

West Kingsport Transformer Replacement and Line Rebuilds

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_L
PJM Proposal ID	909
Project title	West Kingsport Transformer Replacement and Line Rebuilds
Project description	This project comprises of replacing and upgrading the 138/69-34.5 KV transformer with a 90 MVA capable unit at West Kingsport to address thermal overload on T1 at the West Kingsport substation and rebuilding the ~ 1.5 mile long 34.5 KV line from West Kingsport – Lovedale to address lines thermal overload. Proposed ratings (SN/SE/WN/WE): 244218-244219: 90/90/90/90 244200-244213: 41/45/53/57 244213-244219: 38/38/49/49
Email	nckoehler@aep.com
Project in-service date	06/2026
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. West Kingsport Transformer Replacement
2. West Kingsport-Lovedale Rebuild

Substation Upgrade Component

Component title	West Kingsport Transformer Replacement
Project description	Replace and 138/69/34.5 KV auto transformer at West Kingsport with new 138/69/34kV auto transformer with 90MVA 34kV tertiary
Substation name	West Kingsport
Substation zone	205 - AEP
Substation upgrade scope	Replace and 138/69/34.5 KV auto transformer at West Kingsport with new 138/69/34kV auto transformer with 90MVA 34kV tertiary

Transformer Information

	Name	Capacity (MVA)	
Transformer	West Kingsport Transformer 1	130/90	
	High Side	Low Side	Tertiary
Voltage (kV)	138	69	34.5
New equipment description	(1) 138/69-34.5 KV transformer with 90MVA tertiary winding, associated surge arresters and oil containment facilities. Miscellaneous buswork and jumpers sized for new transformer. Underground 34kV power cable feed from new transformer to 34kV bay		
Substation assumptions	Assume larger auto transformer will be able to be placed in existing location. Hand digging inside existing station is required. Outages will need to be coordinated for transformer replacement.		
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	\$3,825,672.00
Component cost (in-service year)	\$.00

Transmission Line Upgrade Component

Component title	West Kingsport-Lovedale Rebuild
Project description	Rebuild 1.5 miles of 34.5 kV line between West Kingsport and Lovedale stations.
Impacted transmission line	West Kingsport-Lovedale
Point A	West Kingsport
Point B	Lovedale
Point C	Waste Water (Sewage)
Terrain description	Edge of street through industrial and residential areas in the City of Kingsport, TN. Urban

Existing Line Physical Characteristics

Operating voltage	34.5
Conductor size and type	4/0 AWG Copper
Hardware plan description	Existing line hardware is not compatible with proposed conductor and is 70 years old, It will not be reused.

Tower line characteristics

Existing wood pole structures are 70 years old with distribution circuitry underbuild. All will need to be replaced for adequate spacing and clearances to be obtained while constructing to AEP Standards design criteria.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	34.500000	34.500000
	Normal ratings	Emergency ratings
Summer (MVA)	51.000000	71.000000
Winter (MVA)	65.000000	80.000000
Conductor size and type	556.5 KCM ACSR (26/7) "Dove"	
Shield wire size and type	7#10 Alumoweld	
Rebuild line length	1.5 miles	
Rebuild portion description	It is assumed that the two lattice towers on this circuit at the Holston River crossing near West Kingsport Station, are adequate for reconductoring. All other structures will require rebuild. 1.5 miles.	
Right of way	AEP anticipates that no new ROW will be require for this Project. AEP will utilize the existing right-of-way and supplement existing rights as needed in City of Kingsport, Sullivan County, Tennessee. No known constraints should pose significant project obstacles if the AEP can rebuild within the current right-of-way.	
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	\$3,598,948.00
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	Status
AEP -T2	244213	05SEWAGEPL	244219	05WKINGSP	1	35	205	FERC 715 Thermal	Included
AEP -T3	244219	05WKINGSP	244218	05WKINGSEQ	1	35/999	205	FERC 715 Thermal	Included
AEP -T4	244219	05WKINGSP	244218	05WKINGSEQ	1	35/999	205	FERC 715 Thermal	Included
AEP -T5	244219	05WKINGSP	244218	05WKINGSEQ	1	35/999	205	FERC 715 Thermal	Included
AEP -T1	244200	05LOVEDALE	244213	05SEWAGEPL	1	35	205	FERC 715 Thermal	Included

New Flowgates

None

Financial Information

Capital spend start date	10/2022
Construction start date	10/2024

Project Duration (In Months)

44

Additional Comments

None