

Wolf Run - Gambier - Martinsburg Transmission Project

General Information

Proposing entity name	██████████
Company proposal ID	
PJM Proposal ID	533
Project title	Wolf Run - Gambier - Martinsburg Transmission Project
Project description	The Wolf Run - Gambier - Martinsburg Transmission Project will include a new 3-position substation interconnecting the Galion - Ohio Central 345kV transmission line. The proposed substation will include a new 345/69kV transformer that will connect to the Gambier 69kV substation via a new 69kV transmission line. The proposed project will also connect the Gambier 69kV substation with the Martinsburg 69kV substation. The proposed project will require new right-of-way.
Project in-service date	06/2024
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	

Project Components

1. Wolf Run - Gambier
2. Gambier - Martinsburg
3. Wolf Run 345kV Substation
4. Gambier 69kV Upgrade
5. Martinsburg 69kV Upgrade
6. Wolf Run Transmission Interconnection

Greenfield Transmission Line Component

Component title Wolf Run - Gambier

Point A Wolf Run

Point B Gambier

Point C

	Normal ratings	Emergency ratings
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Summer (MVA)	143.000000	179.000000
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Winter (MVA)	143.000000	179.000000
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Conductor size and type 1033.5 kcmil "Curlew" ACSS conductor

Nominal voltage AC

Nominal voltage 69

Line construction type Overhead

General route description See Routing Map attachment for information on the general project route. Most high-voltage transmission projects will require a state siting approval. To begin the siting approval process, Central Transmission plans to hold pre-application meetings with the regulatory agency to introduce Central Transmission and the Project, as well as confirm its understanding of the process. Shortly thereafter, Central Transmission will simultaneously begin collecting siting data and start its outreach efforts so that public siting input is incorporated at the earliest stages of the Project. Once Central Transmission identifies a preferred site/route and at least one viable alternative site/route, Central Transmission will carry out the environmental and detailed engineering work necessary in order to establish a highly- detailed Project plan to support the siting applications.

Terrain description The terrain traversed by the project features generally flat agricultural fields with some rolling hills and short segments of forested areas.

Right-of-way width by segment The project will require new rights of way for the entire project route.

Electrical transmission infrastructure crossings No planned electrical transmission infrastructure crossings.

Civil infrastructure/major waterway facility crossing plan N/A

Environmental impacts

The proposed Project was sited to avoid and minimize impacts to wetlands or other areas of environmental concern based on GIS data. It is possible that the Project cannot avoid impacts to a limited number of wetlands and waterways. If so, Central Transmission expects the Project will be subject to regulation under certain permitting programs, namely Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 401 of the Clean Water Act. Central Transmission will engage a qualified consultant to conduct a wetlands delineation of the selected site/route in order to establish the extent of proposed impacts and the need for specific permits from the state or U.S. Army Corps of Engineers. In addition to the permits described above, Central Transmission has identified other permits which may be required for the construction of the Project. Central Transmission considers these permits to be minor due to the more limited effort to prepare applications and the less intensive permitting processes which follow. These include permits related to airspace clearance, stormwater/erosion and sedimentation control, road crossings, and utility and railroad crossings.

Tower characteristics

The preliminary design for the transmission line utilizes tubular steel monopole structures with single circuit 1033.5 kcmil "Curlew" ACSS conductor in a delta configuration and a single optical groundwire.

Construction responsibility

Proposer

Additional comments

Component Cost Details - In Current Year \$

Engineering & design	██████████
Permitting / routing / siting	██████████
ROW / land acquisition	██████████
Materials & equipment	██████████
Construction & commissioning	██████████
Construction management	██████████
Overheads & miscellaneous costs	██████████
Contingency	██████████
Total component cost	\$2,034,522.00
Component cost (in-service year)	\$2,223,939.00

Greenfield Transmission Line Component

Component title Gambier - Martinsburg

Point A Gambier

Point B Martinsburg

Point C

	Normal ratings	Emergency ratings
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Summer (MVA)	143.000000	179.000000
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Winter (MVA)	143.000000	179.000000
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Conductor size and type 1033.5 kcmil "Curlew" ACSS conductor

Nominal voltage AC

Nominal voltage 69

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Construction responsibility

Proposer

Additional comments

Component Cost Details - In Current Year \$

Engineering & design	██████████
Permitting / routing / siting	██████████
ROW / land acquisition	██████████
Materials & equipment	██████████
Construction & commissioning	██████████
Construction management	██████████
Overheads & miscellaneous costs	██████████
Contingency	██████████
Total component cost	\$4,650,411.00
Component cost (in-service year)	\$5,083,290.00

Greenfield Substation Component

Component title	Wolf Run 345kV Substation
Substation name	Wolf Run 345kV Substation
Substation description	The proposed new Wolf Run 345kV substation will be a three-position ring bus that will interconnect the existing Galion to Ohio Central 345kV transmission line. The third position will connect to a new 345/69kV transformer that will extend to a new 69kV transmission line to Gambier.
Nominal voltage	AC
Nominal voltage	345/69

Transformer Information

	Name	Capacity (MVA)		
Transformer	Wolf Run 345/69kV XFMR	204/241 MVA		
	High Side	Low Side	Tertiary	
Voltage (kV)	345	69		
Major equipment description	345kV Circuit Breakers (3): 4000A continuous current rating and 63kA short circuit rating 345kV Circuit Breaker Isolation Disconnect Switches & associated jumper assemblies: 4000A continuous current rating 345/69kV Transformer: 204/241 MVA			
	Normal ratings	Emergency ratings		
Summer (MVA)	2387.000000	2387.000000		
Winter (MVA)	2387.000000	2387.000000		

Environmental assessment

The proposed Project was sited to avoid and minimize impacts to wetlands or other areas of environmental concern based on GIS data. It is possible that the Project cannot avoid impacts to a limited number of wetlands and waterways. If so, Central Transmission expects the Project will be subject to regulation under certain permitting programs, namely Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 401 of the Clean Water Act. Central Transmission will engage a qualified consultant to conduct a wetlands delineation of the selected site/route in order to establish the extent of proposed impacts and the need for specific permits from the state or U.S. Army Corps of Engineers. In addition to the permits described above, Central Transmission has identified other permits which may be required for the construction of the Project. Central Transmission considers these permits to be minor due to the more limited effort to prepare applications and the less intensive permitting processes which follow. These include permits related to airspace clearance, stormwater/erosion and sedimentation control, road crossings, and utility and railroad crossings.

Outreach plan

Central Transmission will identify and engage stakeholders, such as community officials and landowners within the Project area, early in the process and maintain an active dialogue throughout. Public meetings may be held to offer a venue for landowners and other interested community members to learn about the Project and for Central Transmission to learn more about specific landowner and community preferences. Central Transmission plans to make information available on its website and provide notification of public meetings to landowners within the Project area as required in the siting approval process.

Land acquisition plan

The Project will be located primarily on new right-of-way to be purchased by Central Transmission. In addition, Central Transmission will procure any necessary easements required to access the site. Central Transmission will assign a Right-of-Way Manager to oversee all real estate related activities for the Project including appraisals, title work, surveying, land acquisition and restoration. A right-of-way agent will contact the property owner(s) in person to explain the Project and, as necessary, secure permission to conduct surveys, archaeological studies, etc. The right-of-way agent will be the primary point of contact to negotiate with the property owner to acquire the substation site and any required easements on a mutually agreeable basis. The right-of-way agents will continue to act as a liaison with the property owners during construction and through the restoration process.

Construction responsibility

Proposer

Additional comments

Component Cost Details - In Current Year \$

Engineering & design

██████████

Permitting / routing / siting

██████████

ROW / land acquisition

██████████

Materials & equipment	██████████
Construction & commissioning	██████████
Construction management	██████████
Overheads & miscellaneous costs	██████████
Contingency	██████████
Total component cost	\$10,697,652.00
Component cost (in-service year)	\$11,693,427.00

Substation Upgrade Component

Component title	Gambier 69kV Upgrade
Substation name	Gambier 69kV Substation
Substation zone	Area 205 / Zone 1256
Substation upgrade scope	Add two (2) new 69kV circuit breakers to create two (2) new 69kV line positions to connect to the Wolf Run and Martinsburg Substations.

Transformer Information

None	
New equipment description	(2) 69kV circuit breakers - 3000A
Substation assumptions	It appears that the Gambier 69V substation can be expanded to accommodate two new transmission line connections and that the substation has space available.
Real-estate description	The proposed facilities can be accommodated within the current substation fence without acquiring additional real-estate.
Construction responsibility	AEP
Additional comments	

Component Cost Details - In Current Year \$

Engineering & design	██████████
Permitting / routing / siting	██████████
ROW / land acquisition	██████████
Materials & equipment	██████████
Construction & commissioning	██████████
Construction management	██████████
Overheads & miscellaneous costs	██████████
Contingency	██████████
Total component cost	\$1,856,930.00
Component cost (in-service year)	\$2,029,782.00

Substation Upgrade Component

Component title	Martinsburg 69kV Upgrade
Substation name	Martinsburg 69kV
Substation zone	Area 205 / Zone 1256
Substation upgrade scope	Add one (1) new 69kV circuit breaker to create one (1) new 69kV line position to connect to the Gambier 69kV Substation.

Transformer Information

None	
New equipment description	(1) 69kV circuit breaker - 3000A
Substation assumptions	It appears that the Martinsburg 69V substation can be expanded to accommodate one new transmission line connection and that the substation has space available.
Real-estate description	The proposed facilities can be accommodated within the current substation fence without acquiring additional real-estate.

Construction responsibility AEP

Additional comments

Component Cost Details - In Current Year \$

Engineering & design ██████████

Permitting / routing / siting ██████████

ROW / land acquisition ██████████

Materials & equipment ██████████

Construction & commissioning ██████████

Construction management ██████████

Overheads & miscellaneous costs ██████████

Contingency ██████████

Total component cost \$889,258.00

Component cost (in-service year) \$972,039.00

Transmission Line Upgrade Component

Component title Wolf Run Transmission Interconnection

Impacted transmission line Galion - Ohio Central 345kV Transmission Line

Point A Galion 345kV Substation

Point B Ohio Central 345kV Transmission Line

Point C

Terrain description Generally flat agricultural fields.

Existing Line Physical Characteristics

Operating voltage 345

Conductor size and type	N/A
Hardware plan description	N/A
Tower line characteristics	N/A

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	345.000000	345.000000
	Normal ratings	Emergency ratings
Summer (MVA)	1228.000000	1370.000000
Winter (MVA)	1228.000000	1370.000000
Conductor size and type	N/A	
Shield wire size and type	N/A	
Rebuild line length	<.25 miles	
Rebuild portion description	The existing line will be broken and new deadend towers installed to facilitate looping into the new Wolf Run 345kV Substation.	
Right of way	The existing right-of-way will be reused to facilitate the transmission interconnection facilities necessary to loop the lines into the new substation.	
Construction responsibility	AEP	
Additional comments		

Component Cost Details - In Current Year \$

Engineering & design	██████████
Permitting / routing / siting	██████████
ROW / land acquisition	██████████

Materials & equipment	██████████
Construction & commissioning	██████████
Construction management	██████████
Overheads & miscellaneous costs	██████████
Contingency	██████████
Total component cost	\$999,997.00
Component cost (in-service year)	\$1,093,083.00

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-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-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 VERO	1	69	205	FERC 715 Thermal
AEP-T474	245556	05N MT VER	245553	05MT VERO	1	69	205	FERC 715 Thermal
AEP-T472	245558	05PITTSBUR	245559	05S MT VER	1	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

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
AEP-T477	245562	05W MT VER	245558	05PITTSBUR	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

New Flowgates

None

Financial Information

Capital spend start date 01/2021

Construction start date 01/2023

Project Duration (In Months) 41

Cost Containment Commitment

Cost cap (in current year) ██████████

Cost cap (in-service year) ██████████

Components covered by cost containment

1. Wolf Run - Gambier - Proposer

2. Gambier - Martinsburg - Proposer

3. Wolf Run 345kV Substation - Proposer

Cost elements covered by cost containment

Engineering & design Yes

Permitting / routing / siting Yes

ROW / land acquisition Yes

Materials & equipment Yes

Construction & commissioning Yes

Construction management Yes

Overheads & miscellaneous costs Yes

Taxes Yes

AFUDC Yes

Escalation Yes

Additional Information [Redacted]

Is the proposer offering a binding cap on ROE? No

Is the proposer offering a Debt to Equity Ratio cap? [Redacted]

Additional comments

None