Mississinewa 138 kV	Active
AG2-192	Mississinewa 138 kV	Active
AG2-212	Dumont-Greentown 765 kV	Active
AG2-216	East Sidney-Quincy 138 kV	Active
AG2-219	Jefferson-Greentown 765 kV	Active

AG2-230	Dumont 345 kV	Active
AG2-245	Olive - Reynolds #1 345 kV	Active
AG2-298	Sulphur Creek-Loretto 69 kV	Active
AG2-310	Matt Funk 138 kV	Active
AG2-311	Smith Mountain 138 kV	Active
AG2-328	Dumont - Greentown 765 kV	Active
AG2-330	Dumont - Greentown 765 kV	Active
AG2-331	Jefferson-Greentown 765 kV	Active
AG2-360	Broadford 138 kV	Active
AG2-363	Powerton 345 kV	Active
AG2-364	Powerton 345 kV	Active
AG2-378	North Hampton – Medway 69 kV	Active
AG2-385	North Hampton 69 kV	Active
AG2-400	Allen 345 kV	Active
AG2-401	Losantville 345 kV	Active
AG2-406	Payne 69 kV	Active
AG2-408	Allen 345 kV	Active
AG2-424	Magnolia - Summersville 69 kV	Active
AG2-444	Bixby - Biers Run 345 kV	Active
AG2-449	Jefferson-Greentown 765 kV	Active
AG2-453	Lasalle - Plano 345 kV	Active
AG2-487	Madison - Tanners Creek 138 kV	Active
AG2-491	Meadow Lake 345 kV	Active
AG2-516	Pecatonica 138kV	Active
AG2-518	Tech Drive 138 kV	Active
AG2-519	Royerton - Desoto 138 kV	Active
AG2-524	LaSalle Station - Mazon 138 kV	Active
AG2-548	Corwin - Elk 138 kV	Active
AG2-550	Bluff Point - Randolph 138 kV	Active
AG2-551	Bluff Point - Randolph 138 kV	Active
AG2-568	Stink Run – Sundial 138 kV	Active
AG2-575	Crego Rd. 138 kV	Active
AG2-582	Flint Run 500 kV	Active
AG2-585	Kensington 138kV	Active
AG2-589	Ravenswood - Hemlock 69 kV	Active
AG2-637	Randolph - Hodgin 138 kV	Active
AG2-657	Kanawha River - Carbondale 138 kV	Active
AG2-660	Nelson-Electric Junction 345 kV	Active
AG2-665	Corwin - Elk 138 kV	Active

AG2-670	Green County -Taylor County Junction 161 kV	Active
AH1-004	Avon - Renaker 138 kV	Active
AH1-034	Patton Road Junction - Summer Shade 69 kV	Active
AH1-044	Nelson - Electric Junction 345 kV	Active
AH1-047	Marengo - Belvidere 138 kV	Active
AH1-055	Kyger Creek - Don Marquis 345 kV	Active
AH1-059	Sharp Road 69 kV	Active
AH1-072	Red Onion - VC5 69 kV	Active
AH1-073	Red Onion - VC5 69 kV	Active
AH1-098	Wolf Glade-West Carroll 138 kV	Active
AH1-133	Saltville - Tazewell 138 kV	Active
AH1-136	Falcon - Middle Creek 46 kV	Active
AH1-144	Peter's Mountain 138 kV	Active
AH1-145	Peter's Mountain 138 kV	Active
AH1-146	White Rock - Wayne 345 kV	Active
AH1-147	White Rock - Wayne 345 kV	Active
AH1-150	Nelson-Electric Junction 345 kV	Active
AH1-151	Nelson-Electric Junction 345 kV	Active
AH1-153	Dumont 345 kV	Active
AH1-164	Oak Level - Tank Hill 138 kV	Active
AH1-188	Pigeon Creek 138 kV	Active
AH1-196	Prairie 345 kV	Active
AH1-227	Flemming - Fremont 69 kV	Active
AH1-234	Wempletown - Paddock 345 kV	Active
AH1-239	Upchurch - Zula 69 kV	Active
AH1-269	Claytor 138 kV	Active
AH1-281	Bluegrass Parkway Tap - Woodlawn 69 kV	Active
AH1-285	Sandwich 138 kV	Active
AH1-292	Sullivan 345 kV	Active
AH1-302	Olive - Reynolds 345 kV	Active
AH1-304	Delaware-Van Buren 138 kV	Active
AH1-305	Olive - Reynolds 345 kV	Active
AH1-306	Mississinewa-Gaston 138 kV	Active
AH1-308	Pennville - Adams 138 kV	Active
AH1-309	Kenzie Creek-Colby 138 kV	Active
AH1-327	Hardin Switch 345 kV	Active
AH1-328	Blue Jacket - Kirby 138 kV	Active
AH1-337	Randolph - Hodgin 138 kV	Active
AH1-338	McGirr Rd - Ritchie Road 138kV	Active

AH1-341	Stillman - Dixon 138KV	Active
AH1-348	Pound 34.5 kV	Active
AH1-391	Olive 138 kV	Active
AH1-392	Gravel Pit-Kankakee 138 kV	Active
AH1-427	Tommy Gooch - Garrard County 69 kV	Active
AH1-482	Olive - Reynolds #2 345 kV	Active
AH1-535	Nagel - Cane River 230 kV	Active
AH1-537	Pierce - Kyger Creek 345 kV	Active
AH1-541	Chestnut 345 kV	Active
AH1-542	Crissinger-Kirby 138kV	Active
AH1-543	Mulberry – Tazewell 345 kV	Active
AH1-567	University Park 138 kV	Active
AH1-571	Headquarters - Millersburg Junction 69 kV	Active
AH1-617	Harbert Metering 138 kV	Active
AH1-644	Spicewood Metering 138 kV	Active
AH1-661	Cannelville 12.47 kV	Active
AH1-664	Goddard-Plumville 138 kV	Active
AH1-665	Goddard-Plumsville 138 kV II	Active
AH1-666	Flemingsburg - Spurlock 138 kV	Active
AH1-669	Circleville-Biers Run 138 kV	Active
AH1-670	Blue Mound-Chestnut 345 kV	Active
AH1-686	Hanging Rock 765 kV	Active
AH1-698	Braidwood 345 kV	Active
AH1-702	Byron 345 kV	Active
AH1-714	Lasalle 345 kV	Active
AH1-718	Nelson 345 kV	Active
AH1-719	Beverly 345 kV	Active
AH1-721	Laurel-Cooper 161 kV	Active
U2-030	Four Mile Ridge Wind 138kV	In Service
U2-072	East Lima-Marysville 345kV	In Service
U2-073	Frostburg 138kV II	In Service
V1-011	Haviland 138kV	In Service
V3-007	Desoto-Tanners Creek #1 345kV	In Service
V4-067	Cates Road Egg Harbor Township 12kV	Deactivated
V4-073	Yankee 12.5kV	In Service
W1-003	Oak Hall	In Service
W1-004	Oak Hall	In Service
W1-005	Oak Hall	In Service
W1-006	Oak Hall	In Service

W1-130	Vine Road 12kV	In Service
W2-030	Egg Harbor Township	In Service
W2-048	Brokaw-Lanesville	In Service
W3-077	Broadway-Stewartsville 34.5kV	In Service
W4-005	Blue Mound-Latham	In Service
X2-022	Brokaw-Lanesville	In Service
X3-005	Wildwood 12kV	In Service
X3-066	Church Hill 69kV	In Service
Y1-033	Penn Mar-Rock Wood 115kV	In Service
Y1-049	Wurno 34.5kV	In Service
Y1-079	Wye Mills 69kV	In Service
Y1-080	Dorchester 12kV	In Service
Y3-023	Country Side 12kV	In Service
Y3-024	Bluff Point 12kV	In Service
Y3-058	Rockawalkin 69kV	In Service
Z2-076	Worcester South 25kV	In Service
Z2-077	Worcester North 25kV	In Service
Z2-087	Pontiac MidPoint-Brokaw 345kV	In Service
Z2-115	Deer Creek 12.47kV	In Service
Z2-116	Twin Branch 12.47kV	In Service

Affected System - PJM Identified Violations

As part of PJM's analysis, PJM evaluated the potential impacts on tie line facilities between PJM and an affected system entity, which were identified per PJM planning analysis criteria. This upgrade may be required on the affected system portion of the tie line along with cost allocation of such upgrade if applicable, in coordination with the affected system. Depending on the affected system, this project may not be contingent on upgrade based on PJM planning analysis criteria, but may be contingent on this upgrade based on the Affected System Operator's planning criteria, provided in the Affected Systems Study Section, herein.

Midcontinent Independent System Operator, Inc. (MISO)	**No Impact**
New York Independent System Operator (NYISO)	**No Impact**
Tennessee Valley Authority (TVA)	**No Impact**
Louisville Gas & Electric (LG&E)	**No Impact**
Duke Energy Carolinas (DUKE)	**No Impact**
Duke Energy Progress - East (CPLE)	**No Impact**
Duke Energy Progress - West (CPLW)	**No Impact**

Affected System - Non-PJM Identified Violations

In Phase I of the Cycle, PJM conducts an Affected System screen to identify any New Service Request with potential Affected System impacts. PJM initiates coordination with each Affected System Operator by providing a list of New Service Requests in the Cycle with potential impacts to their respective system. If

the Affected System Operator indicates an Affected System Study is required, PJM will notify the Project Developer or Eligible Customer of the need for an Affected System Study. See below if any Affected System Operator requires a study for this project:

Midcontinent Independent System Operator, Inc. (MISO)	**Not required**
New York Independent System Operator (NYISO)	**Not required**
Tennessee Valley Authority (TVA)	**Not required**
Louisville Gas & Electric (LG&E)	**Study Pending**
Duke Energy Carolinas (DUKE)	**Not required**
Duke Energy Progress - East (CPLE)	**Not required**
Duke Energy Progress - West (CPLW)	**Not required**

System Reinforcements

No cost allocated system reinforcements were identified for this project in the Phase I System Impact Study load flow analysis.

Shown below are the details of the cost allocated, contingent, eliminated, topology and potential aggregate contributor reinforcements for this project. Please refer to the System Reinforcement table above and the information below for more detail.

System Reinforcement: b4000.1

Type	Load Flow
TO	AEP
RTEP ID / TO ID	b4000.1
Title	Add two 765 kV breakers at Amos Substation to expand the breaker and a half scheme to accommodate the new Amos-Welton Spring 765 kV line (Projected ISD 6/1/2029)
Description	765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
►	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
►	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
►	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.11

Type	Load Flow
TO	APS
RTEP ID / TO ID	b4000.11

Title Expand Black Oak Substation & Loop in the 502 Jct-Woodside 500 kV line (Projected ISD 6/1/2029)

Description Expand Black Oak Substation to accommodate the connection of the 502 Jct-Woodside 500 kV line and loop the 502 Jct-Woodside 500 kV line into the Black Oak substation by constructing ~0.85 miles of new 500 kV line into and out of Black Oak 500 kV substation

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.10

Type Load Flow

TO APS

RTEP ID / TO ID b4000.10

Title Install four 250 MVAR cap banks (two on 765 and two on 500 kV side) and a +/-500 MVAR STATCOM on the 765 kV Rocky Point yard

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.7

Type Load Flow

TO APS

RTEP ID / TO ID b4000.7

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line - in DVP local area/Millville to Lovettsville section, roughly 10.5 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b3877.2

Type Load Flow

TO AEP

RTEP ID / TO ID b3877.2

Title Upgrade 345 kV circuit breakers 'A' and 'A1' to 4000A 63 kA breakers at Adkins station

Description Upgrade 345 kV circuit breakers 'A' and 'A1' to 4000A 63 kA breakers at Adkins station along with some station conductor that is currently limiting the 345 kV line to Beatty.

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-05ADKINS 345.0 kV Ckt 1 line	(Any)

System Reinforcement: s2063.4

Type Load Flow

TO AEP

RTEP ID / TO ID s2063.4 / AEPO0001a

Title Upgrade/Replace 3-345kV 1600A switches at Beatty station

Description Upgrade/Replace 3-345kV 1600A switches at Beatty station Scope of s2063 replaced the need for network upgrade: n6769.1

Cost Information

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-05COLE 345.0 kV Ckt 1 line	(Any)

Time Estimate Nov 15 2022

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned supplemental project. AH1-570 is not contingent on this supplemental project as it is already in-service.

System Reinforcement: b3877.1

Type Load Flow

TO AEP

RTEP ID / TO ID b3877.1

Title Replace station conductor and switches in the 345 kV yard at Beatty

Description Replace station conductor and switches in the 345 kV yard at Beatty that are currently limiting the 345 kV lines to Adkins and Chenoweth.

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-AF1-228 TP 345.0 kV Ckt 1 line	(Any)
▶	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	(Any)
▶	05BEATTY-05ADKINS 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.3

Type Load Flow

TO APS

RTEP ID / TO ID b4000.3

Title Construct a new 175 miles Amos to Welton Spring 765 kV line - APS/FE Section of the line is 145 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)

System Reinforcement: n5857

Type	Load Flow
TO	AEP
RTEP ID / TO ID	n5857 / N5857
Title	Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK-Conductor Section 1.
Description	Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK-Conductor Section 1.
Total Cost ($USD)	$19,552,000
Allocated Cost ($USD)	$0
Time Estimate	24 to 36 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05HILLSB-05WLDCAT 138.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.5

Type	Load Flow
TO	APS
RTEP ID / TO ID	b4000.5
Title	Install four 250 MVAR shunt capacitors, and a +/-500 MVAR STATCOM at Welton Spring 765 kV substation
Description	765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.9

Type Load Flow

TO APS

RTEP ID / TO ID b4000.9

Title Construct a new substation called Rocky Point with a 765 kV and a 500 kV yard (Projected ISD 6/1/2029)

Description Construct a new substation called Rocky Point with a 765 kV and a 500 kV yard. Loop in the Doubs-Goose Creek 500 kV line, the Doubs-Aspen 500 kV line, and the Woodside-Goose Creek 500 kV line. Install two 765/500 kV transformer at Rocky Point substation. 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.6

Type Load Flow

TO APS

RTEP ID / TO ID b4000.6

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line (Welton Spring to DVP local area, roughly 21 miles) (VA Portion)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.2

Type Load Flow

TO APS

RTEP ID / TO ID b4000.2

Title Construct a new 175 miles Amos to Welton Spring 765 kV line - AEP Section of the line is 30 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.4

Type Load Flow

TO APS

RTEP ID / TO ID b4000.4

Title Construct a new 765 kV switchyard - Welton Spring (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.8

Type Load Flow

TO APS

RTEP ID / TO ID b4000.8

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line (DVP local area to Rocky Point, roughly 4.8 miles)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	AEP
RTEP ID / TO ID	(Pending) / AEP-TC2-18819
Title	06PIERCE 345kV to 05MARQUIS 345kV ckt 1 - Replace Equipment
Description	At Pierce replace the following equipment: Switch 444, 446, 447, and 449, Bus, Risers, Jumpers, Wave Trap, and Line Relay At Don Marquis 345kV replace the following equipment: Circuit Breaker B2, Risers, and Line Reactor.
Total Cost ($USD)	$3,300,000
Allocated Cost ($USD)	$0
Time Estimate	36 to 48 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MARQUI-06PIERCE 345.0 kV Ckt 1 line	(Any)

System Reinforcement: s2213.9

Type	Load Flow
TO	AEP
RTEP ID / TO ID	s2213.9 / (Pending)
Title	Six-wire 71.5 miles of the Pierce-Don Marquis line. Construct 0.13 miles of line to tie into Don Marquis station.
Description	Six-wire 71.5 miles of the Pierce-Don Marquis line. Construct 0.13 miles of line to tie into Don Marquis station.
Cost Information	
Time Estimate	Jun 01 2027

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned supplemental project. AH1-570 is not contingent on this supplemental project as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MARQUI-06PIERCE 345.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	AEP
RTEP ID / TO ID	(Pending) / AEP-TC2-18751
Title	05KYGER 345kV to 05SPORN 345kV ckt 1 - Replace Equipment and Sag Study
Description	Sag study Sporn - Kyger Creek line and at Kyger Creek Replace the following equipment: 2156.0 KCM ACSR (84/19), 3000A Switch, CB-BB, 2870 MCM ACSR (Bus), GCB AA, Wave Trap, Line Relay/CT, Meters, Switch 104, and Switch 10
Total Cost ($USD)	$5,052,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b3788.1

Type	Load Flow
TO	AEP
RTEP ID / TO ID	b3788.1 / B3788.1
Title	Replace limiting station elements at Kyger Creek
Description	Upgrade existing 345 kV terminal equipment at Kyger Creek on the Kyger Creek-Sporn 345 kV line. Projected in-service date 6/1/2028 Replace AEP-owned station takeoff riser and breaker BB risers at OVEC-owned Kyger Creek station.
Cost Information	
Time Estimate	Nov 18 2027

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b3788.2

Type	Load Flow
TO	OVEC
RTEP ID / TO ID	b3788.2 / B3788.2
Title	Replace limiting station elements at Kyger Creek
Description	Upgrade existing 345 kV terminal equipment at Kyger Creek on the Kyger Creek-Sporn 345 kV line. Projected in-service date 6/1/2028 Replace OVEC-owned breaker AA risers, bus work, and breaker AA disconnect switches at OVEC-owned Kyger Creek station.
Cost Information	
Time Estimate	Jun 01 2028

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n9186.0

Type	Load Flow
TO	DEOK

RTEP ID / TO ID	n9186.0 / M240135
Title	Rebuild ~1.40 mile DEOK portion of Longbranch-Mt. Zion with new structures and 954ACSS/TW, 200C
Description	Rebuild the ~1.40 mile DEOK portion of the Longbranch-Mt. Zion line from the structure near 38.940740, -84.623478 with new structures, 954ACSS/TW, 1 conductor per phase, 200 degree C. Restore distribution underbuild.
Total Cost ($USD)	$4,803,522
Allocated Cost ($USD)	$0
Time Estimate	30 to 36 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-08MTZION 138.0 kV Ckt 1 line	34541 34553_SRT-A

System Reinforcement: n6460.3

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6460.3
Title	Rebuild the EKPC portion of the Longbranch-Mt. Zion 138 kV line section using 954 MCM ACSS conductor (3.7 miles).
Description	Rebuild the EKPC portion of the Longbranch-Mt. Zion 138 kV line section using 954 MCM ACSS conductor (3.7 miles).
Total Cost ($USD)	$7,400,000
Allocated Cost ($USD)	$0
Time Estimate	14 to 24 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-08MTZION 138.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	DEOK

RTEP ID / TO ID	(Pending) / DEOK_TC1_13706
Title	Line is 100% owned by EKPC. No DEOK upgrade required.
Description	Line is 100% owned by EKPC. No DEOK upgrade required.
Total Cost ($USD)	$0
Allocated Cost ($USD)	$0
Time Estimate	TBD

Note: This reinforcement is fictitious and will not be cost allocated to projects. It is listed for information purposes only.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

System Reinforcement: n6463.3

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6463.3 / EKPC-tc1-r0007a
Title	Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 795 MCM ACSS conductor (2.3 miles)
Description	Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 795 MCM ACSS conductor (2.3 miles)
Total Cost ($USD)	$5,400,000
Allocated Cost ($USD)	$0
Time Estimate	11 to 19 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

System Reinforcement: n6463.2

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6463.2 / EKPC-tc1-r0007b
Title	Upgrade jumpers associated with Boone 138 kV bus using 2-500 MCM 37 CU conductor or equivalent
Description	Upgrade 795 MCM AA jumpers associated with Boone 138 kV bus (Boone-Longbranch 69 kV line) using 2-500 MCM 37 CU conductor or equivalent
Total Cost ($USD)	$330,000

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

Allocated Cost ($USD) $0

Time Estimate Jun 01 2022

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a network upgrade that was securitized by a prior Queue/Cycle. AH1-570 is not contingent on this network upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement

Type Load Flow

TO Dayton

RTEP ID / TO ID (Pending) / Dayton-TC2-18817

Title Replace Stuart Switches to 4000 A

Description Replace Stuart Switches to 4000 A

Total Cost ($USD) $1,200,000

Allocated Cost ($USD) $0

Time Estimate 48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement

Type Load Flow

TO Dayton

RTEP ID / TO ID (Pending) / Dayton-TC2-18818

Title Replace Wavetrap to 4000 A

Description Replace Wavetrap to 4000 A

Total Cost ($USD) $100,000

Allocated Cost ($USD) $0

Time Estimate 48 to 60 Months

Potential Aggregate Contributor

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

System Reinforcement: n9670.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9670.0 / DAYr190039
Title	Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor.
Description	Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor.
Total Cost ($USD)	$50,000,000
Allocated Cost ($USD)	$0
Time Estimate	60 to 72 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n9671.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9671.0 / DAYr190040
Title	Replace Stuart substation bus and conductor
Description	Replace Stuart substation bus and conductor
Total Cost ($USD)	$1,000,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

System Reinforcement: n9672.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9672.0 / DAYr190041
Title	Replace Stuart substation breakers to 4000 A breakers
Description	Replace Stuart substation breakers to 4000 A breakers
Total Cost ($USD)	$2,000,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n9673.0

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n9673.0 / EKPC-tc1-r0020b
Title	Replace the 1500A interconnection metering CTs at Spurlock Station with 2000A equipment.
Description	Replace the 1500A interconnection metering CTs at Spurlock Station with 2000A equipment.
Total Cost ($USD)	$1,295,000
Allocated Cost ($USD)	$0
Time Estimate	18 to 21 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-570 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-570 could receive cost allocation. Although AH1-570 may not presently have cost responsibility for this upgrade, AH1-570 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	(Pending) / EKPC-tc1-r0020a
Title	Dayton Power & Light addresses its limiting elements (EKPC limits are 1777/1792/1792 for Rate A/B/C).
Description	Dayton Power & Light addresses its limiting elements (EKPC limits are 1777/1792/1792 for Rate A/B/C).
Total Cost ($USD)	$0
Allocated Cost ($USD)	$0
Time Estimate	TBD

Note: This reinforcement is fictitious and will not be cost allocated to projects. It is listed for information purposes only.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.325

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.325
Title	Build a new 26.38mi 230kV Line from Elmont – Ladysmith on the existing 5-2 structures between the two stations. New conductor has a summer rating of 1573 MVA.
Description	Build a new 26.38mi 230kV Line from Elmont – Ladysmith on the existing 5-2 structures between the two stations. New conductor has a summer rating of 1573 MVA.
Cost Information	
Time Estimate	Feb 24 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.344

Type	Load Flow
TO	Dominion

RTEP ID / TO ID b4000.344

Title Build a 500kV line from North Anna substation (bypassing Ladysmith Substation) to a new substation called Kraken. New conductor to have a minimum summer normal rating of 4357MVA.

Description Build a 500kV line from North Anna substation (bypassing Ladysmith Substation) to a new substation called Kraken. New conductor to have a minimum summer normal rating of 4357MVA.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.346

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.346

Title Cut-in 500kV line from Kraken substation into Yeat substation

Description Cut-in 500kV line from Kraken substation into Yeat substation

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.352

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.352

Title Cut in Line #568 Ladysmith - Possum Point into Kraken, creating new Line #568 Kraken to Possum Point.

Description Cut in Line #568 Ladysmith - Possum Point into Kraken, creating new Line #568 Kraken to Possum Point.

Cost Information

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.356

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.356

Title Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 86.7 miles in Dominion section).

Description Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 86.7 miles in Dominion section).

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.345

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.345

Title Build a 500kV line from a new substation called Kraken to a new substation called Yeat. New conductor to have a minimum summer normal rating of 4357MVA.

Description Build a 500kV line from a new substation called Kraken to a new substation called Yeat. New conductor to have a minimum summer normal rating of 4357MVA.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.341

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.341
Title	Remove the 500 kV conductor previously planned to terminate into the Vint Hill 500 kV Substation and extend approximately 0.2 miles of conductor to fly-over the site.
Description	Remove the 500 kV conductor previously planned to terminate into the Vint Hill 500 kV substation and extend approximately 0.2 miles of conductor to fly-over the site.
Cost Information	
Time Estimate	Jul 13 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.348

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.348
Title	Build a new 500/230kV substation called Kraken. The 500kV, 5000A ring bus will be set up for a redundant breaker configuration. Install (2) 1400MVA 500/230 kV transformers.
Description	Build a new 500/230kV substation called Kraken. The 500kV, 5000A ring bus will be set up for a redundant breaker configuration. Install (2) 1400MVA 500/230 kV transformers. A new redundant breaker ring will be added at Kraken to accommodate the new 500kV line from North Anna to Kraken.
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.327

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.327

Title Upgrade/install equipment at Ladysmith Substation to 4000A. Expansion will be required to accommodate a total of three (3) new 230 kV strings of breaker and a half scheme.

Description Upgrade/install equipment at Ladysmith substation to 4000A. Expansion will be required to accommodate a total of three (3) new 230kV strings of breaker and a half scheme.

Cost Information

Time Estimate Feb 24 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.357

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.357

Title Build a new 765/500/230 kV substation called Yeat. Install (2) 765/500 kV transformers. Cut in 500 kV line Bristers-Ox and 500 kV line Meadowbrook-Vint Hill into Yeat.

Description Build a new 765/500/230 kV substation called Yeat. Install (2) 765/500 kV transformers. Cut in 500 kV line Bristers-Ox and 500 kV line Meadowbrook-Vint Hill into Yeat.

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.349

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.349

Title Update relay settings at Ladysmith to change the destination of 500kV line #568 from Possum Point to Kraken.

Description Update relay settings at Ladysmith to change the destination of 500kV line #568 from Possum Point to Kraken.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.350

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.350

Title Update relay settings at Possum Point to change the destination of 500kV line #568 from Ladysmith to Kraken.

Description Update relay settings at Possum Point to change the destination of 500kV line #568 from Ladysmith to Kraken.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.355

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.355

Title Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 69.3 miles in AEP section).

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Description Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 69.3 miles in AEP section).

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.351

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.351

Title Cut in Line #568 Ladysmith - Possum Point into Kraken, creating Line #9517 Ladysmith to Kraken.

Description Cut in Line #568 Ladysmith - Possum Point into Kraken, creating Line #9517 Ladysmith to Kraken.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.326

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.326

Title At Elmont substation, install/upgrade associated equipment to accommodate a 4000A line rating for the new 230kV line between Elmont - Ladysmith.

Description At Elmont substation, install/upgrade associated equipment to accommodate a 4000A line rating for the new 230kV line between Elmont - Ladysmith.

Cost Information

Time Estimate Feb 24 2029

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.342

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.342
Title	Remove the terminal equipment and substation work required for the termination of the Morrisville-Wishing Star 500 kV line into Vint Hill.
Description	Remove the terminal equipment and substation work required for the termination of the Morrisville-Wishing Star 500 kV line into Vint Hill.
Cost Information	
Time Estimate	Jul 13 2029

Not Contingent

Note: AH1-570 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-570 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

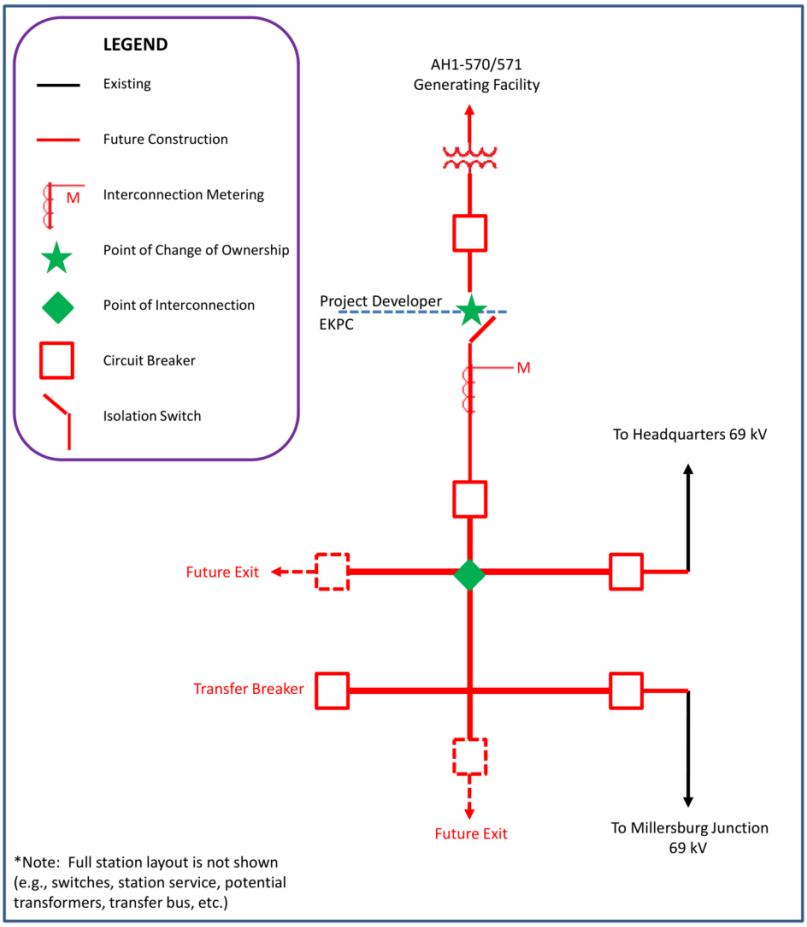
	Facility	Contingency
►	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Attachments

AH1-570 One Line Diagram

AH1-570/571 Conceptual One-Line Diagram of Interconnection Facilities

East Nicholas County 69 kV Switching Station



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Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-570

Headquarters - Millersburg Junction 69 kV

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff, as well as the Application and Studies Agreement between the Project Developer and PJM Interconnection, LLC (PJM or Transmission Provider (TP)). The Transmission Owner (TO) is East Kentucky Power Cooperative (EKPC).

This Facility Study was performed to satisfy the Phase 2 Facility Study requirement of the PJM Tariff. The Facility Study is intended to provide scope, cost and schedule estimates for the project as currently defined and approved for Phase 2 study. In the event project changes are made during DP2 that impact this report, updates will be provided as part of the Phase 3 report. Following execution of the project's final agreement, this report will not be updated to account for other changes made as part of the agreements modification clause and instead the scope change process will be followed.

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a Solar Generating Facility located in, Nicholas County, Kentucky with a designated PJM Project ID of AH1-570. The installed facilities will have a total Maximum Facility Output (MFO) of 25 MW with 15.6 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the EKPC transmission system via a newly constructed 69 kV Main-Transfer Bus substation, East Nicholas County 69 kV Switching Station, tapping the Headquarters - Hunt 69 kV line between the Millersburg Junction tap point and Headquarters Substation, approximately 4.0 miles from Headquarters and 1.1 miles from Millersburg Junction.

The construction of the new interconnection substation will split the existing Headquarters – Hunt 69 kV line into two lines on the transmission system. These two lines will connect the new East Nicholas County 69 kV Switching Station to the Headquarters and Hunt substations.

The proposed generation interconnection is shown on the single line diagram in Attachment #1.

3. POINT OF CHANGE IN OWNERSHIP

The Point of Change in Ownership (PCO) will be located at the PD side of a 69 kV disconnect switch to be installed by EKPC at the interface between the PD-owned substation facilities and EKPC's substation facilities at the new East Nicholas County 69 kV Switching Station. The switch shall be installed on a steel transmission line monopole structure on a drilled shaft foundation located outside the substation fence. The exact location will be determined during project detailed design and EKPC will install, own, operate, and maintain the switch.

4. SCOPE OF PROJECT DEVELOPER INTERCONNECTION FACILITIES

Project Developer will design, build, own, operate and maintain the Project Developer Interconnection Facilities on Project Developer's side of the PCO. This includes, but is not limited to:

- Circuit breakers and associated equipment located between the high side of the Main Power Transformer(s) or Generation Step-Up Transformer(s) and the Point of Change in Ownership.
- Generator lead line from the Generating Facility to the Point of Change in Ownership.
- Relay and protective equipment, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) to comply with the TO's Applicable Technical Requirements and Standards.

The proposed facility must meet EKPC's published facility connection requirements. The latest version of these requirements can be accessed via the following link:

https://www.pjm.com/planning/design-engineering/to-tech-standards/ekpc.aspx

Reference section 5.2.3 for inverter-based generating facilities.

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AH1-570 project to the EKPC transmission system. These facilities shall be designed according to EKPC Applicable Technical Requirements and Standards. Once built, EKPC will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

A 69 kV transmission line monopole structure and foundation outside the fence of the Interconnection Switching Station to terminate the Project Developer's generator lead line will be considered Transmission Owner Interconnection Facilities (TOIF). A 69 kV disconnect switch will also be mounted to this monopole dead-end structure serving as the PCO.

The TOIF will also include the line conductor from the dead-end structure to the bus position in the switchyard of the East Nicholas County 69 kV Switching Station, one 69 kV circuit breaker, and 69 kV metering equipment.

QTY	Unit	DESCRIPTION
1	Each	69 kV, 2000 Amp Circuit Breakers
4	Each	69 kV GOAB Switches
3	Each	CT's, 69 kV

Installation of fiber cable circuits

EKPC shall use telecommunications equipment that matches its current network and equipment requirements.

Two 48-strand fiber optic cables will be installed between the EKPC substation control house at the new East Nicholas County 69 kV Switching Station and the PD facility for relaying, metering, and SCADA circuit requirements. The exact details and installation plans for this fiber will be developed during project scoping.

2. STAND ALONE NETWORK UPGRADES

East Nicholas County 69 kV Switching Station

A new 69 kV Main-Transfer Bus switching station, East Nicholas County 69 kV Switching Station, will be constructed along the Headquarters - Hunt 69 kV transmission line to interconnect the project with the EKPC transmission system.

Scope of Work

The major equipment and material associated with the new substation is listed below:

QTY	Unit	DESCRIPTION
1	Each	69 kV High Profile Substation Structure
3	Each	69 kV, 2000 Amp Circuit Breakers
12	Each	69 kV GOAB Switches
1	Lot	Electrical Material (insulators, terminals, etc.)
1	Each	Station Service Transformer, 100 KVA, (69 kV-120/240V)
12	Each	Arresters, Lightning 69 kV Station 48 MCOV Polymer
3	Each	PT's, 69 kV

System Protection

The following system protection scope of work applies for this project. All system protection equipment described in this section will be owned, operated, and maintained by EKPC.

Control House: EKPC shall procure and install a drop-in style control building fully furnished and complete with the relay panels described below, along with auxiliary AC, and two 125V DC battery banks, and all required operating equipment.

Relay Panels: EKPC shall install the following protection and control panels.

Bus Differential Panel – EKPC shall install a standard bus panel complete with P1 SEL-787Z and P2 SEL-487B relays tripping P1 & P2 bus lock-out relays.

Panel for protection of the PD facility connection– EKPC shall install a standard line panel with P1 & P2 SEL-411L relays. Line relays shall utilize a line current differential protection scheme. SEL-451 relays shall be utilized for breaker control, breaker failure, and reclosing.

Line Panel for the Headquarters 69kV Line Exit (4.0 miles) – EKPC shall install standard line panel with P1 & P2 SEL-411L relays for each line exit. The P1 & P2 relays shall utilize a high-speed com-assisted tripping scheme over fiber. SEL-451 relays shall be utilized for breaker control, breaker failure, and reclosing. Control switches for line reclosing, breaker control, and local/supervisory control shall also be provided.

Line Panel for the Hunt 69kV Line Exit (29.3 miles) – EKPC shall install standard line panel with P1 & P2 SEL-411L relays for each line exit. The P1 & P2 relays shall utilize a high-speed com-assisted tripping scheme over fiber. SEL-451 relays shall be utilized for breaker control, breaker failure, and reclosing. Control switches for line reclosing, breaker control, and local/supervisory control shall also be provided.

SCADA Panel – EKPC shall install a standard SCADA panel with an Orion LX+ and dual metering for the PD. P1 Meter shall be an ION8650A, and P2 Meter shall be a SEL-735.

Control cables shall be pulled from new breakers and other required equipment to the control house.

Commissioning: Each relay panel shall be fully commissioned prior to being placed in service. Commissioning shall include AC current and potential circuits, DC functional, relay testing, and end-to-end testing where required. Each of the remote line ends (Hunt and Headquarters Substations) shall be commissioned using end-to-end testing prior to energizing the comm assisted tripping scheme to the new East Nicholas County 69 kV Switching Station.

3. NETWORK UPGRADES

Transmission Line Tie-in for new interconnection substation:

The Headquarters - Hunt 69 kV line will be cut and looped into the new interconnection substation.

The new transmission line loop-in facilities will be owned, operated, and maintained by EKPC. The tap from the existing transmission line into the new station will consist of two (2) direct embed guyed monopole dead-end structures. All existing wire or structures on the Headquarters - Hunt 69 kV line between the two tie-in structures will be removed. Each end of the tie-in is assumed to be no longer than 225 feet.

Upgrades to neighboring facilities:

Headquarters Substation

Relay settings associated with the line protection for Headquarters – Hunt 69 kV line shall be reviewed for the Headquarters 69 kV Substation to accommodate the construction of the East Nicholas County 69 kV Switching Station, and relay files will be updated accordingly. If acceptable relay setting adjustments are not possible due to older model relays, and new modern SEL line relays are required, the cost will be higher. This is to be determined during detailed design.

Hunt Substation

Relay settings associated with the line protection for Headquarters – Hunt 69kV line shall be reviewed for the Hunt 69 kV Substation to accommodate the construction of the East Nicholas County 69 kV Switching Station, and relay files will be updated accordingly. If acceptable relay setting adjustments are not possible due to older model relays, and new modern SEL line relays are required, the cost will be higher. This is to be determined during detailed design.

Installation of Fiber Circuits:

Overhead optical ground wire (OPGW) will be required to meet communications requirements for the new East Nicholas County 69 kV Switching Station. New OPGW will need to be installed over the 69kV circuit on the existing Hunt – Sideview line section (16.45 miles).

4. OTHER SCOPE OF WORK

No other scope has been identified for the interconnection of the AH1-570 facility to the EKPC transmission system.

5. MILESTONE SCHEDULE FOR COMPLETION OF EKPC WORK

Facilities outlined in this report are estimated to take approximately 33 months to construct, from the time the Generation Interconnection Agreement is fully executed. This schedule may be impacted by the timeline for procurement and installation of long lead items and/or the ability to obtain outages to construct and test the proposed facilities.

Description	Start Month	Finish Month
Detailed Design	1	16
Procurement	2	26
Construction	22	33

Option to Build Schedule

If Option to Build is selected the remaining facilities in this report are estimated to take approximately 19 months to complete. Start date to be determined after GIA is signed and in alignment with PD's schedule. This schedule may be impacted by the timeline for procurement and installation of long lead items and/or the ability to obtain outages to construct and test the proposed facilities.

Description	Start Month	Finish Month
Detailed Design	1	5
Procurement	3	16
Construction	16	19

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

Transmission Line Assumptions:

The following general assumptions have been included for the transmission line information.
provided:

1. The new substation will be constructed on the west side of EKPC's transmission line right-of-way. This estimate will need to be re-evaluated if it is located on the east side of the right-of-way.
2. The PD is responsible for either providing deeded property or obtaining any new ROW/easements on behalf of EKPC for routing the looped-in transmission line to the new substation.
3. Any required tree / vegetation clearing for the new substation and the transmission line loop-in work will be the responsibility of the PD.
4. It is assumed that standard drilled piers can be used. If geotechnical assessment reveals poor soil conditions or contamination, additional measures may be required.
5. Required transmission line outages can be scheduled as planned. Transmission line outages are:
    a. typically, not taken in the summer (June-August) or winter (December-February),
    b. cancelled during extreme weather conditions, and
    c. in some cases, required to be scheduled twelve (12) or more months in advance.
6. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
7. No significant sub-surface rock is encountered during construction, and soil conditions are suitable for standard foundation installations.

The following engineering assumptions have been included for the transmission line information provided:

1. Neither foundation nor transmission pole structural analyses have been performed. The information provided assumes that no significant foundation or structural issues are present.
2. Construction will be scheduled to avoid winter peak load periods (December - February).
3. The preliminary schedule assumes that transmission line outages can be obtained as necessary.

4. Material and equipment costs are based on current pricing.
5. Environmental permits and reviews shall be completed by EKPC and can be completed in a timely manner.

Substation & System Protection Assumptions:

The following general assumptions have been included for the substation information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, property/easement acquisitions, extreme weather, or similar events.
2. No significant sub-surface rock is encountered during construction, and soil conditions are suitable for standard ground-grid and foundation installations.
3. PD shall acquire an adequate and suitable site and grant ownership to EKPC to accommodate EKPC's interconnection substation, as mentioned above.
4. The PD will provide all necessary easements for a permanent road to provide substation access. This substation access shall be from an existing county or state road. The PD will convey these rights to EKPC if they own the property on which the substation access road will be located.
5. Switchyard grading is assumed to be a balanced site. No significant cut or fill will be required to achieve EKPC standard grading specification. Detailed grading design to be completed during project execution.
6. The new substation will be constructed on the west side of EKPC's transmission line right-of-way. This estimate will need to be re-evaluated if it is located on the east side of the right-of-way.

Metering Assumptions:

The following assumptions have been included for the metering information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Fiber-optic cable and associated equipment installation is completed as scheduled.
3. Material and equipment-related costs are based on current pricing at the time of this study.
4. Once fiber-optic cable installation is complete, the fiber will not be damaged.

Communications Assumptions:

The following assumptions have been included for the telecommunications information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Material and equipment-related costs are based on current pricing at the time of this study.
3. Once fiber-optic cable installation is complete, the fiber will not be damaged.
4. It is assumed OPGW replacement is like for like with existing shield wire on the line. Six (6) structure replacements have been assumed and will need to be confirmed during detailed design.

Environmental Assumptions:

The following general assumptions have been included for environmental permitting requirements:

1. For the PD's project, there are no "federal actions" (i.e., federal financial assistance or grants; or federal permit, license, or approval) present that would trigger NEPA compliance obligations for the EKPC facilities as a connected action.
2. Substation location will remain in the currently identified location. Relocation of the substation site may require a re-evaluation of the permitting obligations.

7. REVENUE METERING REQUIREMENTS

All revenue metering needed for this interconnection project must meet the metering requirements stated in Appendix 2, section 8 of the AH1-570 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in EKPC's Facility Connection Requirements Document posted on the PJM website.

The revenue metering will be installed on the East Kentucky Power Cooperative side of the PCO and will be owned and maintained by EKPC. Metering requirements for this facility include the installation of EKPC's standard revenue quality metering package, including potential transformers and current transformers.

The cost for installation of the metering facilities contained in the new EKPC substation are included in the substation costs provided.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

Land requirements for the Interconnection Substation needed for this interconnection project must meet the requirements in the EKPC Facility Connection Requirements Document posted on PJM website. The PD shall be responsible for acquiring all property required for this new EKPC interconnection substation and shall deed that property to EKPC. Typically, for a new 69 kV switchyard an approximately 2-acre parcel is required. EKPC will have no responsibility to acquire any property associated with the substation, either initially or if it is determined later that additional property is required.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

Applicable Technical Requirements and the EKPC Technical Standard: Facility Connection Requirements Rev 16 dated 8/15/2025 shall apply.

10. ENVIRONMENTAL AND PERMITING

EKPC or its representative will perform all necessary environmental assessments and obtain all necessary permits/approvals associated with construction of all EKPC facilities required to facilitate the interconnection of the new generating facility. This includes the Storm-water Pollution Prevention Plan (SWPPP), obtaining KYR 10 storm-water permit, and conducting the necessary SWPPP inspections prior to all construction activities.

C. APPENDICES

Attachment #1: Single line Diagram for the Physical Interconnection

Attachment #2: Substation General Arrangement

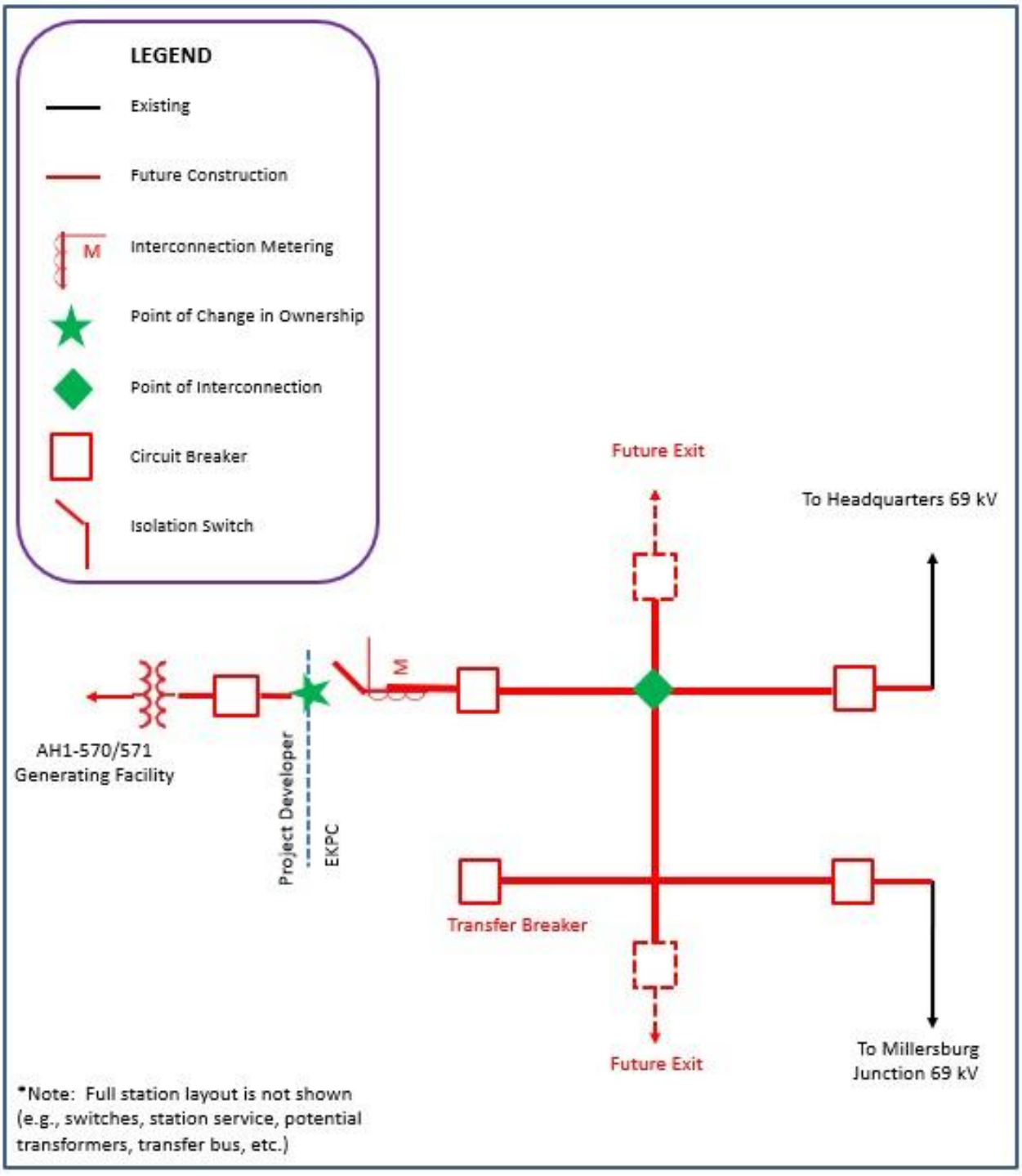
Attachment #3: Preliminary Site Layout Plan

Attachment 1:

Single Line Diagram for the Physical Interconnection

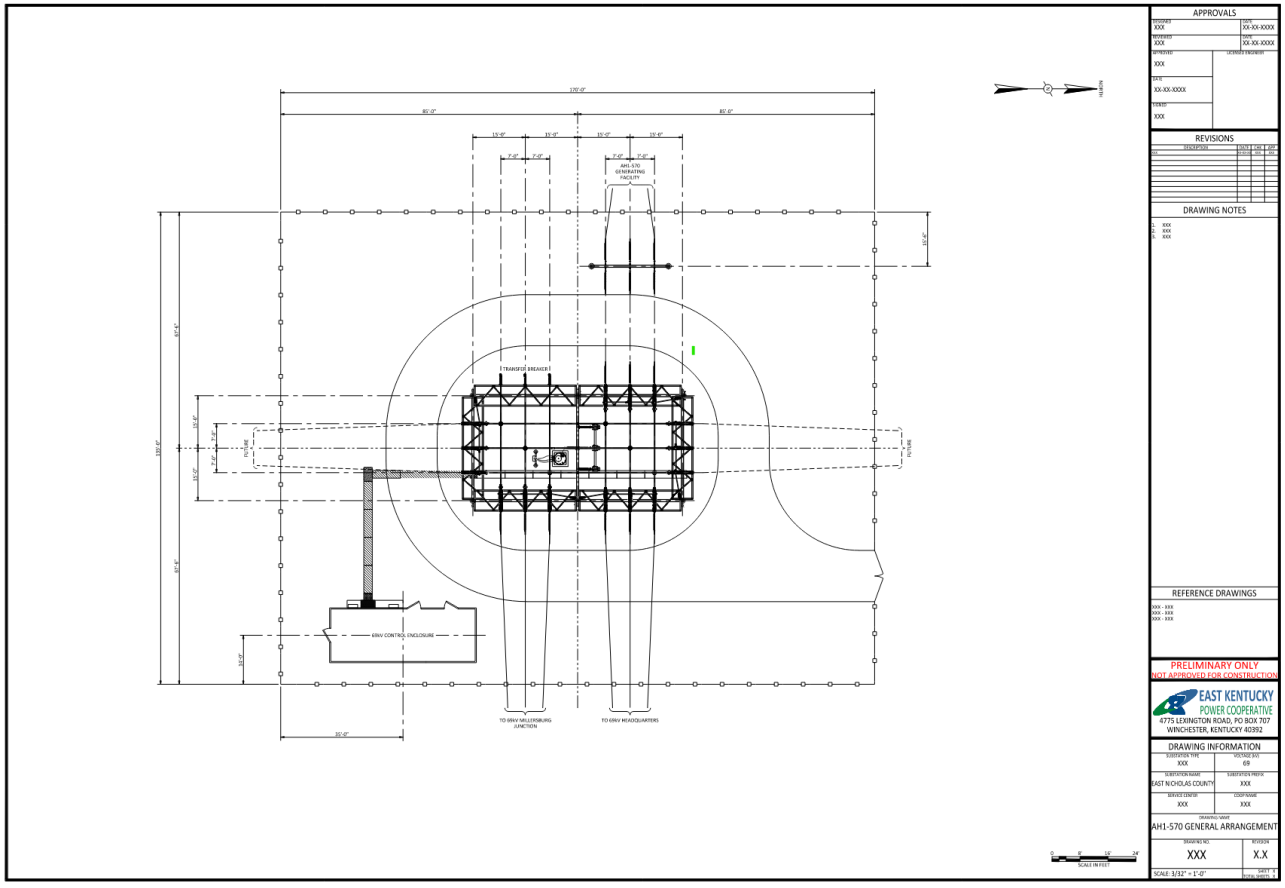
AH1-570/571 Conceptual One-Line Diagram of Interconnection Facilities

East Nicholas County 69 kV Switching Station



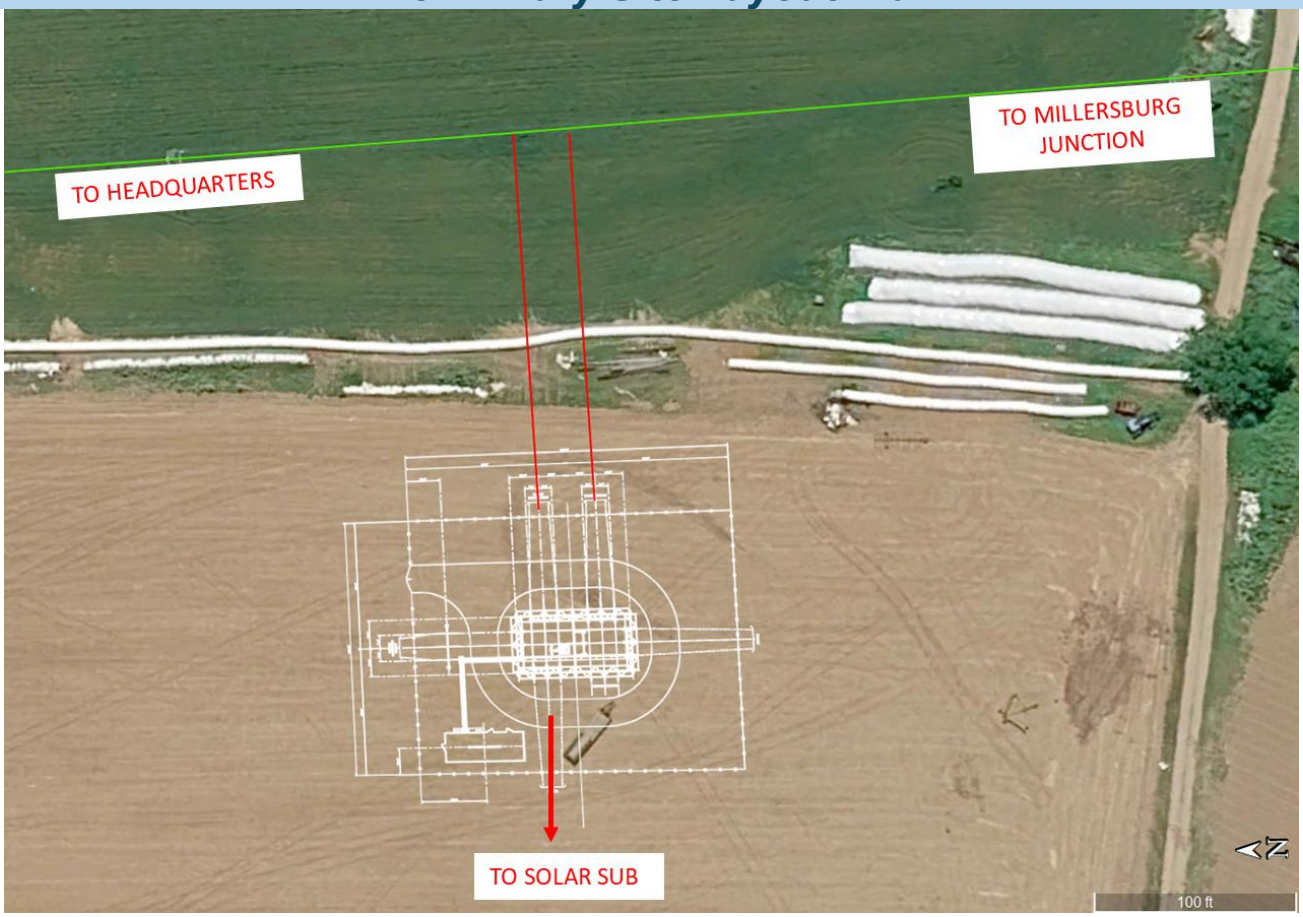
Attachment 2:

Substation General Arrangement



Attachment 3:

Preliminary Site Layout Plan



AH1-571 Phase I Study Report

v1.00 released 2025-10-29 19:45

Headquarters - Millersburg Junction 69 kV
12.5 MW Capacity / 20.0 MW Energy

Introduction

This Phase I System Impact Study Report (PH1) has been prepared in accordance with the PJM Open Access Transmission Tariff, Part VII, Subpart D, sections 307 and 308 for New Service Requests (projects) in Transition Cycle 2. The Project Developer/Eligible Customer (developer) is South Fork Solar, LLC, and the Transmission Provider (TP) is PJM Interconnection, LLC (PJM). The interconnected Transmission Owner (TO) is East Kentucky Power Cooperative, Inc..

Preface

The Phase I System Impact Study is conducted on an aggregate basis within a New Services Request's Cycle, and results are provided in both (i) a single Cycle executive summary format and (ii) an individual project-level basis. The Phase I System Impact Study Results (for both the executive summary and individual reports) will be publicly available on PJM's website. Developers must obtain the results from the website.

In accordance with PJM Manual 14H, section 4.3, PJM takes the following actions during the Phase I System Impact Study:

1. PJM studies each New Service Request on a summer peak, winter peak and light load RTEP base case study. The case year is dependent on the new services cycle under study. PJM will identify the base case year to be used in the study of a specific cycle on its website.
2. PJM will only perform load flow analysis during the Phase I System Impact Study.
3. In Phase I of the Cycle, PJM conducts an Affected System screen to identify any New Service Request with Affected System impacts and provides each Affected System Operator with a list of New Service Request in the Cycle with potential impacts to their respective system.
4. PJM will create both the short circuit and stability base cases to be used in the Phase II System Impact Study.
5. The Phase I System Impact Study results will be publicly available on PJM's website. Project Developers and Eligible Customers must obtain the results from the website.

The Transmission Owner takes the following actions during the Phase I System Impact Study:

1. Identify required Interconnection Facilities to accommodate the New Service Request.
2. Identify required Network Upgrades to mitigate system violations from the Phase I System Impact Study.
3. Provide planning-level preliminary estimates of Interconnection Facilities and Network Upgrades including scope, cost and elapsed time to complete the work.

Decision Point I Requirements

At the close of Phase I System Impact Study, PJM will initiate Decision Point I (DP1). During DP1, the Project Developer will have 30 days to decide whether to proceed with their project. If the Project Developer elects to proceed, they should provide the elements defined in the PJM Open Access Transmission Tariff, Part VII, Subpart D, section 309.A.1. Additional information on these elements is available in PJM Manual 14H sections 4.4, 6, and 7.

Allowable project modifications at Decision Point I are defined in PJM Open Access Transmission Tariff, Part VII, Subpart D, section 309.B. Additional information regarding allowable project modifications can be found in PJM Manual 14H, section 9.8.

General

The Project Developer has proposed an uprate to a planned/existing Solar facility located in the East Kentucky Power Cooperative, Inc. zone — Kentucky. This project is an increase to the developer's AH1-570 project(s), which will share the same Point of Interconnection. The AH1-571 project is a 20.0 MW uprate (12.5 MW Capacity uprate) to the previous project(s). The total installed facilities will have a capability of 45.0 MW with 28.1 MW of this output being recognized by PJM as Capacity.

Project Information

New Service Request Number:	AH1-571
Project Name:	Headquarters - Millersburg Junction 69 kV
Project Developer Name:	South Fork Solar, LLC
State:	Kentucky
County:	Undetermined
Transmission Owner:	East Kentucky Power Cooperative, Inc.
MFO:	45.0
MWE:	20.0
MWC:	12.5
Fuel Type:	Solar
Basecase Study Year:	2028

Physical Interconnection Facility Study

Physical Interconnection Facilities Study is not performed as part of the Phase I System Impact Study. Physical Interconnection Facilities Study will commence in the Phase II System Impact Study.

Point of Interconnection

AH1-571 will interconnect on the East Kentucky Power Cooperative, Inc. transmission system tapping the Headquarters - Millersburg Junction 69 kV line .

Cost Summary

The table below shows a summary of the total cost estimates for this New Service Request project. In the Phase I SIS, the costs shown are subject to change as a result of a facility study performed by the TO during the Phase II or Phase III System Impact Study.

Based on the Phase I SIS results, the AH1-571 project has the following allocation of costs for interconnection. The cost contribution towards Readiness Deposit are also shown below.

Cost Summary		
Description	**Cost Allocated to AH1-571**	**Cost Subject to Readiness***
Transmission Owner Interconnection Facilities (TOIF)	$377,500	$0
Other Scope	$0	$0
Option To Build Oversight	$0	$0
Physical Interconnection Network Upgrades		
Stand Alone Network Upgrades	$3,702,500	$3,702,500
Network Upgrades	$1,065,000	$1,065,000
System Reliability Network Upgrades		
Steady State Thermal & Voltage (SP & LL)	$0	$0
Transient Stability	$0	$0
Short Circuit	$0	$0
Transmission Owner Analysis		
SubRegional	$0	$0
Distribution	$0	$0
Affected System Reinforcements		
AFS - PJM Violatons	$0	$0
AFS - Non-PJM Violations	$0	$0
Total	**$5,145,000**	**$4,767,500**

* Contributes to calculation for Readiness Deposit #2 (RD2). See Readiness Deposit section of report for additional detail.

Definitions

Transmission Owner Interconnection Facilities: Facilities that are owned, controlled, operated and maintained by the Transmission Owner on the Transmission Owner's side of the Point of Change of Ownership to the Point of Interconnection, including any modifications, additions or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Generating Facility with the Transmission System or interconnected distribution facilities.

Stand Alone Network Upgrades: Network Upgrades, which are not part of an Affected System, which a Project Developer may construct without affecting day-to-day operations (e.g. taking a transmission outage) of the Transmission System during their construction.

Network Upgrades: Modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System. Network Upgrades have no impact or potential impact on the Transmission System until the final tie-in is complete.

Notes

Note 1: PJM Open Access Transmission Tariff (OATT), Part VII, Subpart D, section 307.5 outlines cost allocation rules. The rules are further clarified in PJM Manual 14H, section 4.2.6. PJM shall identify the New Service Requests in the Cycle contributing to the need for the required Network Upgrades within the Cycle. All New Service Requests that contribute to the need for a Network Upgrade will receive cost allocation for that upgrade pursuant to each New Service Request's contribution to the reliability violation identified on the transmission system in accordance with PJM Manuals.

Note 2: There will be no inter-Cycle cost allocation for Interconnection Facilities or Network Upgrades identified in the System Impact Study costs identified in a Cycle; all such costs shall be allocated to New Service Requests in that Cycle.

Note 3: For Project Developers with System Reinforcements listed: If this project presents cost allocation to a System Reinforcement indicates $0, then please be aware that as changes to the interconnection process occur, such as other projects withdrawing, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to this project. In addition, although this project presents cost allocation to a System Reinforcement is presently $0, this project may need this system reinforcement completed to be deliverable to the PJM system. If this project desires to come into service prior to completion of the system reinforcement, the Project Developer will need to request PJM to perform an interim deliverability study to determine if they would be deliverable for all or a portion of their output for each delivery year until the system reinforcement is complete.

Readiness Deposit

Per Tariff Part VII, Subpart D, section 309 (Decision Point I) A.1.a.i and PJM Manual 14H, section 6.2, Readiness Deposit #2 (RD2) are funds committed by the Project Developer or Eligible Customer based upon the applicable contribution to Network Upgrades as defined below. Readiness Deposits are not used to fund studies nor to offset Security.

During Decision Point I (DP1), the Project Developer or Eligible Customer is required to submit Readiness Deposit #2, which is calculated as 10% of cost allocation for required Phase I Network Upgrades minus Readiness Deposit #1.

Note 1: "Network Upgrades" referred to in the calculation include both (i) the Physical Interconnection Network Upgrades and (ii) the System Reliability Network Upgrades as shown in the Cost Summary table.

Note 2: Readiness Deposit #1 (RD1) = ($4,000 * Project Size (MW))

Note 3: Readiness Deposit #2 (RD2) = 10% of cost allocation for required Network Upgrades minus RD1. Readiness Deposit #2 (RD2) can be zero, but may not be a negative number.

Readiness Deposit #2 Due for Project AH1-571

Readiness Deposit #2 has been calculated for the project based on the Phase I System Impact Study results and is shown in the table below. This Readiness Deposit #2 must be provided at Decision Point I through either a wire transfer or letter of credit per Manual 14H, Section 6.2.

Readiness Deposit			
Project ID	**10% of cost allocation for Phase I Network Upgrades**	**Readiness Deposit #1 Received (RD1)**	**Readiness Deposit #2 (RD2) for AH1-571 Project due at DP1**
	A	**B**	**A - B**
AH1-571	$476,750	$80,000	$396,750

Note: Failure to provide an acceptable form of Readiness Deposit #2 by the end of Decision Point I will result in withdrawal and termination of the New Service Request.

For additional detail regarding Readiness Deposit Refunds, reference PJM Manual 14H, section 6.2.1. The Readiness Deposit Letter of Credit template can be found here.

Transmission Owner Scope of Work

The total preliminary cost estimate for the Transmission Owner scope of work (including TOIF and Physical Interconnection Network Upgrades) is given in the table below. These costs do not include CIAC Tax Gross-up.

Transmission Owner Interconnection Facilities			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	One (1) 69 kV generator lead line to include, but not limited to, installation of one 69 kV breaker, a 69 kV line monopole dead-end structure and foundation, a 3-pole disconnect switch mounted to the monopole, line conductor from the dead-end structure to the bus position in the switchyard, two (2) 48-strand fiber optic cables, and 69 kV metering equipment.	$755,000	$377,500 (See Note 1)

Stand-Alone Network Upgrades			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	East Nicholas County 69 Switching Station: Construct a new 69 kV switching station along the Headquarters-Millersburg Junction 69 kV line.	$7,405,000	$3,702,500 (See Note 1)

Network Upgrades			
RTEP ID	**Description**	**Total Cost ($USD)**	**Allocated Cost ($USD)**
(Pending)	Revise relay settings/relays at the existing Hunt substation.	$65,000	$32,500 (See Note 1)
(Pending)	Loop the existing Headquarters-Millersburg Junction 69 kV line into the new East Nicholas County interconnection switching station.	$580,000	$290,000 (See Note 1)
(Pending)	Revise relay settings/relays at the existing Headquarters substation.	$65,000	$32,500 (See Note 1)
(Pending)	Install new overhead optical ground wire (OPGW) on the existing Hunt-Sideview 69 kV line (16.45 miles).	$2,130,000	$710,000 (See Note 1)

Based on the scope of work for the Interconnection Facilities, it is expected to take None month(s) after the signing of a Generator Interconnection Agreement (as this is a FERC connection) 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 the Phase II and Phase III System Impact Studies.

Note 1: A Common Use Upgrade is a Network Upgrade that is needed for the interconnection of Generating Facilities or Merchant Transmission Facilities of more than one Project Developer or Eligible Customer and which is the shared responsibility of each Project Developer or Eligible Customer. If multiple Project Developers request to connect to the same interconnection substation, the Transmission Owner will determine the cost to accommodate all the requests at the substation. The cost for the interconnection will be allocated in proportion to the number of required terminations into the substation.

Transmission Owner Analysis

No Transmission Owner impacts identified.

Developer Requirements

The developer is responsible for all design and construction related activities on the developer's side of the Point of Change in Ownership. EKPC interconnection requirements can be found here.

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

Revenue Metering and SCADA Requirements

PJM Requirements

The developer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for their generating Resource. See PJM Manual 01, PJM Manual 14D, and PJM Tariff Part IX, Subpart B, Appendix 2, section 8.

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

Transmission Owner Requirements

The Project Developer will be required to comply with all interconnected Transmission Owner's revenue metering requirements located at the following link: PJM - Transmission Owner Engineering & Construction Standards.

Summer Peak Analysis

The New Service Request AH1-571 was evaluated as a 20.0 MW (12.5 MW Capacity) injection in the EKPC area.

AH1-571 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 45.0 MW (20.0 MW under study).

Note: The capacity portion of Generation Interconnection Requests are evaluated for single or N-1 contingencies. The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

Search

Study	Area	Facility Description	Contingency Name	Contingency Type
GD2	AP	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	AP_P1-2_MP-500-028_SRT-A	Single
GD2	AP	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-502T_SRT-A	Single
GD2	AP	01FLINTRUN-01HARRSN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-502T_SRT-A	Single
GD2	AP	01FLINTRUN-01HARRSN 500.0 kV Ckt 1 line	AP_P1-2_MP-500-028_SRT-A	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#8122_05BEATTY 345_302W_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18136_05CHENOWETH 345_CB1_SRT-A-1	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18138_05CHENOWETH 345_CB3_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	DAY_GREENE_345KV_FB_GJ_EE_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#18137_05CHENOWETH 345_CB2_SRT-A	Breaker
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	495_SRT-A	Tower
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#18134_SRT-A-1	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#18134_SRT-A-2	Single
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	GREENE_345KV_E_SRT-A	Bus
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	34524 34598_SRT-A	Tower
GD2	AEP	05ADKINS-05BEATTY 345.0 kV Ckt 1 line	AEP_P2-2_#7222_05MALIS 765_1_SRT-A	Bus
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#3195_05BEATTY 345_304E_SRT-A	Breaker
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#18045_05CYPRUS 345_CB4_SRT-A	Breaker
GD2	AEP	05BEATTY-05COLE 345.0 kV Ckt 1 line	AEP_P4_#18042_05CYPRUS 345_CB1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#XXXX_05BEATTY 345_304W_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16620_05ADKINS 345_A_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16621_05ADKINS 345_A1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#16622_05ADKINS 345_B1_SRT-A	Breaker
GD2	AEP	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	05CLOV17_XFL-05CLOVRD 345.0 kV Ckt 17 line	AEP_P4_#7421_05CLOVRD 765_BB2_SRT-A	Breaker

GD2	AEP	05CLOV17_XFL-05CLOVRD 345.0 kV Ckt 17 line	AEP_P1-3_#7421_05CLOVRD 765_14_SRT-A	Single
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P1-3_MP-765-501T_SRT-A	Single
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P2-3_MP-500-020_SRT-SL	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AP_P2-3_MP-500-021_SRT-SL	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AEP_P4_#37_05MOUNTN 765_B1_SRT-A	Breaker
GD2	AEP/DVP	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	AEP_P4_#2942_05KAMMER 765_PP_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#8980_05KAMMER 765_QQ2_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P1-2_#17217_SRT-A	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#17219_05GUERNSEY 765_A_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	Base Case	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P4_#7422_05CLOVRD 500_EE2_SRT-A	Breaker
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P2-2_#7222_05MALIS 765_1_SRT-A	Bus
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P1-2_#7422_16_SRT-A	Single
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P7-1_#10944___SRT-A	Tower
GD2	AEP	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	AEP_P7-1_#10856___SRT-A	Tower
GD2	AEP	05WLDCAT-05HILLSB 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#7446_05MARYSV 765_B2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#7441_05SORENS 765_J1_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#1558_05BAKER 765_Q_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#309_05HANG R 765_B2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P4_#1560_05BAKER 765_Q2_SRT-A	Breaker
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P1-2_#7441_100545_SRT-A	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P1-2_#309_15_SRT-A	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AEP_P2-2_#6763_05BIERSR 345_2_SRT-A	Bus
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	34569 34598 34524_SRT-A	Tower

GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	34524 34598_SRT-A	Tower
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	Base Case	Single
GD2	AEP/OVEC	06KYGER-05SPORN 345.0 kV Ckt 1 line	AP_P2-2_WP-500-DRT14_SRT-SL	Bus
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P4_#6189_05HANG R 765_D1_SRT-A	Breaker
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P4_#709_05HANG R 765_D2_SRT-A	Breaker
GD2	AEP/OVEC	06PIERCE-05MARQUI 345.0 kV Ckt 1 line	AEP_P1-2_#709_546_SRT-A	Single
GD2	DEO&K	08LONGBR-08MTZION 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	DEO&K/EKPC	4BOONE CO-08LONGBR 138.0 kV Ckt 1 line	34541 34553_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1445_ZIMMER_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1449_ZIMMER_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	34569 34598 34524_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1373_PORTUNION_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1493_RED BANK_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P4_1487_RED BANK_SRT-A	Breaker
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P_CIRCUIT1883&4545REDBANKSILGRVZIMMER_SRT-A	Tower
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P2.2_SILVER GROVE 345 BUS_SRT-A	Bus
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	Base Case	Single
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	EKPC_P2-2_MELD-SPUR 345_SRT-A	Bus
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P1_ZIMMER-MELDAHL 34576_SRT-A	Single
GD2	DAY/EKPC	7SPURLOCK-09STUART 345.0 kV Ckt 1 line	DEOK_P1_RED BANK-SILVER GROVE-ZIMMER 4545_SRT-A	Single
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#XXXX_05BEATTY 345_304W_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16622_05ADKINS 345_B1_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16620_05ADKINS 345_A_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#16621_05ADKINS 345_A1_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P4_#7445_05MARYSV 765_B_SRT-A	Breaker
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P7-1_#11019___SRT-A-2	Tower

GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P1-2_#762_8072_SRT-A	Single
GD2	AEP	AF1-228 TP-05BEATTY 345.0 kV Ckt 1 line	AEP_P7-1_#11019___SRT-A-1	Tower

Winter Peak Analysis

The New Service Request AH1-571 was evaluated as a 20.0 MW (12.5 MW Capacity) injection in the EKPC area.

AH1-571 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 45.0 MW (20.0 MW under study).

Note: The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for single or N-1 contingencies and multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

(No impacts were found for this analysis)

Light Load Analysis

The New Service Request AH1-571 was evaluated as a 20.0 MW injection

AH1-571 was evaluated as part of a plant. The total Energy output of the plant was evaluated at its maximum seasonal capability of 45.0 MW (20.0 MW under study).

Note: The capacity portion of Generation Interconnection Requests are evaluated for single or N-1 contingencies. The energy portion, ramped up to a percentage of its full energy output based on season and fuel-specific ramping limits, of Generation Interconnection Requests are evaluated for multiple facility (common mode) contingencies (double circuit tower line, fault with a stuck breaker, and bus fault). For additional details regarding Generator Deliverability, reference PJM Manual 14B, Attachment C, Section C.3.

(No impacts were found for this analysis)

Short Circuit Analysis

Short Circuit analysis is not performed as part of the Phase I System Impact Study. Short Circuit analysis will commence in the Phase II System Impact Study.

Stability Analysis

Stability analysis is not performed as part of the Phase I System Impact Study. Stability analysis will commence in the Phase II System Impact Study.

Reactive Power Analysis

Reactive Power analysis is not performed as part of the Phase I System Impact Study. Reactive Power analysis will commence in the Phase II System Impact Study.

Steady-State Voltage Analysis

Steady State Voltage Analysis is Not Required.

New Service Request Dependencies

The New Service Requests below are listed in one or more dispatch for the overloads identified in this report. These projects contribute to the loading of the overloaded facilities identified in this report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could

vary depending on the action of other projects. The status of each project at the time of the analysis is presented in the table. This list may change as other projects withdraw or modify their requests. This table is valid for load flow analyses only.

New Service Requests Dependencies		
Project ID	**Project Name**	**Status**
AA1-018	Powerton-Goodings Grove	In Service
AA1-038	Lexington-Low Moor 230kV	Under Construction
AA1-095	Halfway-Marlowe 34.5kV	In Service
AA2-184	Atlantic-Red Bank 34kV	In Service
AB1-001	Absecon 12 kV	In Service
AB1-006	Meadow Lake 345kV	In Service
AB1-027	Old Church 34.5 KV	In Service
AB1-096	Carroll-Mt. Airy 34.5kV	In Service
AB1-124	Carroll-Monocacy 34.5kV	Partially in Service - Under Construction
AB1-125	Carroll-Monocacy 34.5kV	In Service
AB1-127	St. Thomas-Guilford 34.5kV	In Service
AB1-128	St. Thomas-Mercersburg 34.5kV	In Service
AB1-138	Navy 34.5kV	In Service
AB1-139	Metuchen 26kV	In Service
AB1-141	Church-Wye Mills 138 kV I	In Service
AB1-142	Church-Wye Mills 138 kV II	In Service
AB1-150	Grassy Falls 138kV	In Service
AB1-176	Price 25kV II	Engineering & Procurement
AB1-180	Pine View 12kV	In Service
AB2-026	Powhatan 34.5kV	In Service
AB2-029	Remington 34.5kV	In Service
AB2-032	Church-Wye Mills 138 kV	In Service
AB2-037	Keeney-Steele 230kV	Under Construction
AB2-045	Buckingham 34.5kV	In Service
AB2-049	Gloucester Township 12kV	In Service
AB2-070	Mt. Pulaski-Brokaw	In Service
AB2-133	Chestertown 69kV	Under Construction
AB2-135	Church-Kent 69kV	In Service
AB2-136	Cambridge-West Cambridge 69kV	Under Construction
AB2-153	Church-Wye Mills 138 kV	In Service
AB2-158	Louisa-South Anna 230kV	In Service
AB2-170	East Lima-Marysville 345kV	In Service
AB2-179	Townsend 138kV	In Service
AC1-001	Delano 138kV	In Service
AC1-010	Gloucester 26kV	Under Construction

AC1-017	Levittown 13 kV	In Service
AC1-030	Cinnaminson 13kV	In Service
AC1-033	Kewanee 138 kV	In Service
AC1-042	Altavista-Mt. Airy 69kV	In Service
AC1-053	Lanesville-Brokaw	Partially in Service - Under Construction
AC1-068	Atlanta 69kV I	In Service
AC1-069	Atlanta 69kV II	In Service
AC1-074	Jacksonville-Renaker 138kV I	In Service
AC1-075	Perth-Hickory Grove 115kV	In Service
AC1-076	Locust Grove-Paytes 115kV	In Service
AC1-078	Beatty-London 138kV	In Service
AC1-082	Ravenswood-Hemlock 69kV	Under Construction
AC1-085	Stuart-Clinton 345kV	In Service
AC1-089	Hillsboro-Wildcat 138kV	In Service
AC1-091	Cedar Creek 138kV I	Engineering & Procurement
AC1-092	Cedar Creek 138kV II	Engineering & Procurement
AC1-093	Cedar Creek 138kV III	Engineering & Procurement
AC1-094	Cedar Creek 138kV IV	Engineering & Procurement
AC1-101	Johns Creek-Excel 138kV I	Suspended
AC1-102	Johns Creek-Excel 138kV II	Suspended
AC1-111	Aurora 138kV	In Service
AC1-118	Westmoreland 34.5kV	In Service
AC1-120	Mitchell-Mountain Run 115kV	Engineering & Procurement
AC1-121	Mitchell-Mountain Run 115kV	Engineering & Procurement
AC1-122	Smith Mountain-Candler's Mountain 138kV	In Service
AC1-145	Gretna DP 69 kV	In Service
AC1-158	Spotsylvania 500kV	In Service
AC1-165	Atlanta 69kV III	In Service
AC1-166	Atlanta 69kV IV	In Service
AC1-167	Mark Center 69kV	Under Construction
AC1-168	Kewanee-Streator	Suspended
AC1-174	Losantville 345kV	In Service
AC1-175	Losantville 345kV	In Service
AC1-188	Rio-Lick 138kV	Engineering & Procurement
AC1-191	Elmont 115kV	Engineering & Procurement
AC1-194	Elk 138kV	Active
AC1-214	Crescent Ridge	In Service
AC2-023	Hebron 69kV	Engineering & Procurement
AC2-029	Circleville 138kV	Suspended

AC2-044	Maddox Creek 345kV	Suspended
AC2-059	Biers Run-Circleville 138kV	In Service
AC2-060	Buckskin 69kV	In Service
AC2-061	Hillsboro-Clinton 138kV	In Service
AC2-067	Camden-Crystal I 69kV	Engineering & Procurement
AC2-068	Camden-Crystal II 69kV	Engineering & Procurement
AC2-075	Jacksonville-Renaker 138 kV	In Service
AC2-088	S. Bethel-Brown 69kV	In Service
AC2-090	Losantville 345kV	In Service
AC2-111	College Corner 138kV	Engineering & Procurement
AC2-123	Jacksons Ferry 138kV	In Service
AC2-136	East Hagerstown 12kV	Under Construction
AC2-137	Elko 34.5kV	In Service
AC2-138	Northern Neck 34.5kV	In Service
AC2-157	Sullivan 345 kV	Under Construction
AC2-165	Bremo-Powhatan 230kV	Suspended
AC2-168	Clinton 23kV	In Service
AC2-176	Jay 138 kV	In Service
AC2-186	Harrington 25kV	Under Construction
AC2-187	Harrington 69kV	Under Construction
AC2-188	Harrington 69 kV	Under Construction
AC2-195	Galion-Roberts South 138 kV	Under Construction
AD1-013	Twombly Road 138kV	Engineering & Procurement
AD1-017	Smith Mountain-Bearskin 138 kV	In Service
AD1-020	Hunterstown-Lincoln 115 kV	In Service
AD1-060	Mercersburg-Milnor 34.5 kV	In Service
AD1-061	McConnelsburg-Mercersburg 34 kV	In Service
AD1-063	Harmony Village 34.5 kV	In Service
AD1-100	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Under Construction
AD1-105	Kings Dominion DP 115 kV	Under Construction
AD1-115	Mountain Run-Mitchell 115 kV	Engineering & Procurement
AD1-119	Payne 69 kV	In Service
AD1-128	Modoc-Delaware 138 kV	Partially in Service - Under Construction
AD1-130	Hardin Switch 345 kV	In Service
AD1-136	South Bethel-Brown 69 kV	In Service
AD1-140	Greene-Clark 138 kV	Engineering & Procurement
AD1-155	Meadow Brook-Strasburg 138 kV	In Service
AD2-009	McConnellsburg 138 kV	In Service

AD2-016	Biers Run-Circleville 138 kV	In Service
AD2-020	Valley 138 kV	Engineering & Procurement
AD2-027	Camden Switch 26 kV	In Service
AD2-031	Martinsville-Wilmington 69 kV	In Service
AD2-038	Powerton-Nevada 345 kV	Under Construction
AD2-042	Camden Switch 26 kV II	In Service
AD2-047	Davis Creek 138 kV	Suspended
AD2-048	Cynthia-Headquarters 69 kV	Under Construction
AD2-060	Davis Creek 138kV	Engineering & Procurement
AD2-065	Atco 12 kV	In Service
AD2-066	Mazon-Crescent Ridge 138 kV	Engineering & Procurement
AD2-067	Centerburg 138kV	Engineering & Procurement
AD2-070	Gilbert-Morris Park 34.5kV	In Service
AD2-071	Strawton-Deer Creek 138 kV	Suspended
AD2-073	Sanders DP 230 kV	In Service
AD2-074	Garner DP-Lancaster 115 kV	Engineering & Procurement
AD2-079	Capitol Ave 34.5kV	In Service
AD2-086	Hardin Switch 345 kV	In Service
AD2-092	Marysville 345kV	Under Construction
AD2-093	Marysville 345kV	Under Construction
AD2-100	Kincaid-Pana 345 kV	Suspended
AD2-115	Lyons-Moselem 69kV	In Service
AD2-116	Hokes-Grantley 69 kV	In Service
AD2-131	Kincaid-Pana 345kV	Suspended
AD2-133	Eagle Valley 115kV	In Service
AD2-134	Shady Oaks	Partially in Service - Under Construction
AD2-135	Williamstown 12kV	Partially in Service - Under Construction
AD2-163	Broadview-Tangy 138 kV	In Service
AD2-172	Lena 138kV	In Service
AD2-179	Morgans Cut-Glen Lyn 138kV	Suspended
AD2-180	Elk Garden-Parr Run 138kV	In Service
AE1-040	Greenfield 69 kV	In Service
AE1-041	Edison 4kV	In Service
AE1-071	Shade Gap-Roxbury 115 kV	In Service
AE1-074	Winterpock 34.5 kV	Under Construction
AE1-075	Powhatan 34.5 kV	In Service
AE1-079	Maysville-Sharon 69 kV	Under Construction
AE1-081	Landing 12.47 kV	In Service

AE1-090	Hardin Switch 345 kV	In Service
AE1-092	Blue Jacket-Kirby 138 kV	Active
AE1-100	Axton 138 kV	In Service
AE1-101	McConnellsburg-Texas Eastern 138 kV	In Service
AE1-102	Maddox Creek 345 kV	Suspended
AE1-109	Frenchs Mill 34 kV	In Service
AE1-113	Mole Creek 345 kV	Engineering & Procurement
AE1-114	Maryland-Lancaster 138 kV	Active
AE1-142	Manitou-Pleasant Plains 34.5 kV	In Service
AE1-155	Garner-Northern Neck 115 kV	In Service
AE1-156	Quakertown Solar II 34.5 kV	Partially in Service - Under Construction
AE1-163	Powerton-Nevada 345 kV	Engineering & Procurement
AE1-166	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Engineering & Procurement
AE1-170	Kenzie Creek-Colby 138 kV	Suspended
AE1-172	Loretto-Wilton Center	Active
AE1-176	Roanoke-Vinton 12 kV (Niagara Hydro)	In Service
AE1-183	Maysville-McDowell 69 kV	Engineering & Procurement
AE1-185	Hokes-Jackson 69 kV	In Service
AE1-196	Hokes-Jackson 69 kV II	In Service
AE1-205	McLean 345 kV	Engineering & Procurement
AE1-207	Mississinewa-Gaston 138 kV	Suspended
AE1-208	Delaware-Van Buren 138 kV	Suspended
AE1-209	Desoto 345 kV	Suspended
AE1-210	Desoto 345 kV	Suspended
AE1-212	Grandview-Clifftop 138 kV	Suspended
AE1-227	South Cumberland 69 kV	Suspended
AE1-229	Deepwater-Upper Pittsgrove 138 kV	Suspended
AE1-237	Andover (Maysville) 69kV I	Under Construction
AE1-245	Haviland 138 kV	Under Construction
AE1-250	Smith Mountain-E. Danville 138 kV	Engineering & Procurement
AE2-029	Grottoes-Merck 115kV	Under Construction
AE2-035	Lena 138 kV	In Service
AE2-042	Milton 69 kV	In Service
AE2-045	Olive-Reynolds 345 kV	Engineering & Procurement
AE2-047	Ridgeway-Solite 69 kV	Engineering & Procurement
AE2-048	Muskingum-W. Millersport 345 kV	Engineering & Procurement
AE2-054	Warfordsburg 34 kV	In Service
AE2-059	Derry Tap-Derry Bus 69 kV	In Service

AE2-060	Mifflintown Bus-Mifflintown Tap 69 kV	In Service
AE2-071	Patton Rd-Summer Shade 69 kV	In Service
AE2-089	Pennville-Adams 138 kV	Engineering & Procurement
AE2-092	Kidds Store-Sherwood 115 kV	Engineering & Procurement
AE2-113	Farmers Valley-Ridgeway 115 kV	Under Construction
AE2-114	Midland 23 kV I	In Service
AE2-115	Midland 23 kV II	In Service
AE2-117	ABW Tap-Alexandria 46 kV	Suspended
AE2-125	Stahlstown-Ligonier 25 kV	In Service
AE2-126	Dubois-Curwensville 34.5 kV	In Service
AE2-129	Philipsburg-Clarence 34.5 kV	In Service
AE2-131	Philipsburg-Karthaus 34.5	Under Construction
AE2-133	Penns Tap-Richfield Tie 69 kV	In Service
AE2-136	Muskingum River-W. Millersport 345 kV	Engineering & Procurement
AE2-139	East Towanda-Grover 230 kV	Engineering & Procurement
AE2-140	Axton-Danville 138 kV	Suspended
AE2-148	Beatty-Greene 345 kV	In Service
AE2-152	Loretto-Wilton 345 kV & Braidwood-Davis Creek 345 kV	Engineering & Procurement
AE2-160	Kanawha River 138 kV	Engineering & Procurement
AE2-166	Stockton 138 kV	Suspended
AE2-169	Delaware-Van Buren 138 kV	Suspended
AE2-172	Mississinewa-Gaston 138 kV	Suspended
AE2-173	McLean 345 kV	Active
AE2-175	Jackson-Long Pond 69 kV	Partially in Service - Under Construction
AE2-185	Gladys DP-Stonemill Switching Station 69 kV	Active
AE2-187	Shockoe DP-Chatham 69 kV	Active
AE2-206	East Sidney-Quincy 138 kV	In Service
AE2-214	Cole 345 kV	Engineering & Procurement
AE2-217	East Springfield-London 138 kV	Engineering & Procurement
AE2-219	Bluff Point-Randolph 138 kV	Suspended
AE2-220	Losantville 345 kV	Engineering & Procurement
AE2-221	Clinton-Stuart 345 kV	Under Construction
AE2-223	McLean 345 kV	Active
AE2-224	Bear Rock-Johnstown 230 kV	In Service
AE2-226	Millville-Old Chapel 138 kV	Engineering & Procurement
AE2-230	Bartonsville-Meadow Brook 138 kV	In Service
AE2-234	Liberty Center-Buckeye Tap 69 kV	Engineering & Procurement
AE2-236	Columbia-Northeast 138 kV	Suspended

AE2-254	Garrard County-Tommy-Gooch 69 kV	In Service
AE2-255	Molecreek 345 kV	Engineering & Procurement
AE2-261	Kincaid-Pana 345 kV	Active
AE2-262	Moshannon-Milesburg 230 kV	Engineering & Procurement
AE2-263	Moshannon-Milesburg 230 kV II	Engineering & Procurement
AE2-267	Woodsdale 345 kV	Engineering & Procurement
AE2-281	Powerton-Nevada 345 kV	Engineering & Procurement
AE2-283	Gladys-Stone Mill 69 kV	Active
AE2-285	Maysville 69 kV	Engineering & Procurement
AE2-291	Grit DP-Perth 115 kV	Active
AE2-297	Madison-Tanners Creek 138 kV	In Service
AE2-305	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AE2-308	Three Forks-Dale 138 kV	Active
AE2-309	Carlos Junction-Lonaconing 34.5 kV	In Service
AE2-315	Yankee Tap 69 kV	In Service
AE2-318	Ford-Cedarville 138 kV	Suspended
AE2-321	Belvidere-Marengo 138 kV	Active
AE2-323	Twin Branch-Guardian 138 kV	Under Construction
AE2-325	Valley 138 kV	Active
AE2-326	Jacksons Ferry 138 kV	Engineering & Procurement
AE2-339	Avon 138 kV	Engineering & Procurement
AE2-341	Sandwich-Plano 138 kV	Active
AE2-342	Woodstock 69 kV	Engineering & Procurement
AE2-343	Andover (Maysville) 69 kV II	Under Construction
AF1-006	Fairview East 34.5 kV	In Service
AF1-007	Indian River 230 kV I	Suspended
AF1-021	Bethelboro-Connellsville #1 25 kV	In Service
AF1-022	Lake Lynn-Uniontown 25 kV	In Service
AF1-030	Sandwich-Plano 138 kV	Active
AF1-038	Sewellton Jct-Webbs Crossroads 69 kV	Engineering & Procurement
AF1-039	Listonburg-Highpoint 24.9 kV	In Service
AF1-042	Garner DP-Lancaster 115 kV	Engineering & Procurement
AF1-045	Cedarville-Ford 138 kV	Suspended
AF1-049	Berry Hill 138 kV	Under Construction
AF1-050	Summer Shade - Green County 161 kV	Engineering & Procurement
AF1-051	Gavin 765 kV	In Service
AF1-053	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AF1-054	Givens-Mechanicsburg 138 kV	Engineering & Procurement
AF1-071	College Corner 138 kV	Engineering & Procurement

AF1-078	East Sidney-Quincy 138 kV	In Service
AF1-083	Green County-Saloma 161 kV	Engineering & Procurement
AF1-086	Madera-Westover South 115 kV	Under Construction
AF1-088	Sullivan 345 kV	Active
AF1-090	Kincaid-Pana	Engineering & Procurement
AF1-091	Varner - Sowers 138 kV	Engineering & Procurement
AF1-092	Huntington Jct. 138 kV	Suspended
AF1-093	Henderson-Stoneboro 69 kV	Engineering & Procurement
AF1-094	Union City-Cambridge Springs 34.5 kV	Engineering & Procurement
AF1-098	Four Mile Jct-Corry East 115 kV	Engineering & Procurement
AF1-118	Sorenson-Desoto 345 kV	Engineering & Procurement
AF1-119	Keystone-Desoto 345 kV	Engineering & Procurement
AF1-130	Inez 138 kV	Suspended
AF1-134	Philipsburg-Madera 34.5 kV	Engineering & Procurement
AF1-136	Warfordsburg-Purcell Junction 34.5 kV	Engineering & Procurement
AF1-140	Claysburg 23 kV	Engineering & Procurement
AF1-143	Lick Run 115 kV	Engineering & Procurement
AF1-147	Poland Rd-Runway DP 230kV	Under Construction
AF1-153	Motion-Ridgeway 46 kV	Suspended
AF1-158	Edison-Gravel Pit 138 kV	In Service
AF1-162	Inez 138 kV	Engineering & Procurement
AF1-176	Corey 138 kV	Active
AF1-202	Keystone-Desoto 345 kV	Under Construction
AF1-203	Patton Rd-Summer Shade 69 kV	In Service
AF1-204	Eugene 345 kV	Active
AF1-207	Reynolds-Olive #1 345 kV	Engineering & Procurement
AF1-215	Olive-Reynolds 345 kV	In Service
AF1-223	Keystone-Desoto 345 kV	Under Construction
AF1-227	Marysville – Gunn Road 345 kV	In Service
AF1-228	Beatty-Greene 345 kV	Engineering & Procurement
AF1-233	Flemingsburg – Spurlock 138kV	Active
AF1-249	Nickel 12.47 kV	In Service
AF1-254	Milnor-Huyetts 34.5 kV	Under Construction
AF1-262	Upper Pittsgrove 12 kV	In Service
AF1-264	Runnemede 13 kV	In Service
AF1-268	Desoto-Jay 138 kV	Engineering & Procurement
AF1-272	Lucerne 115 kV	Engineering & Procurement
AF1-275	Cole 345 kV	Engineering & Procurement
AF1-282	Stuart-Clinton 345 kV	Engineering & Procurement

AF1-283	Stuart-Clinton 345 kV	Engineering & Procurement
AF1-285	Gunn Road 345 kV	Under Construction
AF1-290	Feagans Mill-Millville 138 kV	In Service
AF1-291A	Bartonsville-Meadow Brook 138 kV	In Service
AF1-296	Garden Plain 138 kV	Active
AF1-299	Otter Point 34.5 kV I	In Service
AF1-300	Otter Point 34.5 kV II	In Service
AF1-302	Brookville-Squab Hollow 138 kV	Engineering & Procurement
AF1-320	Merrill Creek 115 kV	Engineering & Procurement
AF1-322	Meadow Lake 345 kV	Engineering & Procurement
AF1-331	Twombley Road	Engineering & Procurement
AF1-333	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-337	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-338	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF1-339	Laurelton-Mifflinburg 69 kV	Engineering & Procurement
AF2-008	Sullivan 345 kV	Active
AF2-014	Maddox Creek 345 kV	Engineering & Procurement
AF2-018	Inez 138 kV	Engineering & Procurement
AF2-032	Kincaid 345 kV	Engineering & Procurement
AF2-039	Shawville-Clearfield 34.5 kV	Engineering & Procurement
AF2-041	Nelson-Electric Junction 345 kV	Active
AF2-048	Rio-Lick 138 kV	Engineering & Procurement
AF2-068	Jay 138 kV	Active
AF2-069	Crescent Ridge 138 kV	Active
AF2-075	Bartonsville-Meadow Brook 138 kV III	In Service
AF2-078	Reynolds-Olive #1 345 kV	Engineering & Procurement
AF2-083	Kenzie Creek-Stone Lake 69 kV	Under Construction
AF2-086	Scott Tap-Bowmans Mill Tap 69 kV	Engineering & Procurement
AF2-088	Shawville-Clearfield 34.5 kV II	Engineering & Procurement
AF2-095	Davis Creek 138 kV	Active
AF2-106	Hazel Hollow-Glen Lyn #1 138 kV	Engineering & Procurement
AF2-107	Clifford 138 kV	Engineering & Procurement
AF2-111	North Clark-Spurlock 345 kV	Active
AF2-122	Kirk 138 kV	Under Construction
AF2-130	Cobalt Corners 34.5 kV	In Service
AF2-132	Reynolds-Olive #1 345 kV	Under Construction
AF2-133	Reynolds-Olive #2 345 kV	Under Construction
AF2-134	Olive-Reynolds #2 345 kV	In Service
AF2-138	Flanders-West Wharton 34.5 kV	In Service

AF2-139	Gilbert-Warren Glen 34.5 kV	In Service
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-144	Powhatan 34.5 kV	In Service
AF2-162	Keystone-Desoto 345 kV	Engineering & Procurement
AF2-173	Desoto 345 kV	Active
AF2-177	Sorenson-DeSoto #2 345 kV	Active
AF2-192	Frenchtown Solar-West Flemington 34.5 kV	Suspended
AF2-199	Nelson-Electric Junction 345 kV	Active
AF2-200	Nelson-Electric Junction 345 kV	Active
AF2-205	Olive-Reynolds #2 345 kV	Engineering & Procurement
AF2-224	Allen 345 kV	Engineering & Procurement
AF2-225	McLean 345 kV	Active
AF2-229	Roxbury 23 kV	Engineering & Procurement
AF2-233	Penns-Richfield Tie #1 69 kV	Engineering & Procurement
AF2-234	Sunbury Yard #1-Richfield Tie #2 69 kV	Engineering & Procurement
AF2-235	Titusville-Oil Creek 34.5 kV	Withdrawn
AF2-238	Mansfield-South Troy 34.5 kV	Engineering & Procurement
AF2-247	Bustleton 13.2 kV	In Service
AF2-250	Edgewood 12 kV III	In Service
AF2-252	Blue Mound 345 kV	Engineering & Procurement
AF2-291	Sporn South-Leon 138 kV	Engineering & Procurement
AF2-298	Crown-New Lebanon 69 kV	Engineering & Procurement
AF2-307	Hope-Belvins Valley Tap 69 kV	Active
AF2-311	Gilboa-Jones Branch 138 kV	Engineering & Procurement
AF2-316	Gilboa-Jones Branch 138 kV II	Engineering & Procurement
AF2-325	Jacktown 12 kV	Engineering & Procurement
AF2-335	Delaware-Royerton 138 kV	Active
AF2-350	Kensington 138 kV	Active
AF2-352	Blue Mound 345 kV	Engineering & Procurement
AF2-354	Washington 34.5 kV II	Engineering & Procurement
AF2-356	Albright-Mt. Zion 138 kV	Under Construction
AF2-359	Olive-University Park 345 kV	Engineering & Procurement
AF2-361	Mifflintown Tap 69 kV	Engineering & Procurement
AF2-365	Munfordville KU Tap-Horse Cave Jct. 69 kV	Active
AF2-371	Harrison-Good Hope 138 kV	Engineering & Procurement
AF2-378	Cambridge 12 kV	Engineering & Procurement
AF2-379	Princess Anne 25 kV	Under Construction
AF2-382	Hurley 69 kV	Engineering & Procurement

AF2-383	Tolna 115 kV	Withdrawn
AF2-388	Keystone-Desoto 345 kV	Active
AF2-392	Nelson-Dixon 138 kV	Active
AF2-396	Stinger 138 kV	Active
AF2-417	West Damascus Tap-West Damascus 69 kV	Engineering & Procurement
AF2-421	East Hazelton-Weatherly Tap 69	Engineering & Procurement
AF2-424	Reed-Reed Tap #1 69 kV	Engineering & Procurement
AF2-425	Reed-Reed Tap#1 69 kV	Engineering & Procurement
AF2-433	Columbia-Geisinger Tap #1 69 kV	Engineering & Procurement
AF2-434	Columbia-Geisinger Tap #1 69 kV	Engineering & Procurement
AF2-440	Hillsboro-Middleboro 138 kV	Engineering & Procurement
AG1-017	Jay 138 kV	Under Construction
AG1-024	Centerburg 138 kV	Engineering & Procurement
AG1-034	Centerburg 138 kV	Engineering & Procurement
AG1-040	Morgan Street-Mount Hope 34.5 kV	Engineering & Procurement
AG1-047	Jay 138 kV	Engineering & Procurement
AG1-054	Potter-Harlan 69 kV	Engineering & Procurement
AG1-066	Bonnyman 69 kV	Engineering & Procurement
AG1-070	Bon Ayr 69 kV	Active
AG1-071	Bon Ayr 69 kV	Active
AG1-100	Venango-Saegertown 34.5 kV	Engineering & Procurement
AG1-107	Hillsboro-Middleboro 138 kV	Engineering & Procurement
AG1-118	Sugar Grove-Waterman 138kV	Active
AG1-124	Gladstone 138 kV	Active
AG1-125	Marysville-Flatlick 765 kV	Engineering & Procurement
AG1-126	Marysville-Flatlick 765 kV	Engineering & Procurement
AG1-127	Crego Rd 138 kV	Active
AG1-156	Jack Frost-Lake Harmony 69 kV	Engineering & Procurement
AG1-164	East Hazelton-Weatherly Tap 69 kV	Engineering & Procurement
AG1-165	East Hazelton-Weatherly Tap 69 kV	Engineering & Procurement
AG1-188	Manitou-Oyster Creek 34.5 kV	Engineering & Procurement
AG1-189	Oyster Creek-Bamber Lake 34.5	Engineering & Procurement
AG1-191	Chester-Pohatcong Mountain 34.5 kV	Partially in Service - Under Construction
AG1-193	Utica Junction 34.5 kV	Suspended
AG1-197	Morgan Street-Cochranton 34.5 kV	Suspended
AG1-198	Union City 34.5 kV	Under Construction
AG1-207	Vandalia 69 kV	Engineering & Procurement
AG1-223	Larrabee-Allaire 34.5 kV	Under Construction
AG1-226	Dequine-Eugene 345 kV	Active

AG1-232	Magley 138 kV	Engineering & Procurement
AG1-236	Lanesville-Brokaw 345 kV	Active
AG1-237	Dequine-Eugene 345 kV	Engineering & Procurement
AG1-254	Salem-Woodstown 69 kV	Engineering & Procurement
AG1-259	Sunbury-Dalmatia 69 kV	Engineering & Procurement
AG1-260	Sunbury-Dalmatia 69 kV	Engineering & Procurement
AG1-281	Claysburg-HCR Tap 46 kV	Engineering & Procurement
AG1-282	Dunnsville 34.5 kV	Engineering & Procurement
AG1-301	Miller REC-Warrior Ridge 46 kV	Engineering & Procurement
AG1-302	Olive-Reynolds #1 345 kV	Under Construction
AG1-320	Glendale-Stephensburg 69 kV	Active
AG1-323	Blue Jacket 138 kV	Active
AG1-324	Jay-Desoto 138 kV	Engineering & Procurement
AG1-341	Summer Shade 161 kV	Active
AG1-348	Pequest River-Washington 34.5 kV	In Service
AG1-349	Olive-Reynolds #2 345 kV	Engineering & Procurement
AG1-351	Harrison-Good Hope 138 kV	Engineering & Procurement
AG1-354	Summershade-Green County 161 kV	Active
AG1-363	Black Oak-Hatfield 500 kV	Engineering & Procurement
AG1-365	Allen 345 kV	Engineering & Procurement
AG1-366	Allen 345 kV	Engineering & Procurement
AG1-367	DeSoto 345 kV	Active
AG1-368	Tillman 138 kV	Engineering & Procurement
AG1-369	Logtown 138 kV	Engineering & Procurement
AG1-374	Blue Mound 345 kV	Active
AG1-375	Sorenson-Desoto 345 kV	Active
AG1-386	Smith-Francis Junction 25 kV	In Service
AG1-397	Walston 12 kV	Withdrawn
AG1-405	Walnut Grove-Asahi 69 kV	Active
AG1-406	Walnut Grove-Asahi 69 kV	Active
AG1-410	Maddox Creek-RP Mone 345 kV	Active
AG1-414	Mississinewa 138 kV	Engineering & Procurement
AG1-433	Keystone-DeSoto 345 kV	Active
AG1-436	Olive-University Park 345 kV	Active
AG1-447	Olive-University Park 345 kV	Active
AG1-460	Kincaid-Pana 345 kV	Active
AG1-462	Cordova 345 kV	Active
AG1-469	Gordonsville 34.5 kV	Engineering & Procurement
AG1-471	Up Church-Wayne County 69 kV	Active

AG1-478	Wilmington 34.5 kV	Engineering & Procurement
AG1-480	Shawnee 34.5 kV	Engineering & Procurement
AG1-482	Hamilton 115 kV	Withdrawn
AG1-494	Boxwood-Riverville 138 kV	Active
AG1-495	Gilbert-Rocktown 34.5 kV	Engineering & Procurement
AG1-499	Lambs 12.47 kV	Under Construction
AG1-508	Point Lookout 69 kV	Engineering & Procurement
AG1-526	West Garrard 345 kV	Active
AG1-555	Dequine 345 kV	Engineering & Procurement
AG1-558	Buckner 34.5 kV	Engineering & Procurement
AG1-559	Caroline Pines 22 kV	Engineering & Procurement
AG2-029	Forest G. Hipple-Collingwood 345 kV	Active
AG2-063	North Hampton 69 kV	Active
AG2-072	Rockport 765 kV	Active
AG2-073	Crooksville 69 kV	Active
AG2-081	Mt. Sterling-Fogg Pike 69 kV	Active
AG2-085	Delaware-Royerton 138 kV	Active
AG2-104	Marysville-Flatlick 765 kV	Active
AG2-106	Marysville-Flatlick 765 kV	Active
AG2-107	Marysville-Flatlick 765 kV	Active
AG2-111	Perth 34.5 kV Substation (Circuit 408)	Active
AG2-112	Perth 34.5 kV Substation (Circuit 404)	Active
AG2-114	Dresden-Pontiac Midpoint 345 kV	Active
AG2-119	Galion-Roberts South 138 kV II	Active
AG2-125	Camden-Crystal 69 kV	Active
AG2-126	Eugene 345 kV	Active
AG2-152	Banister-Bear Skin 138 kV	Active
AG2-159	Williamstown 69 kV	Active
AG2-162	Jefferson-Greentown 765 kV	Active
AG2-163	Dequine-Eugene 345 kV	Active
AG2-164	Jefferson-Greentown 765 kV	Active
AG2-165	Dumont-Greentown 765 kV	Active
AG2-179	Sewellton Junction 69 kV	Active
AG2-184	Harbert Metering 138 kV	Active
AG2-191	Mississinewa 138 kV	Active
AG2-192	Mississinewa 138 kV	Active
AG2-212	Dumont-Greentown 765 kV	Active
AG2-216	East Sidney-Quincy 138 kV	Active
AG2-219	Jefferson-Greentown 765 kV	Active

AG2-230	Dumont 345 kV	Active
AG2-245	Olive - Reynolds #1 345 kV	Active
AG2-298	Sulphur Creek-Loretto 69 kV	Active
AG2-310	Matt Funk 138 kV	Active
AG2-311	Smith Mountain 138 kV	Active
AG2-328	Dumont - Greentown 765 kV	Active
AG2-330	Dumont - Greentown 765 kV	Active
AG2-331	Jefferson-Greentown 765 kV	Active
AG2-360	Broadford 138 kV	Active
AG2-363	Powerton 345 kV	Active
AG2-364	Powerton 345 kV	Active
AG2-378	North Hampton – Medway 69 kV	Active
AG2-385	North Hampton 69 kV	Active
AG2-400	Allen 345 kV	Active
AG2-401	Losantville 345 kV	Active
AG2-406	Payne 69 kV	Active
AG2-408	Allen 345 kV	Active
AG2-424	Magnolia - Summersville 69 kV	Active
AG2-444	Bixby - Biers Run 345 kV	Active
AG2-449	Jefferson-Greentown 765 kV	Active
AG2-453	Lasalle - Plano 345 kV	Active
AG2-487	Madison - Tanners Creek 138 kV	Active
AG2-491	Meadow Lake 345 kV	Active
AG2-516	Pecatonica 138kV	Active
AG2-518	Tech Drive 138 kV	Active
AG2-519	Royerton - Desoto 138 kV	Active
AG2-524	LaSalle Station - Mazon 138 kV	Active
AG2-548	Corwin - Elk 138 kV	Active
AG2-550	Bluff Point - Randolph 138 kV	Active
AG2-551	Bluff Point - Randolph 138 kV	Active
AG2-568	Stink Run – Sundial 138 kV	Active
AG2-575	Crego Rd. 138 kV	Active
AG2-582	Flint Run 500 kV	Active
AG2-585	Kensington 138kV	Active
AG2-589	Ravenswood - Hemlock 69 kV	Active
AG2-637	Randolph - Hodgin 138 kV	Active
AG2-657	Kanawha River - Carbondale 138 kV	Active
AG2-660	Nelson-Electric Junction 345 kV	Active
AG2-665	Corwin - Elk 138 kV	Active

AG2-670	Green County -Taylor County Junction 161 kV	Active
AH1-004	Avon - Renaker 138 kV	Active
AH1-034	Patton Road Junction - Summer Shade 69 kV	Active
AH1-044	Nelson - Electric Junction 345 kV	Active
AH1-047	Marengo - Belvidere 138 kV	Active
AH1-055	Kyger Creek - Don Marquis 345 kV	Active
AH1-059	Sharp Road 69 kV	Active
AH1-072	Red Onion - VC5 69 kV	Active
AH1-073	Red Onion - VC5 69 kV	Active
AH1-098	Wolf Glade-West Carroll 138 kV	Active
AH1-133	Saltville - Tazewell 138 kV	Active
AH1-136	Falcon - Middle Creek 46 kV	Active
AH1-144	Peter's Mountain 138 kV	Active
AH1-145	Peter's Mountain 138 kV	Active
AH1-146	White Rock - Wayne 345 kV	Active
AH1-147	White Rock - Wayne 345 kV	Active
AH1-150	Nelson-Electric Junction 345 kV	Active
AH1-151	Nelson-Electric Junction 345 kV	Active
AH1-153	Dumont 345 kV	Active
AH1-164	Oak Level - Tank Hill 138 kV	Active
AH1-188	Pigeon Creek 138 kV	Active
AH1-196	Prairie 345 kV	Active
AH1-227	Flemming - Fremont 69 kV	Active
AH1-234	Wempletown - Paddock 345 kV	Active
AH1-239	Upchurch - Zula 69 kV	Active
AH1-269	Claytor 138 kV	Active
AH1-281	Bluegrass Parkway Tap - Woodlawn 69 kV	Active
AH1-285	Sandwich 138 kV	Active
AH1-292	Sullivan 345 kV	Active
AH1-302	Olive - Reynolds 345 kV	Active
AH1-304	Delaware-Van Buren 138 kV	Active
AH1-305	Olive - Reynolds 345 kV	Active
AH1-306	Mississinewa-Gaston 138 kV	Active
AH1-308	Pennville - Adams 138 kV	Active
AH1-309	Kenzie Creek-Colby 138 kV	Active
AH1-327	Hardin Switch 345 kV	Active
AH1-328	Blue Jacket - Kirby 138 kV	Active
AH1-337	Randolph - Hodgin 138 kV	Active
AH1-338	McGirr Rd - Ritchie Road 138kV	Active

AH1-341	Stillman - Dixon 138KV	Active
AH1-348	Pound 34.5 kV	Active
AH1-391	Olive 138 kV	Active
AH1-392	Gravel Pit-Kankakee 138 kV	Active
AH1-427	Tommy Gooch - Garrard County 69 kV	Active
AH1-482	Olive - Reynolds #2 345 kV	Active
AH1-535	Nagel - Cane River 230 kV	Active
AH1-537	Pierce - Kyger Creek 345 kV	Active
AH1-541	Chestnut 345 kV	Active
AH1-542	Crissinger-Kirby 138kV	Active
AH1-543	Mulberry – Tazewell 345 kV	Active
AH1-567	University Park 138 kV	Active
AH1-570	Headquarters - Millersburg Junction 69 kV	Active
AH1-617	Harbert Metering 138 kV	Active
AH1-644	Spicewood Metering 138 kV	Active
AH1-661	Cannelville 12.47 kV	Active
AH1-664	Goddard-Plumville 138 kV	Active
AH1-665	Goddard-Plumsville 138 kV II	Active
AH1-666	Flemingsburg - Spurlock 138 kV	Active
AH1-669	Circleville-Biers Run 138 kV	Active
AH1-670	Blue Mound-Chestnut 345 kV	Active
AH1-686	Hanging Rock 765 kV	Active
AH1-698	Braidwood 345 kV	Active
AH1-702	Byron 345 kV	Active
AH1-714	Lasalle 345 kV	Active
AH1-718	Nelson 345 kV	Active
AH1-719	Beverly 345 kV	Active
AH1-721	Laurel-Cooper 161 kV	Active
U2-030	Four Mile Ridge Wind 138kV	In Service
U2-072	East Lima-Marysville 345kV	In Service
U2-073	Frostburg 138kV II	In Service
V1-011	Haviland 138kV	In Service
V3-007	Desoto-Tanners Creek #1 345kV	In Service
V4-067	Cates Road Egg Harbor Township 12kV	Deactivated
V4-073	Yankee 12.5kV	In Service
W1-003	Oak Hall	In Service
W1-004	Oak Hall	In Service
W1-005	Oak Hall	In Service
W1-006	Oak Hall	In Service

W1-130	Vine Road 12kV	In Service
W2-030	Egg Harbor Township	In Service
W2-048	Brokaw-Lanesville	In Service
W3-077	Broadway-Stewartsville 34.5kV	In Service
W4-005	Blue Mound-Latham	In Service
X2-022	Brokaw-Lanesville	In Service
X3-005	Wildwood 12kV	In Service
X3-066	Church Hill 69kV	In Service
Y1-033	Penn Mar-Rock Wood 115kV	In Service
Y1-049	Wurno 34.5kV	In Service
Y1-079	Wye Mills 69kV	In Service
Y1-080	Dorchester 12kV	In Service
Y3-023	Country Side 12kV	In Service
Y3-024	Bluff Point 12kV	In Service
Y3-058	Rockawalkin 69kV	In Service
Z2-076	Worcester South 25kV	In Service
Z2-077	Worcester North 25kV	In Service
Z2-087	Pontiac MidPoint-Brokaw 345kV	In Service
Z2-115	Deer Creek 12.47kV	In Service
Z2-116	Twin Branch 12.47kV	In Service

Affected System - PJM Identified Violations

As part of PJM's analysis, PJM evaluated the potential impacts on tie line facilities between PJM and an affected system entity, which were identified per PJM planning analysis criteria. This upgrade may be required on the affected system portion of the tie line along with cost allocation of such upgrade if applicable, in coordination with the affected system. Depending on the affected system, this project may not be contingent on upgrade based on PJM planning analysis criteria, but may be contingent on this upgrade based on the Affected System Operator's planning criteria, provided in the Affected Systems Study Section, herein.

Midcontinent Independent System Operator, Inc. (MISO)	**No Impact**
New York Independent System Operator (NYISO)	**No Impact**
Tennessee Valley Authority (TVA)	**No Impact**
Louisville Gas & Electric (LG&E)	**No Impact**
Duke Energy Carolinas (DUKE)	**No Impact**
Duke Energy Progress - East (CPLE)	**No Impact**
Duke Energy Progress - West (CPLW)	**No Impact**

Affected System - Non-PJM Identified Violations

In Phase I of the Cycle, PJM conducts an Affected System screen to identify any New Service Request with potential Affected System impacts. PJM initiates coordination with each Affected System Operator by providing a list of New Service Requests in the Cycle with potential impacts to their respective system. If

the Affected System Operator indicates an Affected System Study is required, PJM will notify the Project Developer or Eligible Customer of the need for an Affected System Study. See below if any Affected System Operator requires a study for this project:

Midcontinent Independent System Operator, Inc. (MISO)	**Not required**
New York Independent System Operator (NYISO)	**Not required**
Tennessee Valley Authority (TVA)	**Not required**
Louisville Gas & Electric (LG&E)	**Study Pending**
Duke Energy Carolinas (DUKE)	**Not required**
Duke Energy Progress - East (CPLE)	**Not required**
Duke Energy Progress - West (CPLW)	**Not required**

System Reinforcements

No cost allocated system reinforcements were identified for this project in the Phase I System Impact Study load flow analysis.

Shown below are the details of the cost allocated, contingent, eliminated, topology and potential aggregate contributor reinforcements for this project. Please refer to the System Reinforcement table above and the information below for more detail.

System Reinforcement: b4000.11

Type	Load Flow
TO	APS
RTEP ID / TO ID	b4000.11
Title	Expand Black Oak Substation & Loop in the 502 Jct-Woodside 500 kV line (Projected ISD 6/1/2029)
Description	Expand Black Oak Substation to accommodate the connection of the 502 Jct-Woodside 500 kV line and loop the 502 Jct-Woodside 500 kV line into the Black Oak substation by constructing ~0.85 miles of new 500 kV line into and out of Black Oak 500 kV substation
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
►	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
►	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
►	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.3

Type	Load Flow
TO	APS

RTEP ID / TO ID b4000.3

Title Construct a new 175 miles Amos to Welton Spring 765 kV line - APS/FE Section of the line is 145 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.1

Type Load Flow

TO AEP

RTEP ID / TO ID b4000.1

Title Add two 765 kV breakers at Amos Substation to expand the breaker and a half scheme to accommodate the new Amos-Welton Spring 765 kV line (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.7

Type Load Flow

TO APS

RTEP ID / TO ID b4000.7

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line - in DVP local area/Millville to Lovettsville section, roughly 10.5 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.10

Type Load Flow

TO APS

RTEP ID / TO ID b4000.10

Title Install four 250 MVAR cap banks (two on 765 and two on 500 kV side) and a +/-500 MVAR STATCOM on the 765 kV Rocky Point yard

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.2

Type Load Flow

TO APS

RTEP ID / TO ID b4000.2

Title Construct a new 175 miles Amos to Welton Spring 765 kV line - AEP Section of the line is 30 miles (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.5

Type Load Flow

TO APS

RTEP ID / TO ID b4000.5

Title Install four 250 MVAR shunt capacitors, and a +/-500 MVAR STATCOM at Welton Spring 765 kV substation

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.9

Type Load Flow

TO APS

RTEP ID / TO ID b4000.9

Title Construct a new substation called Rocky Point with a 765 kV and a 500 kV yard (Projected ISD 6/1/2029)

Description Construct a new substation called Rocky Point with a 765 kV and a 500 kV yard. Loop in the Doubs-Goose Creek 500 kV line, the Doubs-Aspen 500 kV line, and the Woodside-Goose Creek 500 kV line. Install two 765/500

kV transformer at Rocky Point substation. 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.6

Type Load Flow

TO APS

RTEP ID / TO ID b4000.6

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line (Welton Spring to DVP local area, roughly 21 miles) (VA Portion)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.8

Type Load Flow

TO APS

RTEP ID / TO ID b4000.8

Title Construct a new 86 miles Welton Spring to Rocky Point 765 kV line (DVP local area to Rocky Point, roughly 4.8 miles)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b4000.4

Type Load Flow

TO APS

RTEP ID / TO ID b4000.4

Title Construct a new 765 kV switchyard - Welton Spring (Projected ISD 6/1/2029)

Description 765kV Solution: 2024 W1 Solution - Regional Cluster Ties Doubs 500kV area to John Amos 765kV via a new 765kV line

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MOUNTN-05BELMON 765.0 kV Ckt 1 line	(Any)
▶	01BELMNT-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	01HARRSN-01FLINTRUN 500.0 kV Ckt 1 line	(Any)
▶	05CLOVRD-05CLOV17_XFL 345.0 kV Ckt 17 line	(Any)

System Reinforcement: b3877.2

Type Load Flow

TO AEP

RTEP ID / TO ID b3877.2

Title Upgrade 345 kV circuit breakers 'A' and 'A1' to 4000A 63 kA breakers at Adkins station

Description Upgrade 345 kV circuit breakers 'A' and 'A1' to 4000A 63 kA breakers at Adkins station along with some station conductor that is currently limiting the 345 kV line to Beatty.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-05ADKINS 345.0 kV Ckt 1 line	(Any)

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b3877.1

Type Load Flow

TO AEP

RTEP ID / TO ID b3877.1

Title Replace station conductor and switches in the 345 kV yard at Beatty

Description Replace station conductor and switches in the 345 kV yard at Beatty that are currently limiting the 345 kV lines to Adkins and Chenoweth.

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-05ADKINS 345.0 kV Ckt 1 line	(Any)
▶	05CHENOWETH-AF1-228 TP 345.0 kV Ckt 1 line	(Any)
▶	05BEATTY-AF1-228 TP 345.0 kV Ckt 1 line	(Any)

System Reinforcement: s2063.4

Type Load Flow

TO AEP

RTEP ID / TO ID s2063.4 / AEPO0001a

Title Upgrade/Replace 3-345kV 1600A switches at Beatty station

Description Upgrade/Replace 3-345kV 1600A switches at Beatty station Scope of s2063 replaced the need for network upgrade: n6769.1

Cost Information

Time Estimate Nov 15 2022

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned supplemental project. AH1-571 is not contingent on this supplemental project as it is already in-service.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05BEATTY-05COLE 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n5857

Type	Load Flow
TO	AEP
RTEP ID / TO ID	n5857 / N5857
Title	Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK-Conductor Section 1.
Description	Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK-Conductor Section 1.
Total Cost ($USD)	$19,552,000
Allocated Cost ($USD)	$0
Time Estimate	24 to 36 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05HILLSB-05WLDCAT 138.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	AEP
RTEP ID / TO ID	(Pending) / AEP-TC2-18819
Title	06PIERCE 345kV to 05MARQUIS 345kV ckt 1 - Replace Equipment
Description	At Pierce replace the following equipment: Switch 444, 446, 447, and 449, Bus, Risers, Jumpers, Wave Trap, and Line Relay At Don Marquis 345kV replace the following equipment: Circuit Breaker B2, Risers, and Line Reactor.
Total Cost ($USD)	$3,300,000
Allocated Cost ($USD)	$0
Time Estimate	36 to 48 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MARQUI-06PIERCE 345.0 kV Ckt 1 line	(Any)

System Reinforcement: s2213.9

Type	Load Flow
TO	AEP
RTEP ID / TO ID	s2213.9 / (Pending)
Title	Six-wire 71.5 miles of the Pierce-Don Marquis line. Construct 0.13 miles of line to tie into Don Marquis station.
Description	Six-wire 71.5 miles of the Pierce-Don Marquis line. Construct 0.13 miles of line to tie into Don Marquis station.
Cost Information	
Time Estimate	Jun 01 2027

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned supplemental project. AH1-571 is not contingent on this supplemental project as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05MARQUI-06PIERCE 345.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	AEP
RTEP ID / TO ID	(Pending) / AEP-TC2-18751
Title	05KYGER 345kV to 05SPORN 345kV ckt 1 - Replace Equipment and Sag Study
Description	Sag study Sporn - Kyger Creek line and at Kyger Creek Replace the following equipment: 2156.0 KCM ACSR (84/19), 3000A Switch, CB-BB, 2870 MCM ACSR (Bus), GCB AA, Wave Trap, Line Relay/CT, Meters, Switch 104, and Switch 10
Total Cost ($USD)	$5,052,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b3788.1

Type	Load Flow
TO	AEP
RTEP ID / TO ID	b3788.1 / B3788.1
Title	Replace limiting station elements at Kyger Creek
Description	Upgrade existing 345 kV terminal equipment at Kyger Creek on the Kyger Creek-Sporn 345 kV line. Projected in-service date 6/1/2028 Replace AEP-owned station takeoff riser and breaker BB risers at OVEC-owned Kyger Creek station.
Cost Information	
Time Estimate	Nov 18 2027

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b3788.2

Type	Load Flow
TO	OVEC
RTEP ID / TO ID	b3788.2 / B3788.2
Title	Replace limiting station elements at Kyger Creek
Description	Upgrade existing 345 kV terminal equipment at Kyger Creek on the Kyger Creek-Sporn 345 kV line. Projected in-service date 6/1/2028 Replace OVEC-owned breaker AA risers, bus work, and breaker AA disconnect switches at OVEC-owned Kyger Creek station.
Cost Information	
Time Estimate	Jun 01 2028

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05SPORN-06KYGER 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n6460.3

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6460.3
Title	Rebuild the EKPC portion of the Longbranch-Mt. Zion 138 kV line section using 954 MCM ACSS conductor (3.7 miles).
Description	Rebuild the EKPC portion of the Longbranch-Mt. Zion 138 kV line section using 954 MCM ACSS conductor (3.7 miles).
Total Cost ($USD)	$7,400,000
Allocated Cost ($USD)	$0
Time Estimate	14 to 24 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-08MTZION 138.0 kV Ckt 1 line	(Any)

System Reinforcement: n9186.0

Type	Load Flow
TO	DEOK
RTEP ID / TO ID	n9186.0 / M240135
Title	Rebuild ~1.40 mile DEOK portion of Longbranch-Mt. Zion with new structures and 954ACSS/TW, 200C
Description	Rebuild the ~1.40 mile DEOK portion of the Longbranch-Mt. Zion line from the structure near 38.940740, -84.623478 with new structures, 954ACSS/TW, 1 conductor per phase, 200 degree C. Restore distribution underbuild.
Total Cost ($USD)	$4,803,522
Allocated Cost ($USD)	$0
Time Estimate	30 to 36 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-08MTZION 138.0 kV Ckt 1 line	34541 34553_SRT-A

System Reinforcement: n6463.3

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6463.3 / EKPC-tc1-r0007a
Title	Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 795 MCM ACSS conductor (2.3 miles)
Description	Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 795 MCM ACSS conductor (2.3 miles)
Total Cost ($USD)	$5,400,000
Allocated Cost ($USD)	$0
Time Estimate	11 to 19 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

System Reinforcement: n6463.2

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n6463.2 / EKPC-tc1-r0007b
Title	Upgrade jumpers associated with Boone 138 kV bus using 2-500 MCM 37 CU conductor or equivalent
Description	Upgrade 795 MCM AA jumpers associated with Boone 138 kV bus (Boone-Longbranch 69 kV line) using 2-500 MCM 37 CU conductor or equivalent
Total Cost ($USD)	$330,000
Allocated Cost ($USD)	$0
Time Estimate	Jun 01 2022

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a network upgrade that was securitized by a prior Queue/Cycle. AH1-571 is not contingent on this network upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

System Reinforcement

Type	Load Flow
TO	DEOK
RTEP ID / TO ID	(Pending) / DEOK_TC1_13706
Title	Line is 100% owned by EKPC. No DEOK upgrade required.
Description	Line is 100% owned by EKPC. No DEOK upgrade required.
Total Cost ($USD)	$0
Allocated Cost ($USD)	$0
Time Estimate	TBD

Note: This reinforcement is fictitious and will not be cost allocated to projects. It is listed for information purposes only.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	08LONGBR-4BOONE CO 138.0 kV Ckt 1 line	(Any)

System Reinforcement: n9670.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9670.0 / DAYr190039
Title	Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor.
Description	Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor.
Total Cost ($USD)	$50,000,000
Allocated Cost ($USD)	$0
Time Estimate	60 to 72 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n9671.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9671.0 / DAYr190040
Title	Replace Stuart substation bus and conductor

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

Description	Replace Stuart substation bus and conductor
Total Cost ($USD)	$1,000,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

System Reinforcement: n9672.0

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	n9672.0 / DAYr190041
Title	Replace Stuart substation breakers to 4000 A breakers
Description	Replace Stuart substation breakers to 4000 A breakers
Total Cost ($USD)	$2,000,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: n9673.0

Type	Load Flow
TO	EKPC
RTEP ID / TO ID	n9673.0 / EKPC-tc1-r0020b
Title	Replace the 1500A interconnection metering CTs at Spurlock Station with 2000A equipment.
Description	Replace the 1500A interconnection metering CTs at Spurlock Station with 2000A equipment.
Total Cost ($USD)	$1,295,000

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

Allocated Cost ($USD) $0

Time Estimate 18 to 21 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

System Reinforcement

Type Load Flow

TO EKPC

RTEP ID / TO ID (Pending) / EKPC-tc1-r0020a

Title Dayton Power & Light addresses its limiting elements (EKPC limits are 1777/1792/1792 for Rate A/B/C).

Description Dayton Power & Light addresses its limiting elements (EKPC limits are 1777/1792/1792 for Rate A/B/C).

Total Cost ($USD) $0

Allocated Cost ($USD) $0

Time Estimate TBD

Note: This reinforcement is fictitious and will not be cost allocated to projects. It is listed for information purposes only.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement

Type Load Flow

TO Dayton

RTEP ID / TO ID (Pending) / Dayton-TC2-18817

Title Replace Stuart Switches to 4000 A

Description Replace Stuart Switches to 4000 A

Total Cost ($USD) $1,200,000

Allocated Cost ($USD) $0

Time Estimate 48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

System Reinforcement

Type	Load Flow
TO	Dayton
RTEP ID / TO ID	(Pending) / Dayton-TC2-18818
Title	Replace Wavetrap to 4000 A
Description	Replace Wavetrap to 4000 A
Total Cost ($USD)	$100,000
Allocated Cost ($USD)	$0
Time Estimate	48 to 60 Months

Potential Aggregate Contributor

Note: Based on PJM cost allocation criteria, AH1-571 currently does not receive cost allocation towards this upgrade. As changes to the PJM process occur (such as other projects withdrawing from the cycle or reducing in size) AH1-571 could receive cost allocation. Although AH1-571 may not presently have cost responsibility for this upgrade, AH1-571 is a potential Aggregate Pool Contributor.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	09STUART-7SPURLOCK 345.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.342

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.342
Title	Remove the terminal equipment and substation work required for the termination of the Morrisville-Wishing Star 500 kV line into Vint Hill.
Description	Remove the terminal equipment and substation work required for the termination of the Morrisville-Wishing Star 500 kV line into Vint Hill.
Cost Information	
Time Estimate	Jul 13 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.326

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.326
Title	At Elmont substation, install/upgrade associated equipment to accommodate a 4000A line rating for the new 230kV line between Elmont - Ladysmith.
Description	At Elmont substation, install/upgrade associated equipment to accommodate a 4000A line rating for the new 230kV line between Elmont - Ladysmith.
Cost Information	
Time Estimate	Feb 24 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.351

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.351
Title	Cut in Line #568 Ladysmith - Possum Point into Kraken, creating Line #9517 Ladysmith to Kraken.
Description	Cut in Line #568 Ladysmith - Possum Point into Kraken, creating Line #9517 Ladysmith to Kraken.
Cost Information	
Time Estimate	Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.355

Type	Load Flow
TO	Dominion

RTEP ID / TO ID b4000.355

Title Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 69.3 miles in AEP section).

Description Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 69.3 miles in AEP section).

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.350

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.350

Title Update relay settings at Possum Point to change the destination of 500kV line #568 from Ladysmith to Kraken.

Description Update relay settings at Possum Point to change the destination of 500kV line #568 from Ladysmith to Kraken.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.352

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.352

Title Cut in Line #568 Ladysmith - Possum Point into Kraken, creating new Line #568 Kraken to Possum Point.

Description Cut in Line #568 Ladysmith - Possum Point into Kraken, creating new Line #568 Kraken to Possum Point.

Cost Information

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.349

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.349

Title Update relay settings at Ladysmith to change the destination of 500kV line #568 from Possum Point to Kraken.

Description Update relay settings at Ladysmith to change the destination of 500kV line #568 from Possum Point to Kraken.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.357

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.357

Title Build a new 765/500/230 kV substation called Yeat. Install (2) 765/500 kV transformers. Cut in 500 kV line Bristers-Ox and 500 kV line Meadowbrook-Vint Hill into Yeat.

Description Build a new 765/500/230 kV substation called Yeat. Install (2) 765/500 kV transformers. Cut in 500 kV line Bristers-Ox and 500 kV line Meadowbrook-Vint Hill into Yeat.

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

System Reinforcement: b4000.327

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.327
Title	Upgrade/install equipment at Ladysmith Substation to 4000A. Expansion will be required to accommodate a total of three (3) new 230 kV strings of breaker and a half scheme.
Description	Upgrade/install equipment at Ladysmith substation to 4000A. Expansion will be required to accommodate a total of three (3) new 230kV strings of breaker and a half scheme.
Cost Information	
Time Estimate	Feb 24 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.348

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.348
Title	Build a new 500/230kV substation called Kraken. The 500kV, 5000A ring bus will be set up for a redundant breaker configuration. Install (2) 1400MVA 500/230 kV transformers.
Description	Build a new 500/230kV substation called Kraken. The 500kV, 5000A ring bus will be set up for a redundant breaker configuration. Install (2) 1400MVA 500/230 kV transformers. A new redundant breaker ring will be added at Kraken to accommodate the new 500kV line from North Anna to Kraken.
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
►	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.341

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.341
Title	Remove the 500 kV conductor previously planned to terminate into the Vint Hill 500 kV Substation and extend approximately 0.2 miles of conductor to fly-over the site.
Description	Remove the 500 kV conductor previously planned to terminate into the Vint Hill 500 kV substation and extend approximately 0.2 miles of conductor to fly-over the site.
Cost Information	
Time Estimate	Jul 13 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.345

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.345
Title	Build a 500kV line from a new substation called Kraken to a new substation called Yeat. New conductor to have a minimum summer normal rating of 4357MVA.
Description	Build a 500kV line from a new substation called Kraken to a new substation called Yeat. New conductor to have a minimum summer normal rating of 4357MVA.
Cost Information	
Time Estimate	Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.356

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.356

Title Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 86.7 miles in Dominion section).

Description Build a new 156 mile 765kV line from Joshua Falls – Yeat. (Roughly 86.7 miles in Dominion section).

Cost Information

Time Estimate Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.344

Type Load Flow

TO Dominion

RTEP ID / TO ID b4000.344

Title Build a 500kV line from North Anna substation (bypassing Ladysmith Substation) to a new substation called Kraken. New conductor to have a minimum summer normal rating of 4357MVA.

Description Build a 500kV line from North Anna substation (bypassing Ladysmith Substation) to a new substation called Kraken. New conductor to have a minimum summer normal rating of 4357MVA.

Cost Information

Time Estimate Sep 16 2030

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.346

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.346
Title	Cut-in 500kV line from Kraken substation into Yeat substation
Description	Cut-in 500kV line from Kraken substation into Yeat substation
Cost Information	
Time Estimate	Jun 01 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

System Reinforcement: b4000.325

Type	Load Flow
TO	Dominion
RTEP ID / TO ID	b4000.325
Title	Build a new 26.38mi 230kV Line from Elmont – Ladysmith on the existing 5-2 structures between the two stations. New conductor has a summer rating of 1573 MVA.
Description	Build a new 26.38mi 230kV Line from Elmont – Ladysmith on the existing 5-2 structures between the two stations. New conductor has a summer rating of 1573 MVA.
Cost Information	
Time Estimate	Feb 24 2029

Not Contingent

Note: AH1-571 contributes to the loading of an overloaded facility that is being mitigated by a planned baseline upgrade. AH1-571 is not contingent on this baseline upgrade as it does not meet the criteria for being a contingent facility or for having cost allocation for the upgrade.

Flowgates Addressed by this Reinforcement

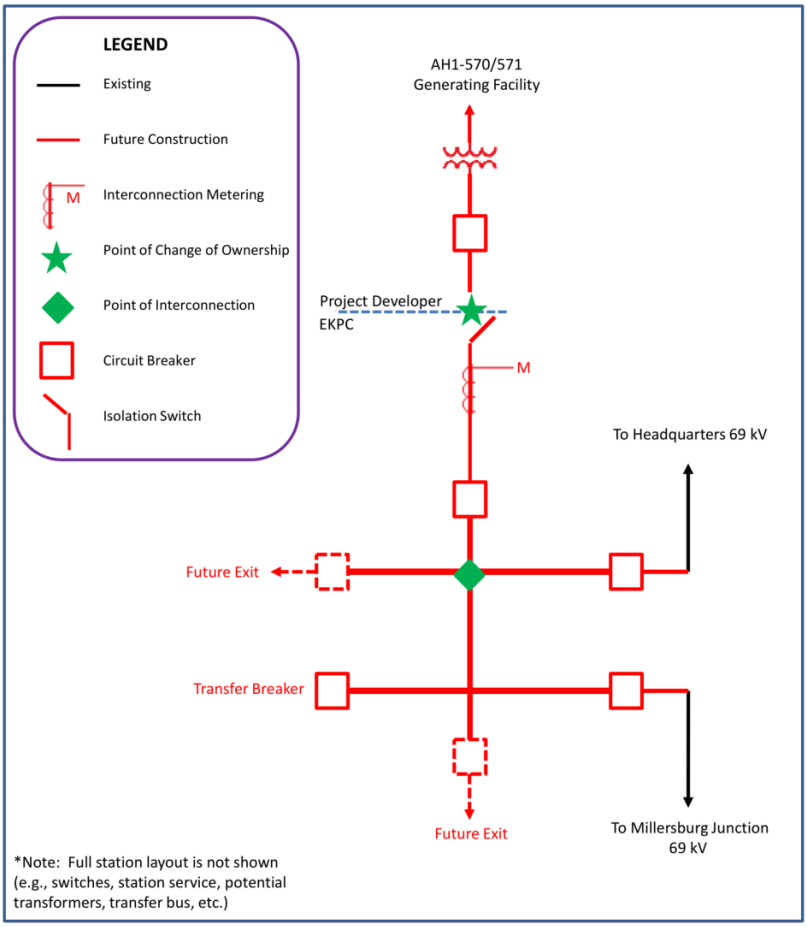
	Facility	Contingency
▶	05CLOVRD-8LEXNGTN 500.0 kV Ckt 1 line	(Any)

Attachments

AH1-571 One Line Diagram

AH1-570/571 Conceptual One-Line Diagram of Interconnection Facilities

East Nicholas County 69 kV Switching Station



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Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-571

Headquarters - Millersburg Junction 69 kV

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff, as well as the Application and Studies Agreement between the Project Developer and PJM Interconnection, LLC (PJM or Transmission Provider (TP)). The Transmission Owner (TO) is East Kentucky Power Cooperative (EKPC).

This Facility Study was performed to satisfy the Phase 2 Facility Study requirement of the PJM Tariff. The Facility Study is intended to provide scope, cost and schedule estimates for the project as currently defined and approved for Phase 2 study. In the event project changes are made during DP2 that impact this report, updates will be provided as part of the Phase 3 report. Following execution of the project's final agreement, this report will not be updated to account for other changes made as part of the agreements modification clause and instead the scope change process will be followed.

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed an uprate to a planned/existing Solar Generating Facility located in Nicholas County, Kentucky with a designated PJM Project ID of AH1-570.

This project is an increase to the planned AH1-570 project and will share the same Point of Change in Ownership.

The AH1-571 project is a 20 MW (12.5 MW capacity) uprate to the previous project. The total installed facilities will have a capability of 45 MW with 28.1 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the EKPC transmission system via the East Nicholas County 69 kV Switching Station as described in the AH1-570 Phase II Facility study report.

3. POINT OF CHANGE IN OWNERSHIP

The Point of Change in Ownership (PCO) will remain unchanged from what is described in the AH1-570 Phase II Facility study report.

4. SCOPE OF PROJECT DEVELOPER INTERCONNECTION FACILITIES

Project Developer will design, build, own, operate and maintain the Project Developer Interconnection Facilities on Project Developer's side of the PCO. This includes, but is not limited to:

- Circuit breakers and associated equipment located between the high side of the Main Power Transformer(s) or Generator Step-Up Transformer(s) and the Point of Change in Ownership.
- Generator lead line from the Generating Facility to the Point of Change in Ownership.
- Relay and protective equipment, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) to comply with the TO's Applicable Technical Requirements and Standards.

The proposed facility must meet EKPC's published facility connection requirements. The latest version of these requirements can be accessed via the following link:

https://www.pjm.com/planning/design-engineering/to-tech-standards/ekpc.aspx

Reference section 5.2.3 for inverter-based generating facilities.

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AH1-571 project to the EKPC transmission system. These facilities shall be designed according to EKPC Applicable Technical Requirements and Standards. Once built, EKPC will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

No additional Transmission Owner Interconnection Facilities are required beyond those described in the AH1-570 Facilities study report.

2. STAND ALONE NETWORK UPGRADES

No additional Stand Alone Network Upgrades are required beyond those described in the AH1-570 Facilities study report.

3. NETWORK UPGRADES

No additional Network Upgrades are required beyond those described in the AH1-570 Facilities study report.

4. OTHER SCOPE OF WORK

No other scope has been identified for this project.

5. MILESTONE SCHEDULE FOR COMPLETION OF EKPC WORK

A milestone schedule is not included as there is no additional construction work required for EKPC facilities beyond those described in the AH1-570 Phase II facilities study report.

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

No work for EKPC facilities is required beyond those described in the AH1-570 Phase II Facilities study report.

7. REVENUE METERING REQUIREMENTS

The cost for installation of the metering facilities contained in the new EKPC substation is included in the substation costs provided in the AH1-570 facilities study cost estimates.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

There are no additional land requirements for AH1-571 outside those described in the AH1-570 Phase II Facilities study report.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

There are no applicable technical requirements and standards for AH1-571 outside of those described in the AH1-570 Phase II Facilities study report.

10. ENVIRONMENTAL AND PERMITING

No additional permits/approvals are required for AH1-571 outside those described in the AH1-570 Phase II Facilities study report.