

Transmission Expansion Advisory Committee – Penelec Supplemental Projects

October 3, 2023

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-2023-004

Process Stage: Solution Meeting – 10/03/2023

Previously Presented: Need Meeting – 06/06/2023

Project Driver:

Equipment Material Condition, Performance and Risk

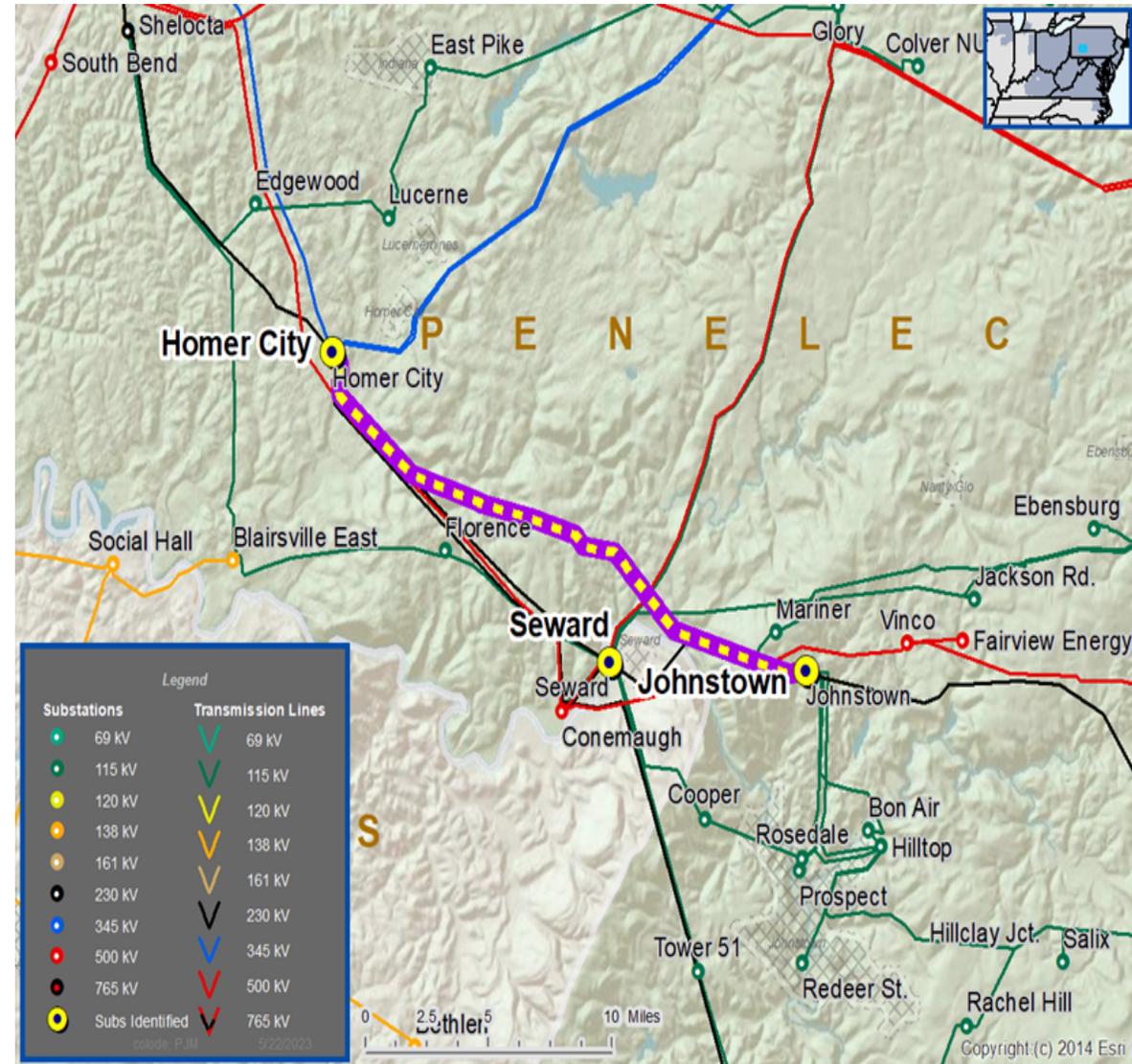
Specific Assumption Reference:

Substation Condition Rebuild/Replacement

- Age/condition of substation breakers and disconnect switches
- System Performance Project Global Factors
- Failure risk, age and condition, obsolescence, operational or design limitations
- System reliability and performance

Problem Statement:

- FirstEnergy identified degraded bus disconnect switches to the Seward breaker at Johnstown 230 kV Substation. The disconnect switches to the Seward breaker do not completely close and are difficult to operate.
- FirstEnergy also identified other degraded equipment at Johnstown Substation, including:
 - 230 kV bus tie breaker disconnect switches
 - Fiddler’s Green 230 kV Breaker and disconnect switches
 - 115 kV bus tie breaker disconnect switches
- An outage to the entire bus is required to replace degraded equipment.
- Transmission line ratings are limited by terminal equipment.
- Homer City – Johnstown 230 kV Line
 - Existing line rating: 627 / 698 MVA (SN / SE)
 - Existing Transmission Conductor Rating: 709 / 869 MVA (SN / SE)



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Proposed Solution:

At Johnstown Substation, replace the following:

- 230 kV bus tie breaker #1 and #2 disconnect switches
- 230 kV Johnstown line switches on the Fiddler’s Green terminal
- 115 kV bus tie switches and bus
- Line trap on the Homer City terminal
- Substation conductor on the Homer City terminal
- Substation conductor on the Fiddler’s Green terminal

At Homer City Substation, replace the following:

- CCVT on the Johnstown terminal

Transmission Line Ratings:

- **Homer City – Johnstown 230 kV Line**
 - Before Proposed Solution: 627 / 698 MVA SN/SE
 - After Proposed Solution: 666 / 800 MVA SN/SE
- **Fiddler’s Green – Johnstown 230 kV Line**
 - Before Proposed Solution: 520 / 621 MVA SN/SE
 - After Proposed Solution: 546 / 666 MVA SN/SE

Alternatives Considered:

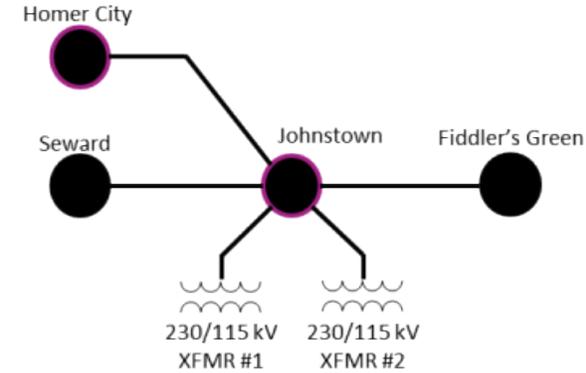
- Defer replacement until operational failure

Estimated Project Cost: \$1.12M

Projected In-Service: 12/30/2023

Project Status: Construction

Model: 2023 Series 2028 RTEP Case



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

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

9/22/2023 - V1 – Original version posted to pjm.com