

# Multi-Driver Project: Allen-Williams Grove Greenfield Line & Reconductor

## General Information

Proposing entity name	Redacted to protect business sensitive information.
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Redacted to protect business sensitive information.
Company proposal ID	Redacted to protect business sensitive information.
PJM Proposal ID	386
Project title	Multi-Driver Project: Allen-Williams Grove Greenfield Line & Reconductor
Project description	Expand the existing incumbent Williams Grove 230 kV station to add a new 230/115 kV transformer. Construct a 3.7 mile greenfield 115 kV line from Williams Grove 115 kV station to Allen 115 kV station. Install (2) breakers at Williams Grove 230 kV, (1) breaker at Williams Grove 115 kV, and (1) breaker at Allen 115 kV. Also, reconductor 14.2 miles of existing Juniata - Cumberland 230kV line. (hereinafter, "the Project")
Email	Redacted to protect business sensitive information.
Project in-service date	05/2024
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Redacted to protect business sensitive information.

## Project Components

1. Station Upgrade Component 1
2. Station Upgrade Component 2
3. Greenfield Line Component 1

#### 4. Reconductor Component 1

### Substation Upgrade Component

Component title	Station Upgrade Component 1
Project description	Redacted to protect business sensitive information.
Substation name	Williams Grove 230/115 kV
Substation zone	PPL
Substation upgrade scope	Create a new 115KV line position to connect to Allen Station by adding 2-230KV circuit breakers, a 250MVA transformer, a 115KV circuit breaker, a 115KV phase-over-phase take-off tower, and other associated items.

### Transformer Information

	Name	Capacity (MVA)		
Transformer	Transformer 3	250 MVA		
	High Side	Low Side	Tertiary	
Voltage (kV)	230	115	13.8	
New equipment description	Create a new 115KV line position to connect to Allen Station by adding 2-230KV, 3000A, 63KA circuit breakers; 4-230KV, 3000A group-operated CB disc. switches & steel str.; 1-set of 3-230KV CCVT's & steel str.; 1-230KV, 3000A group-operated transformer disc. switch & steel str.; 1-230/115KV, 250MVA autotransformer with a 13.8KV tertiary, arresters, and oil containment; 1-115KV, 3000A, 63KA circuit breaker; 1-115KV, 3000A group-operated CB disc. switch & steel str.; 1-set of 3-115KV CCVT's & steel str.; 1-set of 3-115KV line arresters; one (1) phase-over-phase take-off tower steel str. for the new 115KV line; 2-shield wire poles; 2-shield wires; twenty-two (22) 230KV, 1-phase low bus support str.; nine (9) 230KV, 1-phase high bus support str.; one (1) 115KV, 3-phase high bus support str.; and associated bus jumpers, bus tubing & dampening cable, insulators, foundations, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house.			

Substation assumptions	The Project assumes that all necessary outages will be available, the existing AC, DC, & telecom. systems will accommodate the new equipment, the existing control house has space for the new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, the existing cable trench has space for the new control cables, soil boring logs and geotechnical report are available, additional station stone will not be needed, and space will be available to install the equipment outlined in this description.
Real-estate description	The incumbent's existing Williams Grove station (Cumberland County, PA) fences will not require expansion or any additional real estate to be purchased for the Project.
Construction responsibility	Redacted to protect business sensitive information.
Benefits/Comments	Redacted to protect business sensitive information.
<b>Component Cost Details - In Current Year \$</b>	
Engineering & design	Redacted to protect business sensitive information.
Permitting / routing / siting	Redacted to protect business sensitive information.
ROW / land acquisition	Redacted to protect business sensitive information.
Materials & equipment	Redacted to protect business sensitive information.
Construction & commissioning	Redacted to protect business sensitive information.
Construction management	Redacted to protect business sensitive information.
Overheads & miscellaneous costs	Redacted to protect business sensitive information.
Contingency	Redacted to protect business sensitive information.
Total component cost	\$4,536,831.04
Component cost (in-service year)	\$4,957,517.77
<b>Substation Upgrade Component</b>	
Component title	Station Upgrade Component 2
Project description	Redacted to protect business sensitive information.
Substation name	Allen 115 kV

Substation zone	METED
Substation upgrade scope	Create a new 115KV line position to connect to Williams Grove station by adding a 115KV circuit breaker, a 115KV H-frame style take-off tower, and other associated items.
<b>Transformer Information</b>	
None	
New equipment description	Create a new 115KV line position to connect to Williams Grove station by adding 1-115KV, 3000A, 63KA circuit breaker; 2-115KV, 3000A group-operated CB disc. switch & one (1) steel str.; 2-sets of 3-115KV CCVT's & steel str.; 1-115KV, 3000A line trap; 1-line tuner; 1-set of 3-115KV interchange metering CT/PT combo units & steel str.; 1-set of 3-115KV bus arresters & steel str.; 1-set of 3-115KV line arresters; one (1) H-frame style take-off tower steel str. for the new 115KV line; three (3) 115KV, 1-phase low bus support str.; one (1) 115KV, 3-phase low bus support str.; and associated bus jumpers, bus tubing & dampening cable, insulators, foundations, yard lighting, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house.
Substation assumptions	The Project assumes that all necessary outages will be available, the existing AC, DC, & telecommunication systems will accommodate the new equipment, the existing control house has space for the new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, soil boring logs and geotechnical report are available, additional station stone will not be needed, and space will be available to install the equipment outlined in this description.
Real-estate description	The incumbent's existing Allen station (Cumberland County, PA) fences will not require expansion or any additional real estate to be purchased for the Project.
Construction responsibility	Redacted to protect business sensitive information.
Benefits/Comments	Redacted to protect business sensitive information.
<b>Component Cost Details - In Current Year \$</b>	
Engineering & design	Redacted to protect business sensitive information.
Permitting / routing / siting	Redacted to protect business sensitive information.
ROW / land acquisition	Redacted to protect business sensitive information.
Materials & equipment	Redacted to protect business sensitive information.
Construction & commissioning	Redacted to protect business sensitive information.

Construction management	Redacted to protect business sensitive information.
Overheads & miscellaneous costs	Redacted to protect business sensitive information.
Contingency	Redacted to protect business sensitive information.
Total component cost	\$1,016,480.64
Component cost (in-service year)	\$1,110,735.84

### Greenfield Transmission Line Component

Component title	Greenfield Line Component 1
Project description	Redacted to protect business sensitive information.
Point A	Allen 115 kV
Point B	Williams Grove 115 kV
Point C	

	<b>Normal ratings</b>	<b>Emergency ratings</b>
Summer (MVA)	214.000000	300.000000
Winter (MVA)	271.000000	337.000000
Conductor size and type	795 kcmil 26/7 Strand "Drake" ACSR	
Nominal voltage	AC	
Nominal voltage	The new line will be constructed as a 115kV single circuit line.	
Line construction type	Overhead	

## General route description

The Proposing Entity reviewed numerous route combinations for the Project evaluating each with respect to potential impacts to the surrounding communities, environment, constructability, operations & maintenance considerations & cost effectiveness. Potential routes were considered within a study area of 10 mi<sup>2</sup> (see attached kmz), as the Project utilized the existing Allen & Williams Groves station locations. Major constraints in the study area include residential subdivisions, Williams Grove Speedway, Breeches Creek, and the Towns of Williams Grove & Shepherdstown. The Siting team also identified several smaller constraints including churches, cemeteries, local parks, habitable structures and a subterranean gas line near Allen Substation. Finally, county agricultural conservation easements are located throughout the study area. Starting at the existing Allen station, the route is approximately 3.7 miles in length & located mainly along agricultural parcels with scattered residential development near Williams Grove station. The route parallels parcel boundaries to minimize agricultural impacts where practical & avoids additional engineering cost typically associated with overbuilding distribution lines. Crossing of county agricultural conservation easements was minimized where feasible, but avoidance was not practical due to the high density of easements within the study area. Per our review with local county officials, the placement of new transmission lines on the identified agricultural conservation easements are deemed an acceptable activity. ROW acquisition risks associated with Pennsylvania's residential curtilage law were avoided by locating the proposed ROW more than 100 meters from residential dwellings & associated buildings for each parcel crossed by the proposed ROW. Many of the identified constraints in the area were avoided or minimized by the route. The route crosses one small NWI riverine wetland associated with the crossing of a tributary to Breeches Creek. The stream crossing of this tributary was chosen to minimize potential impacts to NWI wetlands & tree clearing along the proposed route. Overall, tree clearing along the route is minimal & confined to the tributary & narrow tree lines along agricultural property edges. The route also avoids crossing residential subdivisions, Breeches Creek, Williams Grove Speedway, West Shore Free Church property, local parks & cemeteries.

## Terrain description

The route terrain is predominately rolling agricultural lands with scattered residential lots and subdivisions in Cumberland County, Pennsylvania. Elevation along the route ranges from approximately 429 to 515 feet above sea level, with an average elevation of 477 feet.

#### Right-of-way width by segment

The new Allen-Williams Grove 115kV Line will require the acquisition of 3.7 miles of transmission line with a 100' wide ROW. The Project begins at the incumbent's existing Allen Station near Brandtsville, Cumberland Co., PA & running in a northeasterly direction to incumbent's existing Williams Grove Station near Shepherdstown, Cumberland Co., PA. A tabletop analysis found there were no public lands required for the Project. The private land use is predominantly agricultural & residential that the tabletop analysis found & were verified through the Cumberland County Clerk's Office classifications/assessments. Private land requirements include acquiring 100' (50'/50') wide ROW in Cumberland Co., PA where the land use is predominantly agricultural & residential with flat/rolling terrain. The Proposing Entity will use proven land acquisition process & approach that are successfully employed on projects over the years. The Proposing Entity's initial land acquisition step is to verify current ownership by an examination of title, current property tax status, as well as document any liens, & or mortgages. The Proposing Entity will also research the status of the subsurface estate, whether or not it is severed from the surface. Once ownership is established, the Proposing Entity will negotiate with landowners based on the fair market value of the property needed for the ROW easements. Market data studies & appraisals, both general & for specific tracts, will be conducted to establish values & a basis for acquisition negotiations. The Proposing Entity will also pay for any crop damage and/or physical damage to property resulting from the construction and/or maintenance of the transmission line. Good Faith negotiations must be made with all landowners. Negotiations will be done in an ethical, non-confrontational & non-threatening manner with the landowners. The long-term relationship with the landowners is paramount & will be kept in mind in all negotiations & honesty, integrity & professionalism will be displayed at all times. Negotiations will continue as long as practical to reach a voluntary agreement. If, & only if, it becomes evident that a voluntary fee purchase agreement between the Proposing Entity & the property owner cannot be reached, & other viable alternatives do not exist, the Proposing Entity may exercise the right of eminent domain to secure required property through condemnation proceedings.

#### Electrical transmission infrastructure crossings

The Project from the proposed Allen-Williams Grove 115kV Line in Cumberland County, Pennsylvania will involve five (5) electrical transmission infrastructure crossings: The location of the 1st crossing (69kV) is approximately: 40 10' 38.33" N, 77 00' 31.07"W. The location of the 2nd crossing (69kV) is approximately: 40 10' 38.33" N, 77 00' 31.81"W. The location of the 3rd crossing (230kV) is approximately: 40 10' 29.58" N, 77 01' 39.63"W. The location of the 4th crossing (500kV) is approximately: 40 08' 59.67" N, 77 03' 08.30"W. The location of the 5th crossing (115kV) is approximately: 40 08' 59.29" N, 77 03' 10.24"W. The route crosses existing transmission lines in locations to minimize impacts to the existing transmission lines (e.g., midspan for crossing over a smaller voltage line and near an existing structure if crossing under a higher voltage transmission line).

#### Civil infrastructure/major waterway facility crossing plan

The Project in Cumberland County, Pennsylvania will not involve any civil infrastructure / major waterway facility crossings.

Environmental impacts	<p>Existing land along the route is rural and agricultural. No named streams or waterbodies are crossed by the route. The route crosses one tributary of Breeches Creek. The 100-year floodplain for Breeches Creek is within the Project study area, but not crossed by the route. Based on a review of the National Wetland Inventory (NWI) and aerial photographs, wetlands appear within the study area. A NWI riverine wetland associated with the crossing of a tributary to Breeches Creek is crossed by the route. To ensure appropriate due diligence is performed, detailed desktop studies and records reviews will be conducted for wetlands and streams, threatened and endangered species, and cultural and archaeological resources. Additionally, a field level delineation, habitat survey for species identified by the records review, and cultural/archaeological resource study will be performed. Following field studies, data will be digitized and provided to Engineering so that pole locations are sited to maximize avoidance of sensitive resources. For example, poles will be placed outside of or span wetlands, streams, and/or floodplains to the greatest extent possible. Existing access and roads will be utilized to access pole locations. If necessary, temporary access roads to pole locations will be identified and field surveyed for environmental and cultural/archaeological resources and will be adjusted to avoid or minimize impacts. For ground disturbance associated with the Project, a storm water pollution prevention plan will be developed that specifies appropriate practices to manage construction storm water runoff. The Project will apply for coverage under the Pennsylvania Department of Environmental Protection (DEP) general construction storm water permit. County-level coordination for construction storm water permitting in Cumberland County will also take place.</p>
Tower characteristics	<p>The 115kV line primarily utilizes braced post design on (18) direct embed monopole structures to minimize footprint impacts in agricultural areas. Tension structures (5) and running-corner suspension structures (4) will utilize concrete drilled piers to support foundation loads. The new line will require (27) tubular galvanized steel pole structures. The line does not utilize lattice structures or guyed anchors for support to reduce hazards for farming equipment in agricultural fields. Some structure locations are spotted at the edge of fields, along roads, or fencerows to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.</p>
Construction responsibility	Redacted to protect business sensitive information.
Benefits/Comments	Redacted to protect business sensitive information.
<b>Component Cost Details - In Current Year \$</b>	
Engineering & design	Redacted to protect business sensitive information.
Permitting / routing / siting	Redacted to protect business sensitive information.
ROW / land acquisition	Redacted to protect business sensitive information.
Materials & equipment	Redacted to protect business sensitive information.
Construction & commissioning	Redacted to protect business sensitive information.



Construction management	Redacted to protect business sensitive information.
Overheads & miscellaneous costs	Redacted to protect business sensitive information.
Contingency	Redacted to protect business sensitive information.
Total component cost	\$6,473,185.60
Component cost (in-service year)	\$7,073,424.68

### **Transmission Line Upgrade Component**

Component title	Reconductor Component 1
Project description	Redacted to protect business sensitive information.
Impacted transmission line	Juniata - Cumberland 230 kV line
Point A	Juniata
Point B	Cumberland
Point C	
Terrain description	There are 26 line crossings of various kinds (e.g. transmission and distribution line crossings, road and interstate crossings, and pond / creek crossings).

### **Existing Line Physical Characteristics**

Operating voltage	230 kV
Conductor size and type	1033.5 54/7 ACSR "Curlew" Conductor
Hardware plan description	Replace all porcelain assemblies with glass assemblies and all new hardware (replace 96 tension double insulator strings [26 bells per string]) and 174 suspension insulator strings [13 bells per string]).
Tower line characteristics	There are 75 structures consisting of (2) 1-way dead-ends (lattice terminal structures), (3) 2-way dead-end poles, (12) deadend lattice towers, (57) suspension lattice towers and (1) suspension pole.

### **Proposed Line Characteristics**

	<b>Designed</b>	<b>Operating</b>
Voltage (kV)	230.000000	230.000000
	<b>Normal ratings</b>	<b>Emergency ratings</b>
Summer (MVA)	721.000000	814.000000
Winter (MVA)	799.000000	911.000000
Conductor size and type	ACSS/TW/HS285-1272MCM "PHEASANT" conductor.	
Shield wire size and type	Existing shield wires to remain.	
Rebuild line length	14.2 mile line reconductor.	
Rebuild portion description	Upgrade is not a rebuild. There are only structure reinforcements as necessary and one tower replacement.	
Right of way	No right-of-way expansion is required for this project.	
Construction responsibility	Redacted to protect business sensitive information.	
Benefits/Comments	Redacted to protect business sensitive information.	
<b>Component Cost Details - In Current Year \$</b>		
Engineering & design	Redacted to protect business sensitive information.	
Permitting / routing / siting	Redacted to protect business sensitive information.	
ROW / land acquisition	Redacted to protect business sensitive information.	
Materials & equipment	Redacted to protect business sensitive information.	
Construction & commissioning	Redacted to protect business sensitive information.	
Construction management	Redacted to protect business sensitive information.	
Overheads & miscellaneous costs	Redacted to protect business sensitive information.	
Contingency	Redacted to protect business sensitive information.	

Total component cost \$8,226,655.00

Component cost (in-service year) \$8,995,801.00

## 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
N2-SVD1	200504	26CARLISLE	200504	26CARLISLE	0	115	226	Summer N-1-1 Voltage Drop	Included
N2-SVD2	200504	26CARLISLE	200504	26CARLISLE	0	115	226	Summer N-1-1 Voltage Drop	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-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
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-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-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

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
N2-SVM16	204546	27MOUNTAIN	204546	27MOUNTAIN	0	115	227	Summer N-1-1 Voltage Magnitude	Included
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

## New Flowgates

Redacted to protect business sensitive information.

## Financial Information

Capital spend start date 07/2022

Construction start date 08/2023

Project Duration (In Months) 22

## Cost Containment Commitment

Cost cap (in current year) Redacted to protect business sensitive information.

Cost cap (in-service year) Redacted to protect business sensitive information.

## Components covered by cost containment

1. Greenfield Line Component 1 - Transource

## 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 to protect business sensitive information.
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	Yes
Would the proposer seek to increase the proposed ROE if FERC finds that a higher ROE would not be unreasonable?	No
Is the proposer offering a Debt to Equity Ratio cap?	Redacted to protect business sensitive information.

## **Additional Comments**

None