

West Mount Vernon Area Rebuilds

General Information

Proposing entity name	AEPSCT
Company proposal ID	AEP_W3
PJM Proposal ID	860
Project title	West Mount Vernon Area Rebuilds
Project description	AEP proposes to rebuild approximately 4.0 miles of existing 69 kV line between West Mount Vernon and Mount Vernon stations. The existing 138/69 kV transformer at West Mount Vernon will also be replaced by a larger 90 MVA unit along with existing 69 kV breaker 'C'. Proposed branch ratings: 243153 to 245562: 90/90/90/90 245558 to 245562: 82/90/103/113 245558 to 245556 82/90/103/113 245553 to 245556 68/76/90/98
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	Business proprietary information

Project Components

1. West Mount Vernon-Mount Vernon Rebuild
2. West Mount Vernon Station Work
3. Pittsburg Avenue Remote End Relaying
4. Mount Vernon Remote End Relaying

Transmission Line Upgrade Component

Component title	West Mount Vernon-Mount Vernon Rebuild
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Impacted transmission line	West Mount Vernon-Mount Vernon 69 kV line
Point A	West Mount Vernon
Point B	Mount Vernon
Point C	Pittsburg Avenue, South Mount Vernon, North Mount Vernon
Terrain description	Urban

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	3/0 CU (7 strand)
Hardware plan description	Existing hardware to be removed
Tower line characteristics	1950's wood pole line, cross arm construction

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	69.000000	69.000000
	Normal ratings	Emergency ratings
Summer (MVA)	102.000000	142.000000
Winter (MVA)	129.000000	160.000000
Conductor size and type	556.5 KCM ACSR 26/7 "Dove"	
Shield wire size and type	7#10 AW	
Rebuild line length	4.0 miles	
Rebuild portion description	Rebuild the West Mount Vernon-Mount Vernon 69 kV line with 556 ACSR. This includes taps into Pittsburg Avenue and North Mount Vernon Stations. The switching structure that previously fed South Mount Vernon station will be removed as the load is no longer there.	

Right of way

This project addresses the rebuild of the existing West Mount Vernon – Mount Vernon 69kV transmission line. Minimal right-of-way acquisition is expected to support the centerline rebuild solution. Existing easements in place for the transmission line, along with a clearly maintained existing line corridor, provide a rebuild solution that primarily leverages these existing rights. Additional easement rights will be needed to address some restrictive existing easements, along with supporting two, single-circuit 69kV lines (as opposed to one, double-circuit 69kV line) as they enter the Pittsburgh Avenue Station. The project rebuild will begin at the existing West Mount Vernon Station site, and run in a general northeastern direction to the existing Mount Vernon Station. Aside from anticipated labor associated with completing all necessary right-of-way acquisition support and non-environmental permitting work, no additional action is anticipated as part of this project at this time. This existing transmission line is located in Knox County, Ohio. A review of existing easements held enables a solution that minimizes additional right-of-way acquisition. Right-of-way will acquisition will be necessary for approximately eighteen (18) parcels. A tabletop analysis found multiple properties owned by the City of Mount Vernon; however, AEP holds both sufficient existing easements for the existing transmission line and a valid Franchise Agreement with the City of Mount Vernon. Land use types within the project footprint are mixed between commercial and agricultural, as identified through Knox County online property information listings.

Construction responsibility

AEP

Additional comments

Business proprietary information

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

\$7,525,093.00

Component cost (in-service year) \$.00

Substation Upgrade Component

Component title West Mount Vernon Station Work

Substation name West Mount Vernon

Substation zone 205 - AEP

Substation upgrade scope The work at this station includes the replacement of the existing 138/69kV, 33MVA transformer with a new 90MVA unit. Install new foundation and secondary oil containment for the transformer. Install new high side 138kV circuit switcher and jumpers. As part of the protection scheme improvements, a new 69kV low side circuit breaker with associated disconnect switches will be installed. New 3Phase potential CCVTs will be added to the 69kV Bus. Existing 69 kV breaker 'C' will be replaced by a 40 kA breaker. Station risers and 600A switches will also be replaced as part of the work. Upgrades are also been made to the 69kV line towards Pittsburg avenue, with the installation of new 3Ph potential (CCVTs). A station expansion is required for the installation of the new 69 CCVTs on the Pittsburgh Line. An expansion of the fence 15' out is being proposed. This will require the extension of the existing ground grid.

Transformer Information

	Name	Capacity (MVA)		
Transformer	West Mount Vernon Transformer #0			
	High Side	Low Side	Tertiary	
Voltage (kV)	138	69		
New equipment description	(Qty. 1) – 138/69kV, 30MVA Transformer (Qty. 1) – 138kV, 3000A, 40kA, Circuit Switcher (Qty. 6) – 69kV, CCVTs (Qty. 2) – 69kV, 2000A, 40kA, Circuit Breaker			
Substation assumptions	-Area for station expansion will require minimal to no tree clearing. -Cable trench and entrances have adequate space to add the cabling associated with the new equipment. -Transformer Dimensions will remain close to the unit utilized for scoping purposes. An increase of the transformer tank size could prevent this from being installed in the proposed location underneath the 138kV bay.			

Real-estate description An expansion of the fence on the East side of the station will be required. This area is approximately 15' x 191'. The area being utilized for this expansion is already owned by AEP and no additional land acquisitions will be required.

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 \$3,452,332.00

Component cost (in-service year) \$.00

Substation Upgrade Component

Component title Pittsburg Avenue Remote End Relaying

Substation name Pittsburg Avenue

Substation zone 205 - AEP

Substation upgrade scope

Upgrade relaying at Mount Vernon station, including the installation of two sets of new 69kV, 3PH Potential (CCVTs) and associated steel structure/foundation. One set will be installed on the line towards West Mount Vernon with the other set on the Line towards Mount Vernon. A new 16'x18' DICM will be required for the new protection panels being added. Upgrades to the station service will be required due to the new AC load required by the DICM. This will be two new 50kVA transformer cans as well as new AC yard panel and cables. Existing 15kVA station service transformers will be removed.

Transformer Information

None	
New equipment description	(Qty. 6) – 69kV, CCVTs
Substation assumptions	Existing footprint can accommodate steel structures and equipment.
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	\$1,532,634.00
Component cost (in-service year)	\$.00

Substation Upgrade Component

Component title	Mount Vernon Remote End Relaying
Substation name	Mount Vernon
Substation zone	205 - AEP
Substation upgrade scope	Upgrade relaying at Mount Vernon station, including the installation of 69kV, 3PH potential (CCVTs) and associated steel structure/foundation on the line towards Pittsburgh Avenue.

Transformer Information

None	
New equipment description	(Qty. 3) – 69kV CCVTs
Substation assumptions	Existing footprint has room for steel structure/equipment install.
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 \$415,856.00

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
AEP-T472	245558	05PITTSBUR	245559	05S MT VER	1	69	205	FERC 715 Thermal
AEP-T424	245558	05PITTSBUR	245562	05W MT VER	1	69	205	FERC 715 Thermal
AEP-T429	245558	05PITTSBUR	245562	05W MT VER	1	69	205	FERC 715 Thermal
AEP-T430	245558	05PITTSBUR	245562	05W MT VER	1	69	205	FERC 715 Thermal
AEP-T431	245558	05PITTSBUR	245562	05W MT VER	1	69	205	FERC 715 Thermal
AEP-T479	245558	05PITTSBUR	245559	05S MT VER	1	69	205	FERC 715 Thermal
AEP-T478	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T476	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T471	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T464	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T466	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T467	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T469	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T483	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T484	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T485	243153	05WMTVER	245562	05W MT VER	1	138/69	205	FERC 715 Thermal
AEP-T482	245562	05W MT VER	245558	05PITTSBUR	1	69	205	FERC 715 Thermal
AEP-T470	245562	05W MT VER	245558	05PITTSBUR	1	69	205	FERC 715 Thermal
AEP-T475	245562	05W MT VER	245558	05PITTSBUR	1	69	205	FERC 715 Thermal
AEP-T477	245562	05W MT VER	245558	05PITTSBUR	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-T480	245559	05S MT VER	245556	05N MT VER	1	69	205	FERC 715 Thermal
AEP-T473	245559	05S MT VER	245556	05N MT VER	1	69	205	FERC 715 Thermal
AEP-T481	245556	05N MT VER	245553	05MT VERNO	1	69	205	FERC 715 Thermal
AEP-T474	245556	05N MT VER	245553	05MT VERNO	1	69	205	FERC 715 Thermal

New Flowgates

None

Financial Information

Capital spend start date 09/2022

Construction start date 09/2024

Project Duration (In Months) 33

Additional comments

None