Smith Mountain - Rockcastle - Moneta 138 kV Sag Study

General Information

Proposing entity name	AEPSCT
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	AEP_A
PJM Proposal ID	689
Project title	Smith Mountain - Rockcastle - Moneta 138 kV Sag Study
Project description	Perform a sag study on the Smith Mountain - Rockcastle - Moneta 138 kV line and construct mitigations to raise emergency ratings of the line. Replace station conductor at Smith Mountain station.
Email	jlmoore2@aep.com
Project in-service date	06/2029
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. Smith Mountain-Rockcastle-Moneta 138 kV Sag Study
2. Smith Mountain Station Conductor

Transmission Line Upgrade Component

Component title	Smith Mountain-Rockcastle-Moneta 138 kV Sag Study

Project description	Sag Study the Smith Mountain - Moneta 138 kV line. Approximately 14 structures will need to be added in existing Rights of Way to increase the sag along the existing centerline such that the higher requested ampacity can be achieved along the corridor and maintain safety clearances.
Impacted transmission line	Cloverdale - Smith Mountain 138 kV Line
Point A	Smith Mountain
Point B	Moneta
Point C	Rockcastle
Terrain description	The terrain is very mountainous at Smith Mountain station, transitioning into hilly terrain as the line moves north to Moneta.

Existing Line Physical Characteristics

Operating voltage	138
Conductor size and type	2 bundle 555.6 KCm ACSR "Dove"
Hardware plan description	The existing line is 1962 vintage guyed V and self-supporting Aluminum Lattice Structures. Existing hardware will be re-utilized as much as possible for the sag study project.
Tower line characteristics	The existing line is 1962 vintage guyed V and self-supporting Aluminum Lattice Structures. These structures will be re-utilized as much as possible for the sag study project.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	409.000000	569.000000
Winter (MVA)	517.000000	639.000000
Conductor size and type	2 bundle 555.6 KCm ACSR "Dove"	
Shield wire size and type	7 no. 8 Alumoweld Shieldwire and 0.646" OPGW fiber 144 Count	

Rebuild line length	N/A. Sag study mitigations only.
Rebuild portion description	This sag study will re-utlilize existing transmission RoW with existing hardware for the majority of the work. Approximately 14 structures will be added in existing Rights of Way to increase the sag along the existing centerline such that the higher requested ampacity can be achieved along the corridor and maintain safety clearances.
Right of way	Existing Right of Way will be used for the sag study project. New third party easement may be required for access to the newly installed structures inside of existing RoW.
Construction responsibility	AEP
Benefits/Comments	Overall ratings will be set by station equipment limits (see idv) and the conductor ratings are listed above.

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	$9,596,073.52
Component cost (in-service year)	$9,596,073.52

Substation Upgrade Component

Component title	Smith Mountain Station Conductor

Project description	Replace the 2" IPS Sch. 40 conductor with 4" IPS Sch. 40 conductor at Smith Mountain station on the Smith Mountain-Rock Castle branch allowing the branch to exceed a summer emergency rating of 1765 A.
Substation name	Smith Mountain
Substation zone	205
Substation upgrade scope	Replace the 2" IPS Sch. 40 conductor with 4" IPS Sch. 40 conductor on the Smith Mountain Rock Castle branch

Transformer Information

None

New equipment description	4" IPS Sch. 40 bus/conductor
Substation assumptions	Station outages are available. Work will be done inside existing station fence and yard.
Real-estate description	N/A
Construction responsibility	AEP
Benefits/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	$283,725.18

Component cost (in-service year)	$283,725.18

Congestion Drivers

None

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-GD-S488	242775	05ROCKCAS SS	242720	05MONETA	1	138	205	Generation Deliverability	Included
2025W1-GD-S480	242802	05SMITHMTN	242775	05ROCKCAS SS	1	138	205	Generation Deliverability	Included

New Flowgates

None

Financial Information

Capital spend start date	01/2026
Construction start date	05/2028
Project Duration (In Months)	41

Additional Comments

None