

Subregional RTEP Committee – Mid-Atlantic FirstEnergy (Penelec) Supplemental Projects

July 21, 2022

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

Need Number: PN-2019-035

Process Stage: Solutions Meeting 7/21/2022

Previously Presented:

Needs Meeting 7/31/2019, 6/13/2022

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures
- System Performance Projects Global Factors
- Substation/line equipment limits

Problem Statement:

The Piney – Haynie – Grandview – Titusville – Union City – Erie South 115 kV line is exhibiting deterioration.

- Total line distance is approximately 82.3 miles.
- 556 out of 697 structures failed inspection (80% failure rate).
- Failure reasons include age, woodpecker damage, top rot, phase raised, failed sound test, and weatherization.

Transmission line ratings are limited by terminal equipment.

Piney – Haynie 115 kV line (substation conductor, line relaying, line trap, CTs)

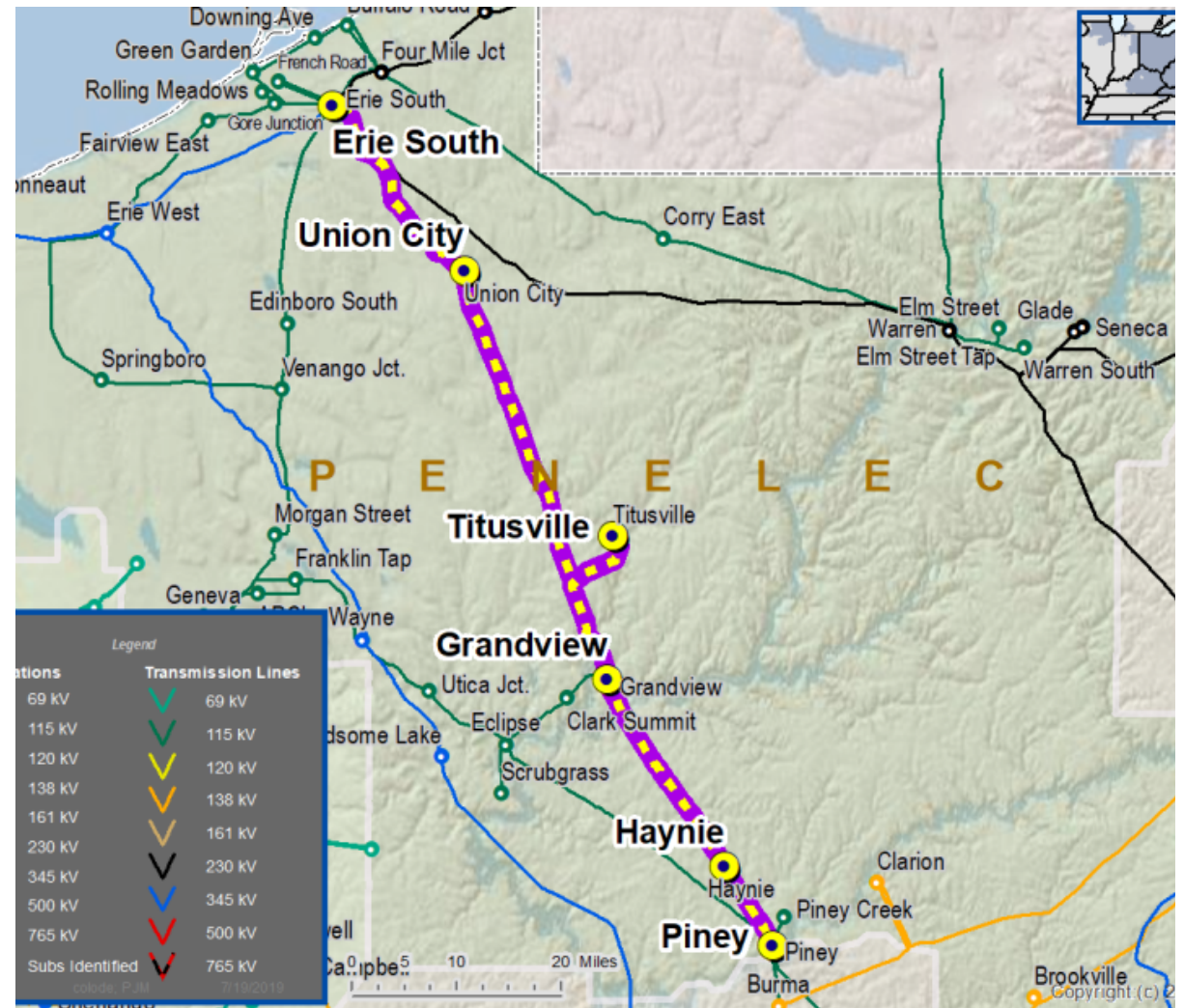
- Existing line rating: 147/174 MVA (SN/SE)
- Existing conductor rating: 202/245 MVA (SN/SE)

Haynie – Grandview 115 kV line (substation conductor, line relaying, line trap)

- Existing line rating: 147/174 MVA (SN/SE)
- Existing conductor rating: 202/245 MVA (SN/SE)

~~Union City – Erie South 115 kV line (substation conductor, line relaying)~~

- ~~Existing line rating: 232/282 MVA (SN/SE)~~
- ~~Existing conductor rating: 232/282 MVA (SN/SE)~~



Penelec Transmission Zone M-3 Process Piney – Erie South Rebuild

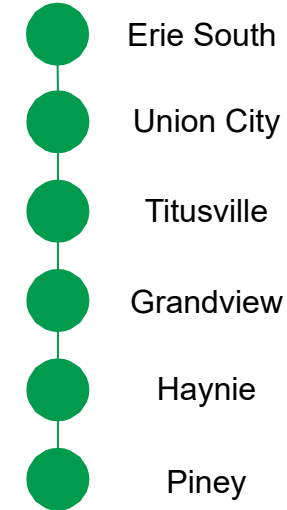
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Process Stage: Solutions Meeting 7/21/2022

Previously Presented: Needs Meeting 7/31/2019, 6/13/2022

Proposed Solution:

- Rebuild the Piney – Grandview – Titusville – Union City – Erie South 115 kV line using double circuit 115 kV construction adjacent to the existing 115 kV corridor (~82 miles).
- Energize the line in a six-wire configuration.
- Upgrade all substation terminals such that the new transmission line is the most limiting element.
- This proposed solution would be constructed in coordination with existing supplemental project s1672.



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



Need Number: PN-2019-035

Process Stage: Solutions Meeting 7/21/2022

Proposed Solution (continued):

Transmission Line Ratings:

Piney – Haynie 115 kV Line:

- Before Proposed Solution: 147/174 MVA (SN/SE)
- After Proposed Solution: 273/333 MVA (SN/SE)

Haynie – Grandview 115 kV Line:

- Before Proposed Solution: 147/174 MVA (SN/SE)
- After Proposed Solution: 273/333 MVA (SN/SE)

Grandview – Titusville 115 kV Line:

- Before Proposed Solution: 202/245 MVA (SN/SE)
- After Proposed Solution: 273/333 MVA (SN/SE)

Titusville – Union City 115 kV Line:

- Before Proposed Solution: 202/245 MVA (SN/SE)
- After Proposed Solution: 273/333 MVA (SN/SE)

Union City – Erie South 115 kV Line:

- Before Proposed Solution: 232/282 MVA (SN/SE)
- After Proposed Solution: 273/333 MVA (SN/SE)

Ancillary Benefits:

Provides the opportunity for future reliability enhancement to substations served from this line with the ability to split into two lines and stagger loads between the two lines.

Alternatives Considered:

- Rebuild line using double circuit 230 kV construction with one side energized at 230 kV to establish a new Seward – Erie South 230 kV Line.
- Maintain existing condition and elevated risk of failure.

Estimated Project Cost: \$443 M

Projected In-Service: 6/1/2034

Project Status: Engineering

Model: 2021 RTEP model for 2026 Summer (50/50)

Questions?



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

7/11/2021 – V1 – Original version posted to pjm.com