

# East Towanda - Canyon 230 kV

## General Information

Proposing entity name	Company specific
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	Company specific
PJM Proposal ID	823
Project title	East Towanda - Canyon 230 kV
Project description	Rebuild the East Towanda to Canyon section of the ETP1 (East Towanda-North Meshoppen) 230 kV Line with 1113 ACSS, approximately 12.4 miles. Replace the 1033 SCCIR at East Towanda 230 kV Substation.
Email	Company specific
Project in-service date	06/2026
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	This project increases capacity on a facility that has substantial impacts to generation deliverability and is a through path that sees substantial system transfers. Additionally this rebuild will address existing condition concerns with the East Towanda - Canyon 230 kV Line.

## Project Components

1. Rebuild East Towanda - Canyon 230 kV Line
2. East Towanda 230 kV Substation: Upgrade line terminal
3. Canyon 230 kV Substation: Upgrade Conductors

#### 4. North Meshoppen 230 kV Substation: Upgrade Relay Settings

### Transmission Line Upgrade Component

Component title	Rebuild East Towanda - Canyon 230 kV Line
Project description	Rebuild the East Towanda to Canyon section of the ETP1 (East Towanda-North Meshoppen) 230 kV Line with 1113 ACSS, approximately 12.4 miles. Replace the 1033 SCCIR at East Towanda 230 kV Substation.
Impacted transmission line	East Towanda - Canyon 230 kV Line
Point A	East Towanda 230 kV
Point B	Canyon 230 kV
Point C	
Terrain description	The line spans several different types of terrain and some urban areas. The largest majority is farm field and slightly forested relatively flat land. However the line will be built on the existing cleared ROW. There will be two river crossings for which we will utilize the existing crossing patterns and cross in a similar fashion as the existing line. As the line approaches Canyon from East Towanda the grade of the terrain increases slightly as several small mountains are traversed.

### Existing Line Physical Characteristics

Operating voltage	230 kV
Conductor size and type	1113 ACSS
Hardware plan description	The project will replace all hardware and structures with new.
Tower line characteristics	The existing line is vintage 1960s. The existing ETP1 (East Towanda – North Meshoppen) 230 kV Line consists of approximately 183 structures connecting the 22.1 miles between the East Towanda and North Meshoppen substations. Canyon Substation is located about 12.4 miles east of East Towanda Substation. The existing line is in a horizontal configuration. The existing structures are currently a mixture of two-pole H-frame structures, steel pole deadend structures, and multi-pole angle structures. The existing conductor is 1033.5 kcmil 54/7 ACSR shielded by (2) 3/8" 7-strand EHS steel. During a partial line inspection, it was determined that some of the poles have woodpecker damage and some poles were showing signs of deterioration due to age. Per the inspection report the poles are approximately 60 years old. This line has seen approximately 140 maintenance tickets/repairs over the last several years.

**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)	896.000000	896.000000
Winter (MVA)	1032.000000	1066.000000
Conductor size and type	1113 ACSS	
Shield wire size and type	SFSJ-J-6641 OPGW	
Rebuild line length	Approximately 12.4 Miles	
Rebuild portion description	<p>Installs It is assumed that all structures will be replaced from East Towanda Substation to right outside Canyon Substation (structure #102). This rebuild is assumed to be a pole for pole replacement. The new tangent structures installed are assumed to be standard WPE (wood pole equivalent) structures, whereas the new deadend structures are assumed to be engineered steel pole structures on drilled shaft foundations. The new structures will change the circuit configuration from horizontal to vertical. There will be approximately 101 structures in total, with the following breakdown: -(88) TR-230210 – Single Circuit Wood Pole Equivalent Tubular Steel Post Structure, 0-2deg -(7) TR-230215 – Single Circuit Wood Pole Equivalent Tubular Steel Braced Post Suspension Structure, 2-30deg -(2) TR-230220 – Single Circuit Wood Pole Equivalent Tubular Steel Angled Structure, 30-50deg -(4) TR-230325 – Single Circuit Tubular Steel Structure Deadend Structure, 0-60deg -(3) 230kV substation deadend assemblies will be required at the East Towanda Substation. These structures will be strung with approximately 12.4 circuit miles of 1113.0 kcmil 54/19 ACSS and approximately 12.4 circuit miles of SFSJ-J-6641 OPGW.</p>	
Right of way	Assume rebuild will be located on existing line ROW. A rights and restrictions review by Real Estate will be required.	
Construction responsibility	Company specific	
Benefits/Comments		
<b>Component Cost Details - In Current Year \$</b>		
Engineering & design	This information is considered confidential and proprietary	

Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$34,724,286.55
Component cost (in-service year)	\$39,123,431.14

### **Substation Upgrade Component**

Component title	East Towanda 230 kV Substation: Upgrade line terminal
Project description	At East Towanda - Replace the 1033 SCCIR conductor - Replace the meter to exceed the transmission conductor rating - Replace the 1200 A switch with a 2000 A unit - Replace the wave trap with a 3000 A unit
Substation name	East Towanda 230 kV
Substation zone	Penelec
Substation upgrade scope	Above Grade -Replace (1) 245 kV, 1200 A Disconnect Switch with (1) 245 kV, 2000 A Switch. -Replace (1) 2000 A wave trap on the North Meshoppen 230 kV line terminal with 3000 A wave trap. -Replace conductors from line dead-end to pipe bus with new which meets or exceeds ratings Relay & Control -Modify relay settings on the North Meshoppen line relays. -Replace (1) ammeter with SATEC meter

### **Transformer Information**

	<b>Name</b>	<b>Capacity (MVA)</b>
Transformer	n/a	n/a

	<b>High Side</b>	<b>Low Side</b>	<b>Tertiary</b>
Voltage (kV)	n/a	n/a	n/a
New equipment description	Replace (1) 245 kV, 1200 A Disconnect Switch with (1) 245 kV, 2000 A Switch. Replace (1) 2000 A wave trap on the North Meshoppen 230 kV line terminal with 3000 A wave trap. Replace conductors from line dead-end to pipe bus with new which meets or exceeds ratings of SN: 855 MVA, SSTE: 984 MVA, WN: 855 MVA, WSTE: 1035 MVA. Relay & Control Modify relay settings on the North Meshoppen line relays. Replace (1) ammeter with SATEC meter		
Substation assumptions	Existing steel structures and foundations are adequate.		
Real-estate description	None, work to be performed will be inside the existing substation.		
Construction responsibility	Company specific		
Benefits/Comments			
<b>Component Cost Details - In Current Year \$</b>			
Engineering & design	This information is considered confidential and proprietary		
Permitting / routing / siting	This information is considered confidential and proprietary		
ROW / land acquisition	This information is considered confidential and proprietary		
Materials & equipment	This information is considered confidential and proprietary		
Construction & commissioning	This information is considered confidential and proprietary		
Construction management	This information is considered confidential and proprietary		
Overheads & miscellaneous costs	This information is considered confidential and proprietary		
Contingency	This information is considered confidential and proprietary		
Total component cost	\$354,316.54		
Component cost (in-service year)	\$406,857.58		
<b>Substation Upgrade Component</b>			
Component title	Canyon 230 kV Substation: Upgrade Conductors		

Project description	Replace conductors from 230 kV line dead-end to the pipe bus with new conductor which meets or exceeds ratings of SN: 855 MVA, SSTE: 984 MVA, WN: 855 MVA, WSTE: 1035 MVA.
Substation name	Canyon 230 kV
Substation zone	Penelec
Substation upgrade scope	Replace conductors from 230 kV line dead-end to the pipe bus with new conductor which meets or exceeds ratings of SN: 855 MVA, SSTE: 984 MVA, WN: 855 MVA, WSTE: 1035 MVA.

## Transformer Information

	Name	Capacity (MVA)	
Transformer	na	na	
	High Side	Low Side	Tertiary
Voltage (kV)	na	na	na
New equipment description	Replace conductors from 230 kV line dead-end to the pipe bus with new conductor which meets or exceeds ratings of SN: 855 MVA, SSTE: 984 MVA, WN: 855 MVA, WSTE: 1035 MVA.		
Substation assumptions	None		
Real-estate description	All work to be performed within existing substation		
Construction responsibility	Company specific		
Benefits/Comments			
<b>Component Cost Details - In Current Year \$</b>			
Engineering & design	This information is considered confidential and proprietary		
Permitting / routing / siting	This information is considered confidential and proprietary		
ROW / land acquisition	This information is considered confidential and proprietary		
Materials & equipment	This information is considered confidential and proprietary		
Construction & commissioning	This information is considered confidential and proprietary		

Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$171,324.50
Component cost (in-service year)	\$196,650.43

### Substation Upgrade Component

Component title	North Meshoppen 230 kV Substation: Upgrade Relay Settings
Project description	Modify relay settings on the East Towanda line relays.
Substation name	North Meshoppen 230 kV
Substation zone	Penelec
Substation upgrade scope	Modify relay settings on the East Towanda line relays.

### Transformer Information

	Name	Capacity (MVA)	
Transformer	na	na	
	High Side	Low Side	Tertiary
Voltage (kV)	na	na	na
New equipment description	N/A (Modify relay settings on the East Towanda line relays.)		
Substation assumptions	None		
Real-estate description	All work to be completed inside the existing substation.		
Construction responsibility	Company specific		
Benefits/Comments			

## Component Cost Details - In Current Year \$

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$24,976.85
Component cost (in-service year)	\$28,864.00

## 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
GD-S14	200675	26E.TWANDA	200924	26CANYON	1	230	226	Summer Gen Deliv	Included
GD-S15	200675	26E.TWANDA	200924	26CANYON	1	230	226	Summer Gen Deliv	Included
GD-S38	200675	26E.TWANDA	200924	26CANYON	1	230	226	Summer Gen Deliv	Included

## New Flowgates

None



## Financial Information

Capital spend start date	05/2023
Construction start date	03/2025
Project Duration (In Months)	37

## Additional Comments

None