

Subregional RTEP Committee – Mid-Atlantic FirstEnergy Supplemental Projects Penelec Transmission Zone

Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Penelec Transmission Zone M-3 Process East Towanda - North Meshoppen 115 kV Line – Customer Connection

Need Number: PN-2025-008

Process Stage: Need Meeting – SRRTEP-MA – 11/13/2025

Project Driver:

Customer Service, Other

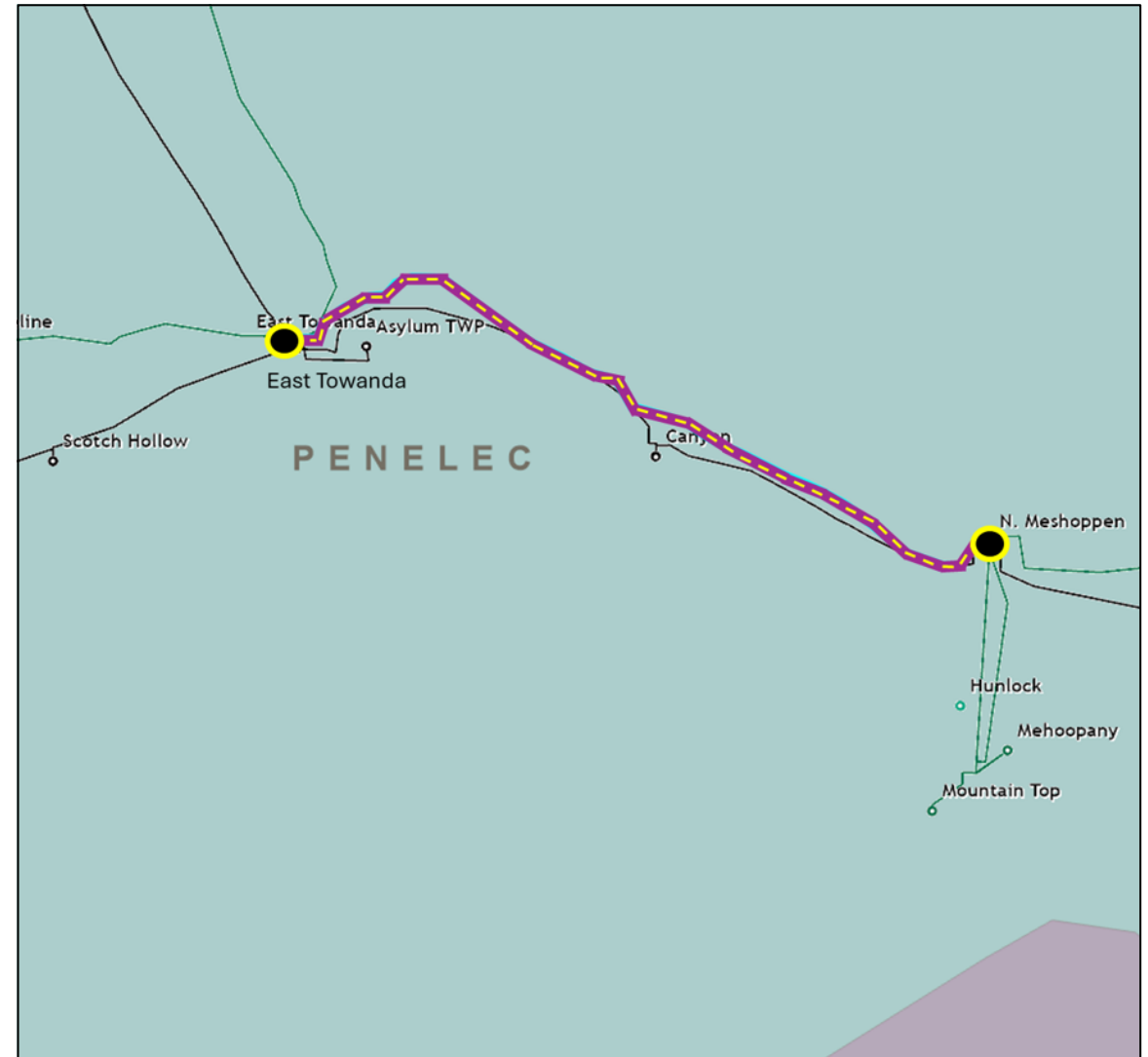
Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A retail customer requested 115 kV service for load of approximately 50 MVA near the East Towanda - North Meshoppen 115 kV Line. The request is approximately 11 miles from North Meshoppen Substation.

Requested in-service date is 12/31/2026.



Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Penelec Transmission Zone M-3 Process Cooper and Prospect Substation Terminal Upgrades

Need Numbers: PN-2024-032

Process Stage: Solution Meeting – SRRTEP-MA – 11/13/2025

Previously Presented: Need Meeting – SRRTEP-MA – 11/14/2024

Project Driver:

Equipment Condition, Performance and Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability and performance
- Substation/Line equipment limits

Substation Condition Rebuild/Replacement

- Limited availability of spare parts, software obsolescence and/or compatibility, or vendor technical support
- Expected service life (at or beyond) or obsolescence

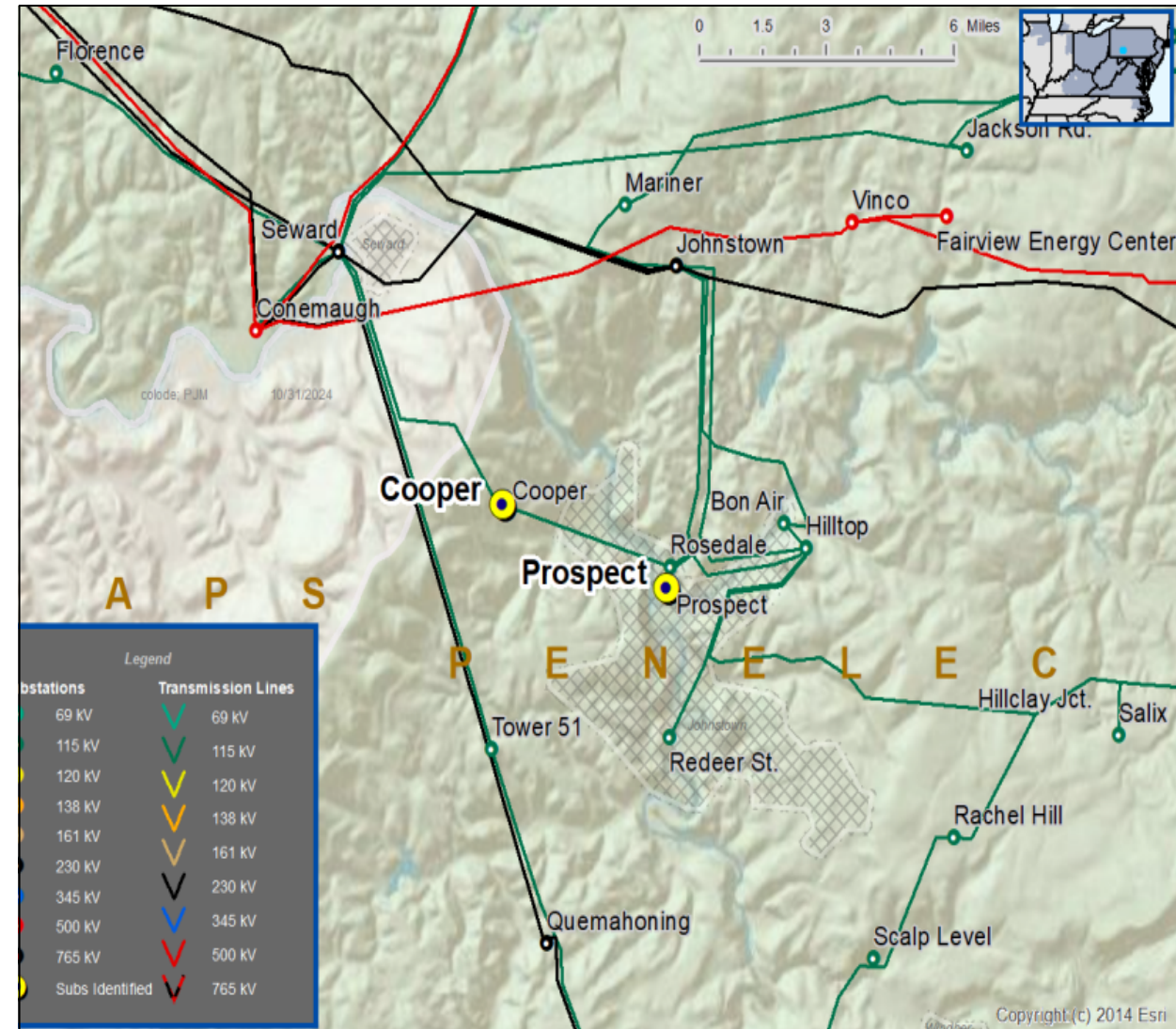
Problem Statement:

The 115 kV B-7 Breaker and associated disconnect switches at the terminal of Cooper Substation towards Rosedale Junction are 63 years old and are beyond the end of their service life.

The 115 kV B-14 Breaker and associated disconnect switches at the terminal of Prospect Substation towards Rosedale Junction are 63 years old and are beyond the end of their service life.

Transmission lines are limited by terminal equipment.

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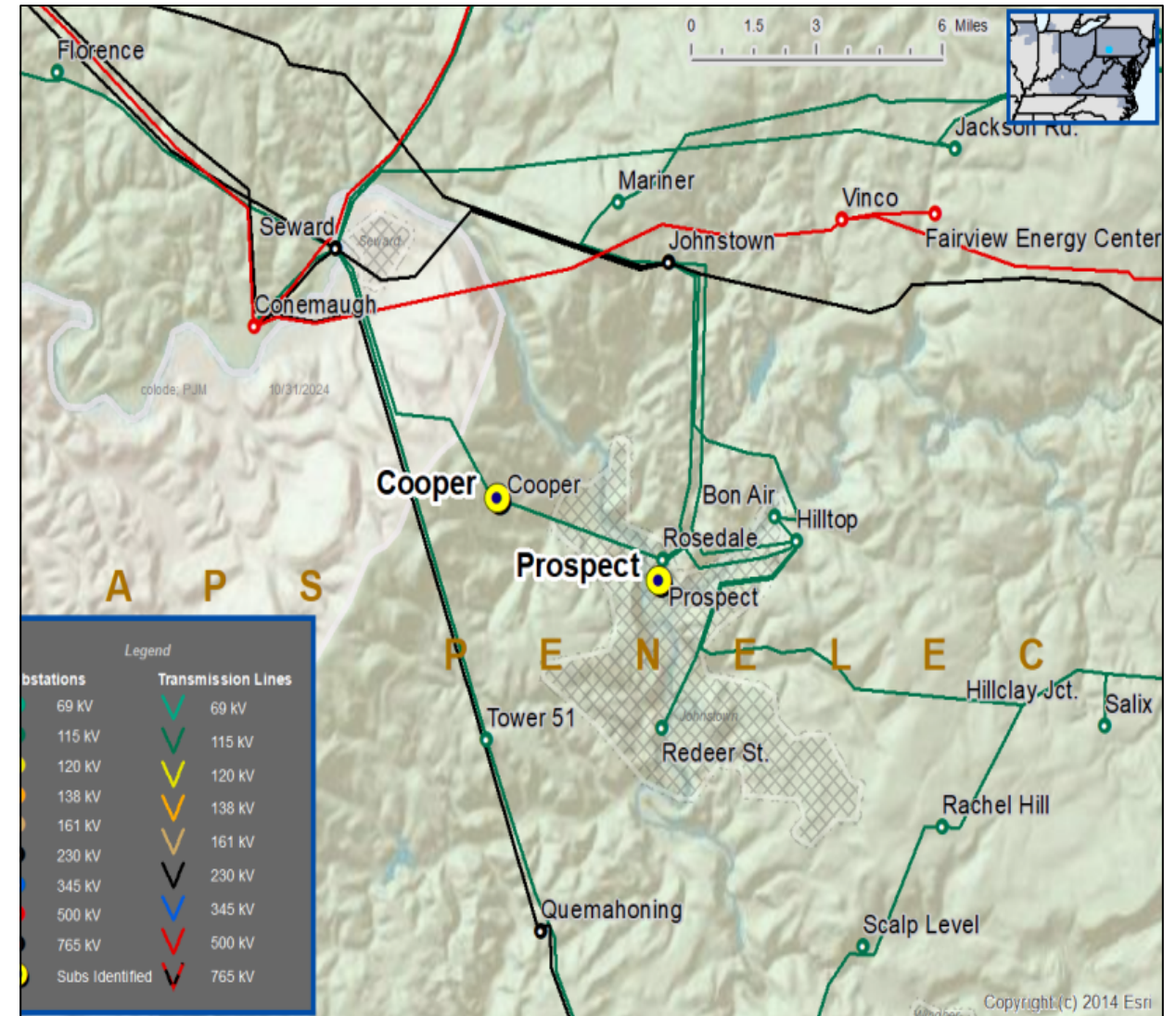
Penelec Transmission Zone M-3 Process Cooper and Prospect Substation Terminal Upgrades

Need Numbers: PN-2024-032

Problem Statement (Continued):

Transmission lines are limited by terminal equipment.

- Cooper – Rosedale Junction 115 kV Line
 - Existing Transmission Line Rating: 249 / 300 / 309 / 351 MVA (SN/SE/WN/WE)
 - Existing Transmission Line Conductor Rating: 273 / 333 / 309 / 395 MVA (SN/SE/WN/WE)
- Prospect – Rosedale Junction 115 kV Line
 - Existing Transmission Line Rating: 147 / 191 / 211 / 237 MVA (SN/SE/WN/WE)
 - Existing Transmission Line Conductor Rating: 202 / 245 / 228 / 290 MVA (SN/SE/WN/WE)



Penelec Transmission Zone M-3 Process Cooper and Prospect Substation Terminal Upgrades

Need Number: PN-2024-032

Process Stage: Solution Meeting – SRRTEP-MA – 11/13/2025

Proposed Solution:

- At Cooper Substation, replace circuit breaker, breaker leads, and associated disconnect switches, install new CCVTs and connect to existing relaying.
- At Prospect Substation, replace two circuit breakers, breaker leads, and associated disconnect switches, replaces substation conductor and transmission line drop.

Ratings:

Prospect - Rosedale Junction 115 kV Line:

- Before Proposed Solution: 147 / 191 / 214 / 237 MVA (SN/SE/WN/WE)
- After Proposed Solution: 202 / 245 / 228 / 290 MVA (SN/SE/WN/WE)

Cooper - Rosedale Junction 115 kV Line:

- Before Proposed Solution: 249 / 300 / 282 / 351 MVA (SN/SE/WN/WE)
- After Proposed Solution: 273 / 333 / 309 / 395 MVA (SN/SE/WN/WE)

Alternatives Considered:

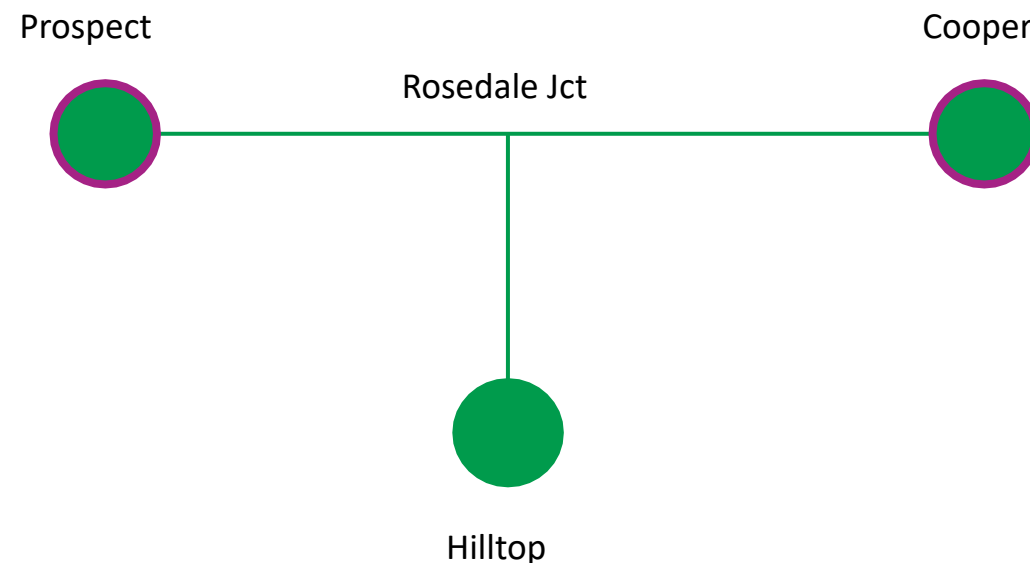
Maintain equipment in existing condition with elevated risk of failure due to equipment condition.

Estimated Project Cost: \$ 3.25 M

Projected In-Service: 10/31/2029

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer 50/50



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Changes to Existing Projects

s3290: Originally presented in 7/20/2023 and 2/15/2024 SRRTEP Mid-Atlantic meetings. Changes are marked in red.

Project Driver:

Operational Flexibility and Efficiency

Specific Assumption Reference:

Add/Expand Bus Configuration

- Eliminate simultaneous outages to multiple network elements

System Performance Projects

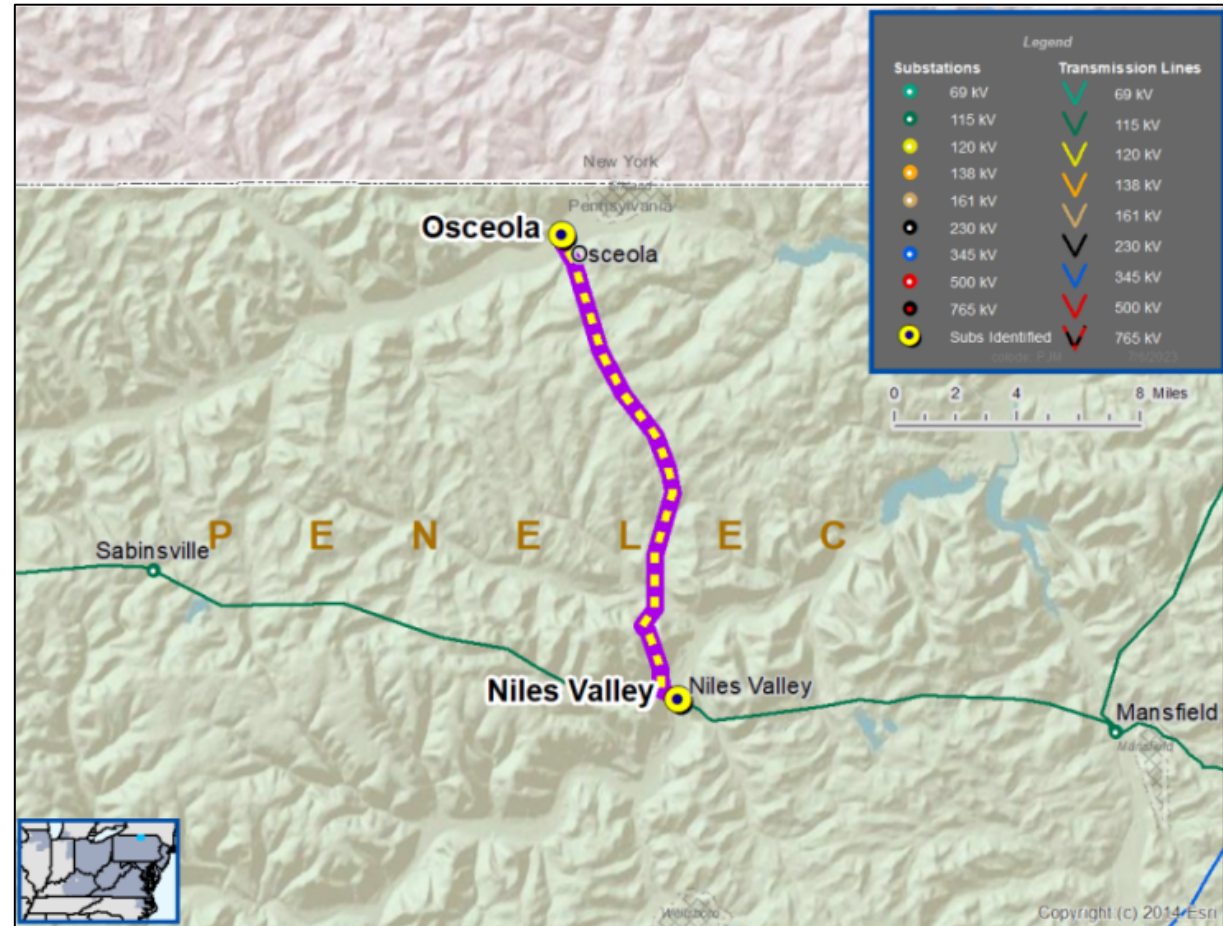
- Substation/line equipment limits

System Performance Projects Global Factors

- Load and/or customers at risk on single transmission line

Problem Statement:

- Niles Valley 115 kV substation serves approximately 30 MW of load and 331 customers, including one large electric distribution company (Wellsboro).
- Additional 12 MW of load and 2,746 customers are served radially from Niles Valley at Osceola 115 kV substation.
- The existing Niles Valley 115 kV substation contains two networked 115 kV lines, two radial 115 kV lines, two 115-34.5 kV transformers, and a 115 kV capacitor bank.
- There are straight busses separated by a bus tie breaker. The distribution transformers do not have high side protection devices. During breaker maintenance (a potential two day outage), Wellsboro 115 kV service would be interrupted with no backup service (26 MVA of load).



s3290: Originally presented in 7/20/2023 and 2/15/2024 SRRTEP Mid-Atlantic meetings. Changes are marked in red.

Proposed Solution:

Niles Valley 115 kV Substation

- Construct a six breaker ring bus
- Remove Niles Valley 115-34.5 kV Transformer #1
- Remove the 115 kV bypass switch between Wellsboro and Mansfield line exits (s2835)
- **Replace existing 12.6 MVAR capacitor bank with new 14.4 MVAR capacitor bank**
- Upgrade terminal equipment to transmission line ratings and adjust relay settings

Ratings:

Niles Valley – Sabinsville/Hector 115 kV Line

- Before Proposed Solution 147 / 191 MVA SN/SE
- After Proposed Solution 202 / 245 MVA SN/SE

Niles Valley – Mansfield 115 kV Line

- Before Proposed Solution 147 / 185 MVA SN/SE
- After Proposed Solution 202 / 245 MVA SN/SE

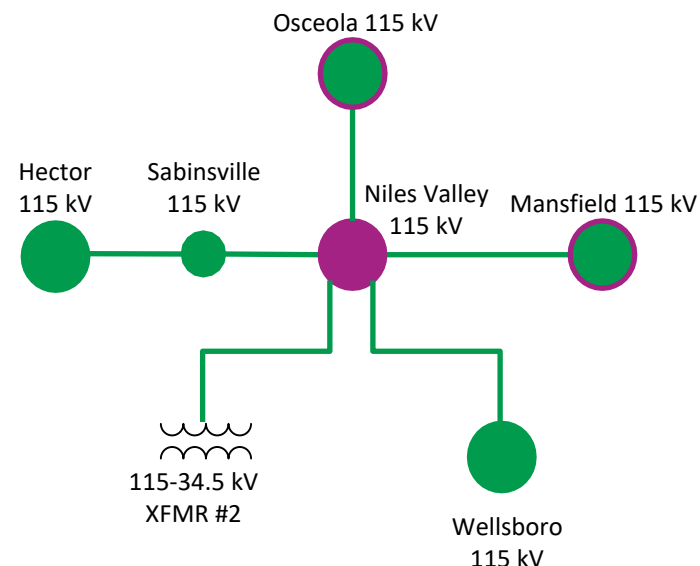
Niles Valley – Wellsboro 115 kV Line

- Before Proposed Solution 147 / 191 MVA SN/SE
- After Proposed Solution 232 / 282 MVA SN/SE

Niles Valley – Osceola 115 kV Line

- Before Proposed Solution 147 / 191 MVA SN/SE
- After Proposed Solution 232 / 282 MVA SN/SE

Penelec Transmission Zone Scope Change Niles Valley 115 kV Ring Bus



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	



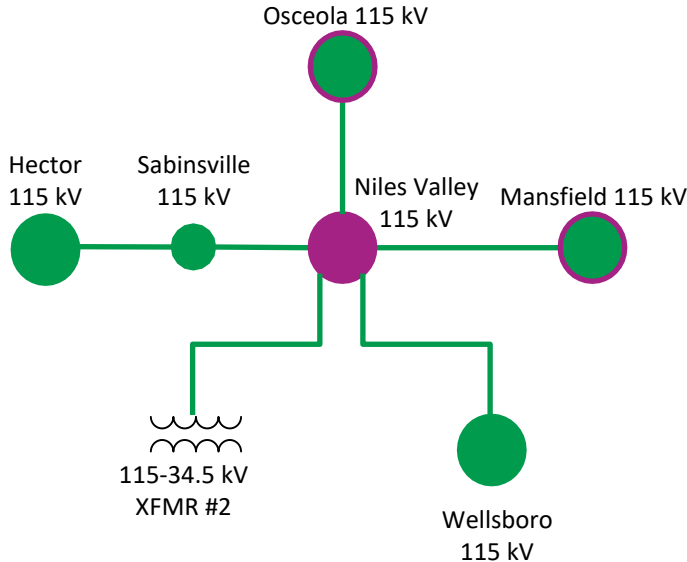
s3290: Originally presented in 7/20/2023 and 2/15/2024 SRRTEP Mid-Atlantic meetings. Changes are marked in red.

Alternatives Considered:

- Leave the substation configuration as-is and keep bypass switch between Wellsboro and Mansfield 115 kV lines (s2835)

Estimated Project Cost: \$16.0M
Projected In-Service: ~~11/04/2028~~ 4/28/2028
Project Status: Engineering
Model: 2023 Series 2028 RTEP Case

Penelec Transmission Zone Scope Change Niles Valley 115 kV Ring Bus



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Appendix

High level M-3 Meeting Schedule

Assumptions	Activity	Timing
	Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
	Stakeholder comments	10 days after Assumptions Meeting
Needs	Activity	Timing
	TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
	Stakeholder comments	10 days after Needs Meeting
Solutions	Activity	Timing
	TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
	Stakeholder comments	10 days after Solutions Meeting
Submission of Supplemental Projects & Local Plan	Activity	Timing
	Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
	Post selected solution(s)	Following completion of DNH analysis
	Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
	Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

11/3/2025 – V1 – Original version posted to pjm.com