

# Old Limestone - Doe Run 500/230kV Transmission Project

## General Information

Proposing entity name

Confidential Information

Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?

Company proposal ID

PJM Proposal ID

227

Project title

Old Limestone - Doe Run 500/230kV Transmission Project

Project description

The Old Limestone - Doe Run Project includes a new 500/230kV substation, Old Limestone Substation. The new substation will interconnects the Peach Bottom - Limerick 500kV transmission line. The proposed project will include a 500/230kV transformer stepping down to a new 230kV 4 position ring-bus that will interconnect the existing Cochranville - Newlinville 230kV transmission line. A new line, Old Limestone - Doe Run 230kV transmission line, will also be connected from the Old Limestone substation to the new Doe Run substation. The Doe Run substation will have a 5 position breaker-and-a-half configuration that will interconnect the existing Daleville - Bradford and Clay Tap - Bradford 230kV transmission lines.

Email

Project in-service date

06/2025

Tie-line impact

No

Interregional project

No

Is the proposer offering a binding cap on capital costs?

Yes

Additional benefits

## Project Components

1. Old Limestone 500/230kV Substation

2. Doe Run 230kV Substation
3. Old Limestone - Doe Run 230kV Transmission Line
4. Old Limestone 500kV Transmission Interconnection
5. Old Limestone 230kV Transmission Interconnection
6. Doe Run 230kV Transmission Interconnection #1
7. Doe Run 230kV Transmission Interconnection #2
8. Bradford 230kV Substation Bus Work Upgrade

## Greenfield Substation Component

Component title Old Limestone 500/230kV Substation

Project description

Substation name Old Limestone Substation

Substation description The 500/230kV Old Limestone Substation will interconnect the existing Peach Bottom - Limerick 500kV transmission line with a new 500kV three-position ring bus substation. The 500kV substation will connect to the new 230kV substation via a new 500/230kV 1500 MVA transformer. The 230kV substation will be a four position ring bus that will interconnect the existing Cochranville - Newlinville 230kV line. It will also feature a line position for the new Old Limestone- Doe Run 230kV transmission line. The Old Limestone Substation will also include a 5% series reactor.

Nominal voltage AC

Nominal voltage 500/230

## Transformer Information

	Capacity (MVA)			
	Name	High Side	Low Side	Tertiary
Transformer	Old Limestone 500/230kV Transformer	500		
Voltage (kV)		500	230	

Major equipment description

500kV circuit breakers (3) will have a continuous current rating of 4000A, a 3464 MVA rating, and a short circuit current rating of 63kA. 500kV terminal equipment will be rated at 4000A. 230kV circuit breakers (4) will have a continuous current rating of 4000A, a 1593 MVA rating, and a short circuit current rating of 63kA. 230kV terminal equipment will be rated at 4000A. The 500/230kV transformer will have a capacity of 1500 MVA. The substation will also include a 5% series reactor.

	<b>Normal ratings</b>	<b>Emergency ratings</b>
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Summer (MVA)

1200.000000	1500.000000
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Winter (MVA)

1320.000000	1650.000000
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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, Proposer 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. Proposer 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, Proposer has identified other permits which may be required for the construction of the Project. Proposer 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

Proposer 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 Proposer to learn more about specific landowner and community preferences. Proposer 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 Proposer. In addition, Proposer will procure any necessary easements required to access the site. Proposer 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. To the extent that negotiations reach an impasse, Proposer will be able to pursue eminent domain. 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

Confidential Information

Benefits/Comments

**Component Cost Details - In Current Year \$**

Engineering & design

Confidential Information

Permitting / routing / siting

ROW / land acquisition

Materials & equipment

Construction & commissioning

Construction management

Overheads & miscellaneous costs

Contingency

Total component cost

\$37,589,121.00

Component cost (in-service year)

\$41,088,039.00

**Greenfield Substation Component**

Component title

Doe Run 230kV Substation

Project description



Outreach plan	Proposer 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 Proposer to learn more about specific landowner and community preferences. Proposer 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 Proposer. In addition, Proposer will procure any necessary easements required to access the site. Proposer 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. To the extent that negotiations reach an impasse, Proposer will be able to pursue eminent domain. 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	Confidential Information
Benefits/Comments	
<b>Component Cost Details - In Current Year \$</b>	
Engineering & design	Confidential Information
Permitting / routing / siting	
ROW / land acquisition	
Materials & equipment	
Construction & commissioning	
Construction management	
Overheads & miscellaneous costs	
Contingency	
Total component cost	\$14,106,944.00

Component cost (in-service year) \$15,420,065.00

### Greenfield Transmission Line Component

Component title Old Limestone - Doe Run 230kV Transmission Line

Project description

Point A Old Limestone

Point B Doe Run

Point C

	<b>Normal ratings</b>	<b>Emergency ratings</b>
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Summer (MVA)	1047.000000	1047.000000
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Winter (MVA)	1160.000000	1160.000000
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Conductor size and type Double Bundle 795 "Drake" ACSS

Nominal voltage AC

Nominal voltage 230

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, Proposer plans to hold pre-application meetings with the regulatory agency to introduce Proposer and the Project, as well as confirm its understanding of the process. Shortly thereafter, Proposer 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 Proposer identifies a preferred site/route and at least one viable alternative site/route, Proposer will carry out the environmental and detailed engineering work in order to establish a highly detailed Project plan to support the siting applications.

Terrain description The terrain traversed by the project features mainly agricultural areas with some forested areas.

Right-of-way width by segment The project proposes to utilize a right-of-way width of 125 feet.

Electrical transmission infrastructure crossings

Electrical infrastructure crossings may be required depending on final line route. This will be coordinated during the detailed design process with the interconnection PTO.

Civil infrastructure/major waterway facility crossing plan

No civil infrastructure or major waterway crossings.

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, Proposer 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. Proposer 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, Proposer has identified other permits which may be required for the construction of the Project. Proposer 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, double bundle 795 "Drake" ACSS in a delta configuration and a single optical groundwire.

Construction responsibility

Confidential Information

Benefits/Comments

**Component Cost Details - In Current Year \$**

Engineering & design

Confidential Information

Permitting / routing / siting

ROW / land acquisition

Materials & equipment

Construction & commissioning

Construction management

Overheads & miscellaneous costs

Contingency

Total component cost \$12,223,754.00

Component cost (in-service year) \$13,361,583.00

### Transmission Line Upgrade Component

Component title Old Limestone 500kV Transmission Interconnection

Project description

Impacted transmission line Peach Bottom - Limerick

Point A Peach Bottom

Point B Limerick

Point C

Terrain description The terrain traversed by the project features mainly agricultural areas with some forested areas.

### Existing Line Physical Characteristics

Operating voltage 500

Conductor size and type N/A

Hardware plan description N/A

Tower line characteristics N/A

### Proposed Line Characteristics

	<b>Designed</b>	<b>Operating</b>
Voltage (kV)	500.000000	500.000000
	<b>Normal ratings</b>	<b>Emergency ratings</b>
Summer (MVA)	2338.000000	2931.000000

Winter (MVA)	2598.000000	3022.000000
Conductor size and type	N/A	
Shield wire size and type	N/A	
Rebuild line length	<0.25 miles	
Rebuild portion description	The existing line will be broken and new deadend towers installed to facilitate looping into the new Old Limestone 500/230kV 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	Confidential Information	
Benefits/Comments		
<b>Component Cost Details - In Current Year \$</b>		
Engineering & design	Confidential Information	
Permitting / routing / siting		
ROW / land acquisition		
Materials & equipment		
Construction & commissioning		
Construction management		
Overheads & miscellaneous costs		
Contingency		
Total component cost	\$1,150,000.00	
Component cost (in-service year)	\$1,257,046.00	
<b>Transmission Line Upgrade Component</b>		
Component title	Old Limestone 230kV Transmission Interconnection	

Project description

Impacted transmission line

Cochranville - Newlinville

Point A

Concranville

Point B

Newlinville

Point C

Terrain description

The terrain traversed by the project features mainly agricultural areas with some forested areas.

**Existing Line Physical Characteristics**

Operating voltage

230

Conductor size and type

N/A

Hardware plan description

N/A

Tower line characteristics

N/A

**Proposed Line Characteristics**

**Designed**

**Operating**

Voltage (kV)

230.000000

230.000000

**Normal ratings**

**Emergency ratings**

Summer (MVA)

1224.000000

1387.000000

Winter (MVA)

1359.000000

1533.000000

Conductor size and type

N/A

Shield wire size and type

N/A

Rebuild line length

<0.25 miles

Rebuild portion description

The existing line will be broken and new deadend towers installed to facilitate looping into the new Old Limestone 500/230kV 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 Confidential Information

Benefits/Comments

**Component Cost Details - In Current Year \$**

Engineering & design Confidential Information

Permitting / routing / siting

ROW / land acquisition

Materials & equipment

Construction & commissioning

Construction management

Overheads & miscellaneous costs

Contingency

Total component cost \$690,000.00

Component cost (in-service year) \$754,228.00

**Transmission Line Upgrade Component**

Component title Doe Run 230kV Transmission Interconnection #1

Project description

Impacted transmission line Daleville - Bradford

Point A Daleville

Point B Bradford

Point C

Terrain description The terrain traversed by the project features mainly agricultural areas with some forested areas.

**Existing Line Physical Characteristics**

Operating voltage 230  
 Conductor size and type N/A  
 Hardware plan description N/A  
 Tower line characteristics N/A

**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)	463.000000	574.000000
Winter (MVA)	500.000000	581.000000
Conductor size and type	N/A	
Shield wire size and type	N/A	
Rebuild line length	<0.25 miles	
Rebuild portion description	The existing line will be broken and new deadend towers installed to facilitate looping into the new Doe Run 230kV 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	Confidential Information	
Benefits/Comments		

**Component Cost Details - In Current Year \$**

Engineering & design Confidential Information

Permitting / routing / siting  
 ROW / land acquisition  
 Materials & equipment  
 Construction & commissioning  
 Construction management  
 Overheads & miscellaneous costs  
 Contingency  
 Total component cost  
 Component cost (in-service year)

\$690,000.00  
 \$754,228.00

**Transmission Line Upgrade Component**

Component title Doe Run 230kV Transmission Interconnection #2  
 Project description  
 Impacted transmission line Clay Tap - Bradford  
 Point A Clay Tap  
 Point B Bradford  
 Point C  
 Terrain description The terrain traversed by the project features mainly agricultural areas with some forested areas.

**Existing Line Physical Characteristics**

Operating voltage 230  
 Conductor size and type N/A  
 Hardware plan description N/A  
 Tower line characteristics N/A

**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)	463.000000	578.000000
Winter (MVA)	521.000000	639.000000
Conductor size and type	N/A	
Shield wire size and type	N/A	
Rebuild line length	<0.25 miles	
Rebuild portion description	The existing line will be broken and new deadend towers installed to facilitate looping into the new Doe Run 230kV 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	Confidential Information	
Benefits/Comments		
<b>Component Cost Details - In Current Year \$</b>		
Engineering & design	Confidential Information	
Permitting / routing / siting		
ROW / land acquisition		
Materials & equipment		
Construction & commissioning		
Construction management		

Overheads & miscellaneous costs

Contingency

Total component cost \$690,000.00

Component cost (in-service year) \$754,228.00

### **Substation Upgrade Component**

Component title Bradford 230kV Substation Bus Work Upgrade

Project description

Substation name Bradford 230kV Substation

Substation zone 241

Substation upgrade scope A segment of the substation bus rating will be increased from 517/633 MVA (summer) and 566/684 MVA (winter) to 619/763 MVA (summer) and 684/829 MVA (winter).

### **Transformer Information**

None

New equipment description New bus work and associated switches and jumper assemblies necessary to achieve summer ratings of 517/633 MVA and winter ratings of 566/684 MVA.

Substation assumptions It appears the substation can accommodate the bus work upgrade.

Real-estate description The current substation extents should be able to accommodate the upgraded bus work.

Construction responsibility Confidential Information

Benefits/Comments

### **Component Cost Details - In Current Year \$**

Engineering & design Confidential Information

Permitting / routing / siting

ROW / land acquisition

Materials & equipment

Construction & commissioning

Construction management

Overheads & miscellaneous costs

Contingency

Total component cost \$114,696.00

Component cost (in-service year) \$125,373.00

### Congestion Drivers

CD #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
ME-6	213906	PLYMTG 1	214035	WHITPAN1	1	230	230	Market Efficiency	Included

### Existing Flowgates

None

### New Flowgates

None

### Financial Information

Capital spend start date 01/2022

Construction start date 01/2024

Project Duration (In Months) 41

### Cost Containment Commitment

Cost cap (in current year) Confidential Information

Cost cap (in-service year)

Confidential Information

### **Components covered by cost containment**

1. Old Limestone 500/230kV Substation - Proposer
2. Doe Run 230kV Substation - Proposer
3. Old Limestone - Doe Run 230kV Transmission Line - 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	No
Additional Information	Confidential Information

Is the proposer offering a binding cap on ROE?

Is the proposer offering a Debt to Equity Ratio cap?

## Additional Comments

None