

Kammer-Natrium Upgrades

General Information

Proposing entity name	AEPSCT
Company proposal ID	AEP_H
PJM Proposal ID	804
Project title	Kammer-Natrium Upgrades
Project description	AEP is proposing to rebuild approximately 1.9 miles out of the 7.6 total miles of 69kV transmission line along the circuit between Kammer and Natrium 69 kV stations. In addition, AEP proposes to replace the 69kV switch at Cresaps station, reconductor 69kV strain bus and risers at McElroy station, and replace bus conductor at Natrium station. The overloaded line sections are made up of 4/0, 336, and 556 ACSR conductor types. The overloaded bus at Natrium is made up of 500 MCM Copper conductor. Proposed branch ratings: 243049 to 246067: 383/449/485/534 245930 to 245938: 129/180/162/202 245930 to 245950: 129/180/162/202 245950 to 245951: 102/102/129/129 245928 to 245951: 82/90/107/113 245928 to 245943: 75/75/94/94
Project in-service date	06/2025
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	[REDACTED]

Project Components

1. Kammer-Cresaps 69 kV Rebuild
2. Cresaps-McElroy 69 kV Rebuild
3. Conner Run-Columbian Switch 69 kV Reconductor
4. Columbian Switch-Natrium 69 kV Rebuild

- 5. Cresaps 69 kV Switch Replacement
- 6. McElroy Bus Replacement
- 7. Natrium 138 kV Bus Replacement

Transmission Line Upgrade Component

Component title	Kammer-Cresaps 69 kV Rebuild
Impacted transmission line	Kammer-Cresaps 69 kV Line
Point A	Kammer
Point B	Cresaps
Point C	
Terrain description	Hilly

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	556.5 KCM ACSR 18/1 Osprey
Hardware plan description	N/A. Existing hardware to be replaced
Tower line characteristics	Wood pole line dating back to the 1960s.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	69.000000	69.000000
	Normal ratings	Emergency ratings
Summer (MVA)	129.000000	180.000000
Winter (MVA)	162.000000	202.000000
Conductor size and type	795.0 KCM ACSR 26/7 "Drake"	

Shield wire size and type	7#10 AW
Rebuild line length	0.5 miles
Rebuild portion description	Rebuild from Kammer Station to Cresaps Switch, approximately 0.5 miles.
Right of way	A review of existing easements provides a solution that does not necessitate additional right-of-way acquisition. Right-of-way will primarily support construction support efforts
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	Detailed cost breakdown
Permitting / routing / siting	Detailed cost breakdown
ROW / land acquisition	Detailed cost breakdown
Materials & equipment	Detailed cost breakdown
Construction & commissioning	Detailed cost breakdown
Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown
Contingency	Detailed cost breakdown
Total component cost	\$932,653.58
Component cost (in-service year)	\$.00

Transmission Line Upgrade Component

Component title	Cresaps-McElroy 69 kV Rebuild
Impacted transmission line	Cresaps-McElroy 69 kV Line
Point A	Cresaps

Point B McElroy

Point C

Terrain description Hilly

Existing Line Physical Characteristics

Operating voltage 69

Conductor size and type 556.5 KCM ACSR 26/7 "Dove" and 336.4 KCM ACSR 30/7 Oriole

Hardware plan description N/A. Rebuild will replace existing hardware

Tower line characteristics Wood pole line.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	69.000000	69.000000
	Normal ratings	Emergency ratings
Summer (MVA)	129.000000	180.000000
Winter (MVA)	162.000000	202.000000
Conductor size and type	795.0 KCM ACSR 26/7 "Drake"	
Shield wire size and type	7#10 AW	
Rebuild line length	0.67 miles	
Rebuild portion description	Rebuild Cresaps Switch to McElroy Station, approximately 0.67 miles.	
Right of way	A review of existing easements held provides a solution that does not necessitate additional right-of-way acquisition. Right-of-way will primarily support construction support efforts	
Construction responsibility	AEP	
Additional comments		

Component Cost Details - In Current Year \$

Engineering & design	Detailed cost breakdown
Permitting / routing / siting	Detailed cost breakdown
ROW / land acquisition	Detailed cost breakdown
Materials & equipment	Detailed cost breakdown
Construction & commissioning	Detailed cost breakdown
Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown
Contingency	Detailed cost breakdown
Total component cost	\$1,249,753.14
Component cost (in-service year)	\$.00

Transmission Line Upgrade Component

Component title	Conner Run-Columbian Switch 69 kV Reconductor
Impacted transmission line	Conner Run-Columbian Switch 69 kV Line
Point A	Conner Run
Point B	Columbian Switch
Point C	
Terrain description	Hilly

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	4/0 ACSR 6/1 "Penguin"
Hardware plan description	N/A

Tower line characteristics

Wood pole line

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	69.000000	69.000000
	Normal ratings	Emergency ratings
Summer (MVA)	129.000000	180.000000
Winter (MVA)	162.000000	202.000000
Conductor size and type	795.0 KCM ACSR 26/7 "Drake"	
Shield wire size and type	7#10 AW	
Rebuild line length	57 feet - one span to be replaced	
Rebuild portion description	Replace a single span of 4/0 ACSR from Moundsville - Natrium str 93L to Carbon Tap switch located between Colombia Carbon and Conner Run stations. Remainder of line is 336 ACSR.	
Right of way	A review of existing easements held provides a solution that does not necessitate additional right-of-way acquisition. Right-of-way will primarily support construction support efforts	
Construction responsibility	AEP	
Additional comments		
Component Cost Details - In Current Year \$		
Engineering & design	Detailed cost breakdown	
Permitting / routing / siting	Detailed cost breakdown	
ROW / land acquisition	Detailed cost breakdown	
Materials & equipment	Detailed cost breakdown	
Construction & commissioning	Detailed cost breakdown	

Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown
Contingency	Detailed cost breakdown
Total component cost	\$12,181.32
Component cost (in-service year)	\$.00

Transmission Line Upgrade Component

Component title	Columbian Switch-Natrium 69 kV Rebuild
Impacted transmission line	Columbian Switch-Natrium 69 kV Line
Point A	Columbian Switch
Point B	Natrium
Point C	
Terrain description	Hilly

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	4/0 ACSR 6/1 "Penguin"
Hardware plan description	Existing hardware will be replaced.
Tower line characteristics	1970s era wood pole line.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	69.000000	69.000000
	Normal ratings	Emergency ratings

Summer (MVA)	129.000000	180.000000
Winter (MVA)	162.000000	202.000000
Conductor size and type	795.0 KCM ACSR 26/7 "Drake"	
Shield wire size and type	7#10 AW	
Rebuild line length	0.72 miles	
Rebuild portion description	Rebuild from Colombia Carbon to Columbia Carbon Tap str 93N, approximately 0.72 miles. The remainder of the line between Colombia Carbon Tap structure 93N and Natrium station is 336 ACSR and will remain.	
Right of way	A review of existing easements held provides a solution that does not necessitate additional right-of-way acquisition. Right-of-way will primarily support construction support efforts	
Construction responsibility	AEP	
Additional comments		
Component Cost Details - In Current Year \$		
Engineering & design	Detailed cost breakdown	
Permitting / routing / siting	Detailed cost breakdown	
ROW / land acquisition	Detailed cost breakdown	
Materials & equipment	Detailed cost breakdown	
Construction & commissioning	Detailed cost breakdown	
Construction management	Detailed cost breakdown	
Overheads & miscellaneous costs	Detailed cost breakdown	
Contingency	Detailed cost breakdown	
Total component cost	\$1,082,221.55	
Component cost (in-service year)	\$.00	

Substation Upgrade Component

Component title	Cresaps 69 kV Switch Replacement
Substation name	Cresaps
Substation zone	205 - AEP
Substation upgrade scope	Replace the Cresap 69kV 3-Way Phase-Over-Phase Switch and structure with a new 1200A 3-Way Switch and Steel Pole. 1200 A Switches will have motors, but will not be SCADA controlled. Switch will have Loop-Splitting / Line-Dropping / Load Dropping capabilities.

Transformer Information

None	
New equipment description	3-1200 A 69 kV switches
Substation assumptions	Outages are available to replace the switch in place.
Real-estate description	N/A
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	Detailed cost breakdown
Permitting / routing / siting	Detailed cost breakdown
ROW / land acquisition	Detailed cost breakdown
Materials & equipment	Detailed cost breakdown
Construction & commissioning	Detailed cost breakdown
Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown
Contingency	Detailed cost breakdown

Total component cost	\$706,176.47
Component cost (in-service year)	\$.00

Substation Upgrade Component

Component title	McElroy Bus Replacement
Substation name	McElroy
Substation zone	205 - AEP
Substation upgrade scope	Replace 477 MCM Alum bus and risers at McElroy 69 kV station

Transformer Information

None	
New equipment description	1590 MCM Aluminum conductors
Substation assumptions	Extended outages are available to replace bus work
Real-estate description	N/A
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	Detailed cost breakdown
Permitting / routing / siting	Detailed cost breakdown
ROW / land acquisition	Detailed cost breakdown
Materials & equipment	Detailed cost breakdown
Construction & commissioning	Detailed cost breakdown
Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown

Contingency	Detailed cost breakdown
Total component cost	\$325,218.25
Component cost (in-service year)	\$.00

Substation Upgrade Component

Component title	Natrium 138 kV Bus Replacement
Substation name	Natrium
Substation zone	205 - AEP
Substation upgrade scope	Replace 138kV bus existing between CB-BT1 and along the 138kV Main Bus # 1 dropping to CBH1. The conductor between these points spans three bays and is made up of 500MCM copper conductors. It is the intent of this project to replace the 500MCM conductors of the main bus # 1 and the cross busses with a 1272 KCM AAC conductor. Along with replacing the three phase conductors of the main bus # 1, the dead end clamp and strain insulators will be replaced.

Transformer Information

None	
New equipment description	1272 KCM AAC conductor to replace existing 500MCM bus
Substation assumptions	Extended outages are available to replace bus work
Real-estate description	N/A
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	Detailed cost breakdown
Permitting / routing / siting	Detailed cost breakdown
ROW / land acquisition	Detailed cost breakdown
Materials & equipment	Detailed cost breakdown

Construction & commissioning	Detailed cost breakdown
Construction management	Detailed cost breakdown
Overheads & miscellaneous costs	Detailed cost breakdown
Contingency	Detailed cost breakdown
Total component cost	\$291,187.19
Component cost (in-service year)	\$.00

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
AEP-T237	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T238	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T221	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T222	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T223	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T225	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T226	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T227	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T228	245928	05COLOMBI	245943	05NATRIUM	1	69	205	FERC 715 Thermal
AEP-T229	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T230	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T231	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T232	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T233	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T234	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
AEP-T219	245928	05COLOMBI	245951	05CONNERRN	1	69	205	FERC 715 Thermal
AEP-T239	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T240	245930	05CRESAPS	245938	05KAMMER	1	69	205	FERC 715 Thermal
AEP-T250	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T243	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal
AEP-T244	245930	05CRESAPS	245950	05MCELROY	1	69	205	FERC 715 Thermal

New Flowgates

None

Financial Information

Capital spend start date 01/2023

Construction start date 03/2024

Project Duration (In Months) 29

Additional comments

None