Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 230 kV bus (Proposer Owned-Allen Switchyard)

General Information

Proposing entity name	Company confidential and proprietary information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Company confidential and proprietary information
Company proposal ID	Company confidential and proprietary information
PJM Proposal ID	992
Project title	Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 230 kV bus (Allen Switchyard)
Project description	At the existing Williams Grove Substation, install a new 230/115 kV transformer. Terminate the new transformer into Bay 1. Terminate the new Williams Grove - Allen 115 kV line into the low side of the new Williams Grove 230/115 kV transformer through one new, in series, 115 kV low-side transformer breaker. Install a new Allen four breaker ring bus Switchyard near the existing Allen Substation on adjacent new property to be purchased and owned. Terminate the Round Top - Allen and the Allen-PPGI 115 kV lines into the new switchyard. Extend new 115 kV line from the new switchyard to the existing Allen Substation (~ 0.25 miles). Construct a new ~3.4 mile 115 kV single circuit transmission line from Williams Grove to the new Allen Switchyard. Remove PPGI and Round Top 115 kV line terminations from the existing Allen substation. Terminate the new 115 kV lead line from the new Allen 115 kV switchyard into the existing Allen Substation (~ 0.25 miles).
	Company confidential and proprietary information
	12/2024
Email	
Project in-service date	

Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Company confidential and proprietary information

Project Components

1. Williams Grove Substation 230/115 kV upgrade
2. Allen 115 kV Switchyard
3. Williams Grove - Allen 115 kV line

Substation Upgrade Component

Component title	Williams Grove Substation 230/115 kV upgrade
Project description	Company confidential and proprietary information
Substation name	Williams Grove Substation
Substation zone	PPL EU
Substation upgrade scope	At the existing Williams Grove Substation, install a new 300 MVA 230/115 kV transformer. Terminate the new transformer into Bay 1 off the west bus. Install one new 230 kV breakers and one switch in Bay 1 on the west bus. Extend a 230 kV lead to the new transformer with a rating of at least 721 MVA SN, 814 MVA SE, 842 MVA WN, and 911 MVA WE. Install a 115 kV breaker and one 115 kV switch on the transformer low-side. Install a new dead-end to terminate the new Williams Grove - Allen 115 kV line (the 115 kV breaker, switch, and bay conductor will have a rating of at least 415 MVA SN, 477 MVA SE, 491 MVA WN, and 546 MVA WE).

Transformer Information

	Name	Capacity (MVA)	
Transformer	Williams Grove T3	300	
	High Side	**Low Side**	**Tertiary**

Voltage (kV)	230 115
New equipment description	One (1) 230/115kV, 300 MVA transformer, one (1) 230kV circuit breaker, one (1) 230kV, 2000A MOD switch, one (1) 115kV, 2000A circuit breaker, one (1) 115kV, 2000A ganged switch, three (3) 115kV potential transformers and three 115kV line arresters.
Substation assumptions	No assumptions associated with this upgrade.
Real-estate description	No additional real estate will be required at Williams Grove.
Construction responsibility	Company confidential and proprietary information
Benefits/Comments	Company confidential and proprietary information

Component Cost Details - In Current Year $

Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$6,297,789.90
Component cost (in-service year)	$6,982,472.24

Greenfield Substation Component

Component title	Allen 115 kV Switchyard
Project description	Company confidential and proprietary information

Substation name	Allen 115 kV Switchyard
Substation description	Proposer to acquire land and install a new four breaker ring bus Allen Switchyard on adjacent property next to the existing Allen Substation (40° 8'59.56"N, 77° 3'17.41"W). Install four 115 kV breakers and eight switches. All breakers, switches, and bay conductor to have a minimum rating of at least 415 MVA SN, 477 MVA SE, 491 MVA WN, and 546 MVA WE. Upgrade relaying at PPGI and Round Top Substations as necessary. Terminate the Round Top - Allen, Allen-PPGI, and the new 115 kV line from Williams Grove into the new switchyard. Extend a new 115 kV line from the new switchyard to the existing Allen Substation (~ 0.25 miles). Utilize 1033.5 54/7 ACSR conductor or equivalent with a rating of at least 246 MVA SN, 312 MVA SE, 284 MVA WN, and 351 MVA WE for the lead line from the new Allen Switchyard to the existing Allen Substation and the new PPGI and Round Top terminations. Install two 48 count fiber OPGW. Remove PPGI and Round Top 115 kV line terminations from the existing Allen substation.
Nominal voltage	AC
Nominal voltage	115

Transformer Information

None

Major equipment description	Four (4) 115kV circuit breakers, eight (8) 115kV switches, twelve (12) 115kV potential transformers and fifteen (15) lightning arresters, three (3) 115kV - 240/120 single phase transformers and one (1) 12kV-240/120 station service transformer.

	Normal ratings	**Emergency ratings**
Summer (MVA)	415.000000	477.000000
Winter (MVA)	491.000000	546.000000

Environmental assessment	The land is currently used for agriculture. Minimal grading will be required. This siting and permitting assessment found no PNDI or wetland impacts on the chosen site which is currently agricultural.
Outreach plan	Discussions will be conducted with the Cumberland County Director of Planning, as well as with each landowner from whom right of way will be purchased. Correspondence will be mailed to each affected landowner at decisive points during the life cycle of the project: prior to survey activity, prior to construction activity, and additional times as necessary. A consistent Right of Way point of contact will be available to the landowners during the entire process of right of way acquisition, construction, and restoration.

Land acquisition plan	Acquisition consists of acquiring ~22.38 acres of land in-fee, all part of one parcel owned by one landowner, all privately owned. Negotiations will be conducted utilizing a third-party, fair market valuation analysis to establish approximate market value of property in the area.
Construction responsibility	Company confidential and proprietary information
Benefits/Comments	Company confidential and proprietary information

Component Cost Details - In Current Year $

Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$7,159,237.04
Component cost (in-service year)	$7,937,574.08

Greenfield Transmission Line Component

Component title	Williams Grove - Allen 115 kV line
Project description	Company confidential and proprietary information
Point A	Williams Grove
Point B	Allen
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	246.000000	312.000000
Winter (MVA)	284.000000	351.000000
Conductor size and type	1033.5 54/7 ACSR conductor	
Nominal voltage	AC	
Nominal voltage	115	
Line construction type	Overhead	
General route description	The route begins at Williams Grove Substation near Shepherdstown, PA and travels approximately 3.7 miles southwest to First Energy's Allen Substation near Brandtsville, PA. Listed below are the overhead crossings encountered on this route: Crossing under one 230kV AC transmission line. Crossing under one 500kV AC transmission line. Crossing over six distribution and/or communication lines.	
Terrain description	Open agricultural land with minor vegetation. 40.177158°, -77.025450° (lat/long) for Williams Grove Rd crossing. 40.175309°, -77.027842° (lat/long) for Stoner Rd crossing. 40.162706°, -77.033220° (lat/long) for West Lisburn Rd crossing. 40.158819°, -77.035526° (lat/long) for Speedway Dr crossing. 40.157950°, -77.040976° (lat/long) for Baish Rd crossing. 40.153213°, -77.048123° (lat/long) for South Locust Point Rd crossing	
Right-of-way width by segment	The proposed route crosses 11 parcels: • One parcel has existing ROW, 200' wide X ~478' long (~2.19 acres total) • 10 parcels will have new ROW, 100' wide X 14,882' long (~34.16 acres total)	
Electrical transmission infrastructure crossings	40.150869°, -77.053470° (lat/long) for 500kV crossing. Crossing horizontally under line., 40.174899°, -77.028283° (lat/long) for 230kV crossing. Crossing horizontally under line.	
Civil infrastructure/major waterway facility crossing plan	Acquisition consists of acquiring ~34.16 acres of new right of way. All land is privately owned. Negotiations will be conducted with each landowner individually, utilizing a third-party, fair market valuation analysis to establish approximate market value of property in the area.	
Environmental impacts	The current permitting assessment has found no PNDI impacts and one wetland crossing.	
Tower characteristics	Primary framing utilizes a delta-configuration single circuit direct embedded LD steel monopole.	
Construction responsibility	Company confidential and proprietary information	

Benefits/Comments	Company confidential and proprietary information
Component Cost Details - In Current Year $	
Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$5,113,258.00
Component cost (in-service year)	$5,669,160.54

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
N2-SVM8	204520	27ALLEN	204520	27ALLEN	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM9	204520	27ALLEN	204520	27ALLEN	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM10	204526	27DILLSBRG	204526	27DILLSBRG	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM11	204526	27DILLSBRG	204526	27DILLSBRG	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM12	204528	27GARDNERS	204528	27GARDNERS	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM13	204528	27GARDNERS	204528	27GARDNERS	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM16	204546	27MOUNTAIN	204546	27MOUNTAIN	0	115	227	Summer N-1-1 Voltage Magnitude	Included

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
N2-SVM17	204546	27MOUNTAIN	204546	27MOUNTAIN	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM18	204552	27P.P.G.I.	204552	27P.P.G.I.	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM19	204552	27P.P.G.I.	204552	27P.P.G.I.	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM26	204556	27ROUND TP	204556	27ROUND TP	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVM27	204556	27ROUND TP	204556	27ROUND TP	0	115	227	Summer N-1-1 Voltage Magnitude	Included
N2-SVD3	204520	27ALLEN	204520	27ALLEN	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD4	204520	27ALLEN	204520	27ALLEN	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD5	204526	27DILLSBRG	204526	27DILLSBRG	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD6	204526	27DILLSBRG	204526	27DILLSBRG	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD7	204528	27GARDNERS	204528	27GARDNERS	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD8	204528	27GARDNERS	204528	27GARDNERS	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD9	204546	27MOUNTAIN	204546	27MOUNTAIN	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD10	204546	27MOUNTAIN	204546	27MOUNTAIN	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD11	204552	27P.P.G.I.	204552	27P.P.G.I.	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD12	204552	27P.P.G.I.	204552	27P.P.G.I.	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD15	204556	27ROUND TP	204556	27ROUND TP	0	115	227	Summer N-1-1 Voltage Drop	Included
N2-SVD16	204556	27ROUND TP	204556	27ROUND TP	0	115	227	Summer N-1-1 Voltage Drop	Included

New Flowgates

None

Financial Information

Capital spend start date	06/2022
Construction start date	01/2024
Project Duration (In Months)	30

Cost Containment Commitment

Cost cap (in current year)	Company confidential and proprietary information
Cost cap (in-service year)	Company confidential and proprietary information

Components covered by cost containment

1. Williams Grove Substation 230/115 kV upgrade
2. Williams Grove - Allen 115 kV line

Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	No
Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	No
AFUDC	No
Escalation	No
Additional Information	Company confidential and proprietary information
Is the proposer offering a binding cap on ROE?	No
Is the proposer offering a Debt to Equity Ratio cap?	Company confidential and proprietary information

Additional Comments

None