

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

December 13, 2023

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

Need Number: PN-2023-011

Process Stage: Need Meeting 12/13/2023

Project Driver:

*Operational Flexibility and Efficiency
Equipment Material Condition, Performance, and Risk*

Specific Assumption Reference:

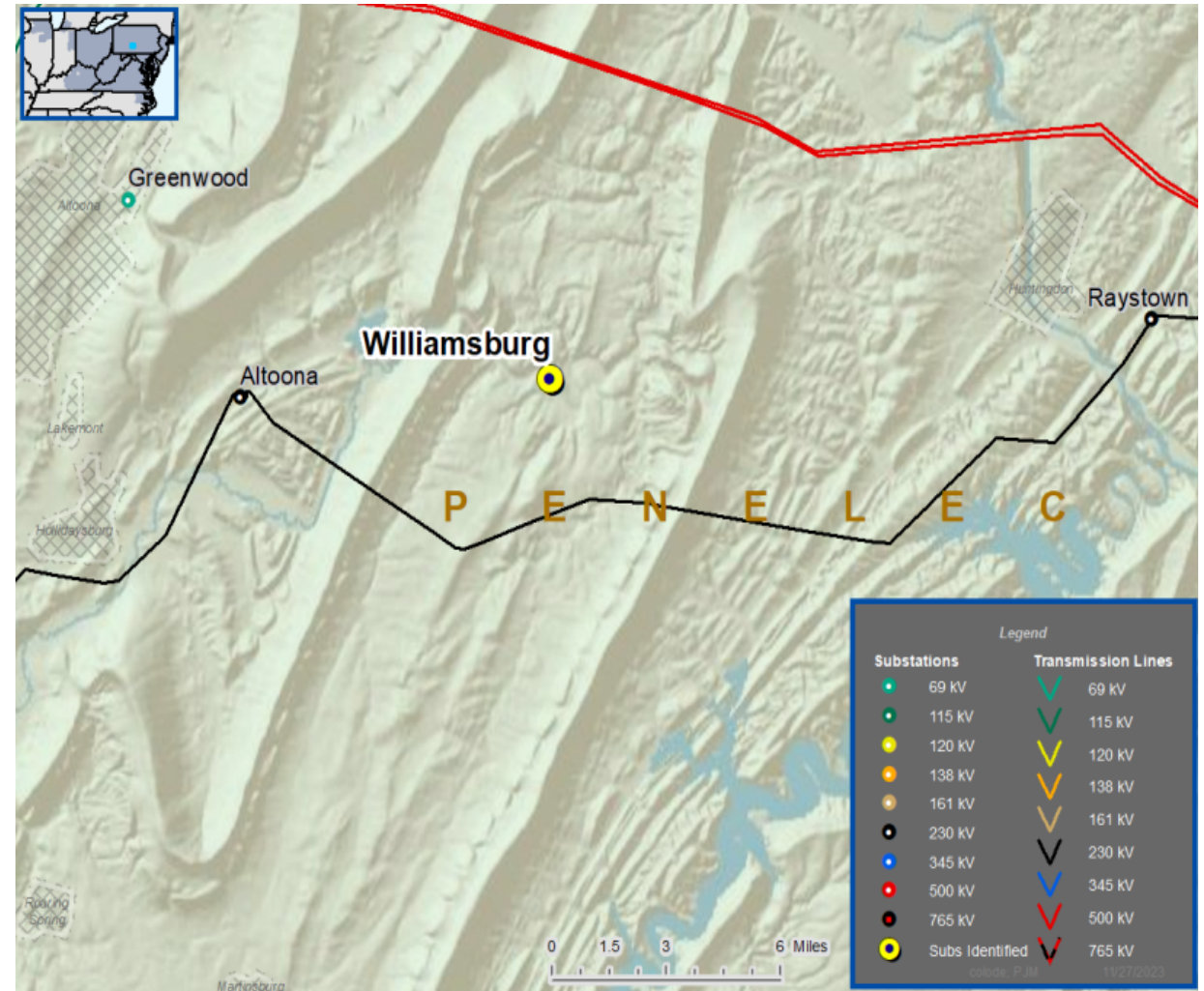
FE Global Factors

- Failure risk, age and condition, obsolescence, operational, or design limitations
- Reliability of non-bulk electric system (Non-BES) facilities
- Substation/line equipment limits
- System reliability and performance
 - Add/expand bus configuration

Problem Statement:

- Williamsburg Substation serves approximately 7.2 MW of load and 1360 customers, including three major customers and one rural electric cooperative (REC) customer.
- The existing Williamsburg Substation is fed radially out of Altoona Substation.
- Williamsburg Substation is configured with two 46 kV straight buses separated by a bus tie breaker. The distribution transformers do not have high side protection devices.

(continued next slide)



Need Number: PN-2023-011

Process Stage: Need Meeting 12/13/2023

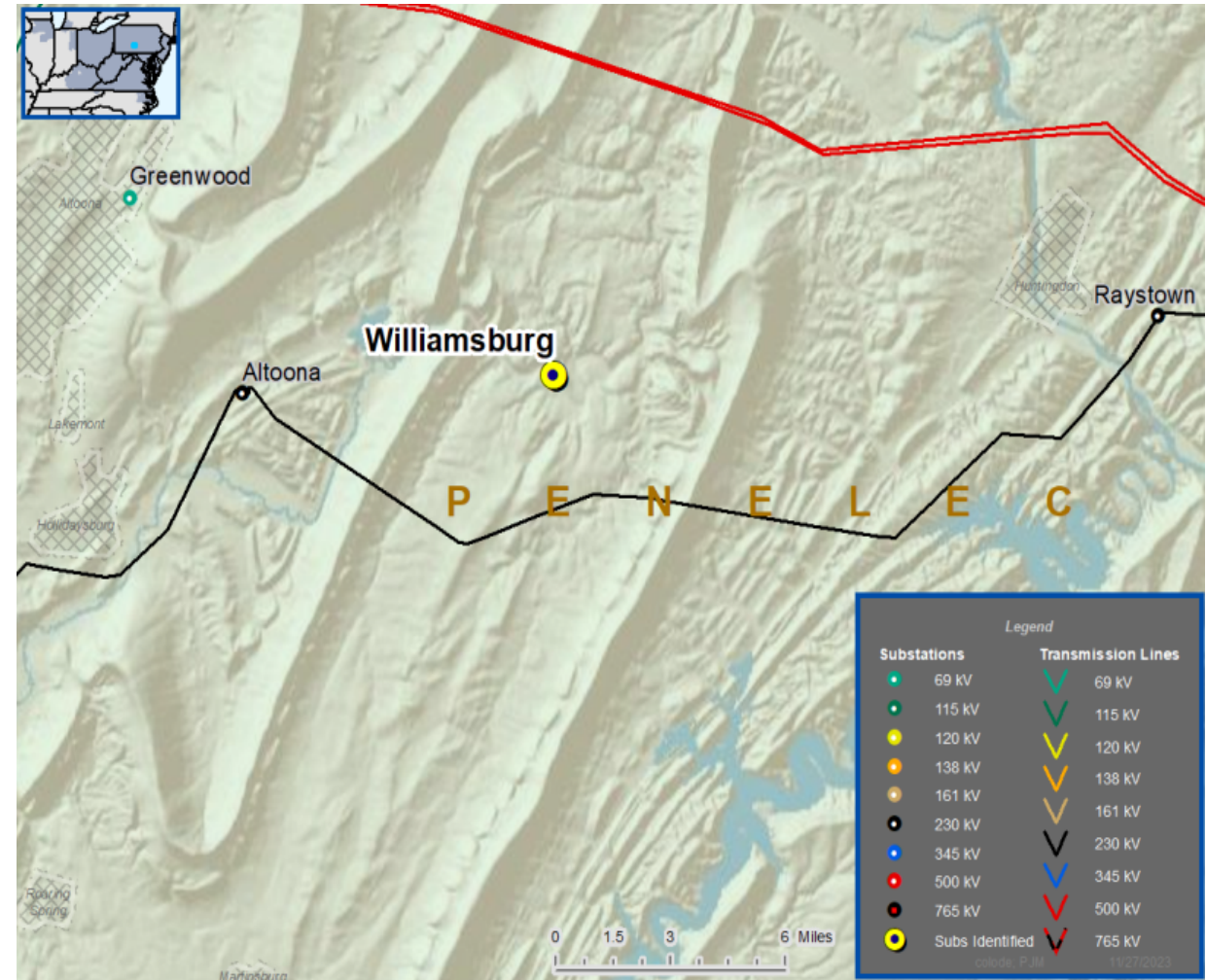
Project Driver:

Operational Flexibility and Efficiency

Equipment Material Condition, Performance, and Risk

Problem Statement (continued):

- Williamsburg Substation is about 73 years old.
- The existing control space is leased from Williamsburg Borough with no room for expansion.
 - Existing work space is congested and creates difficulty in performing maintenance.
 - The control space is not within the substation fence.
- The 46 kV bus tie breaker relays are vintage electromechanical overcurrent relays which are non-directional and are installed in a non climate-controlled box next to the breaker.
- Altoona terminal 46 kV breaker is about 53 years old.
- The 46 kV insulators and disconnects are deteriorated to the point of risking safety
 - Failure of the insulators risks collapse of the switch and possible arc flash near the switch operator



Need Number: PN-2023-034

Process Stage: Need Meeting 12/13/2023

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects Global Factors

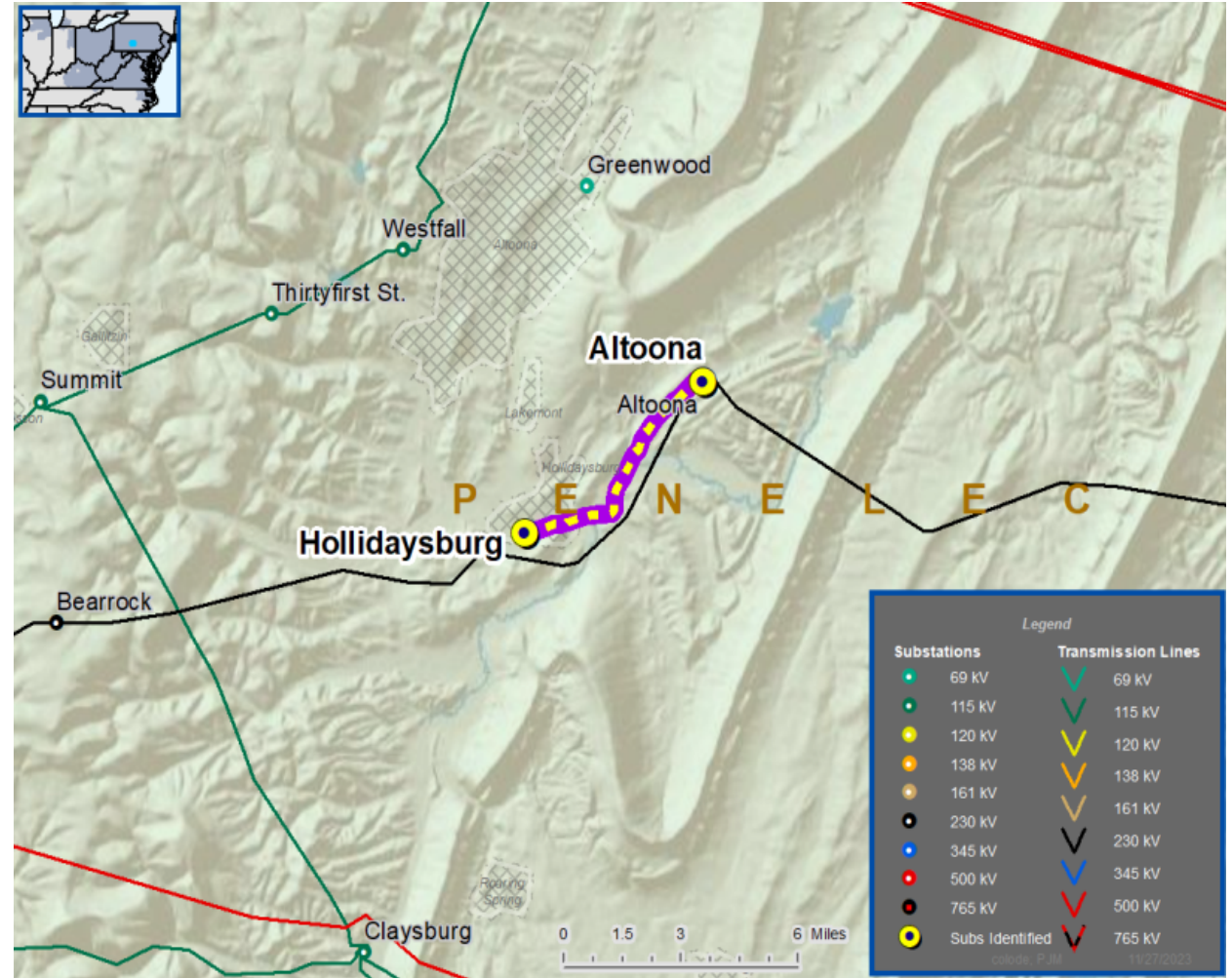
- System reliability and performance
- Substation/line equipment limit

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment
- Communication technology upgrades

Problem Statement:

- The Altoona-Hollidaysburg 46 kV Line has old electromechanical relays for overcurrent protection that have directional tripping.
- The relays limit the line and cause an operation monitoring issue.
- Existing line rating 40/40 - 40/40 MVA (SN /SE – WN/ WE)



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-2023-013

Process Stage: Solution Meeting 12/13/2023

Previously Presented: Need Meeting 10/19/2023

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects

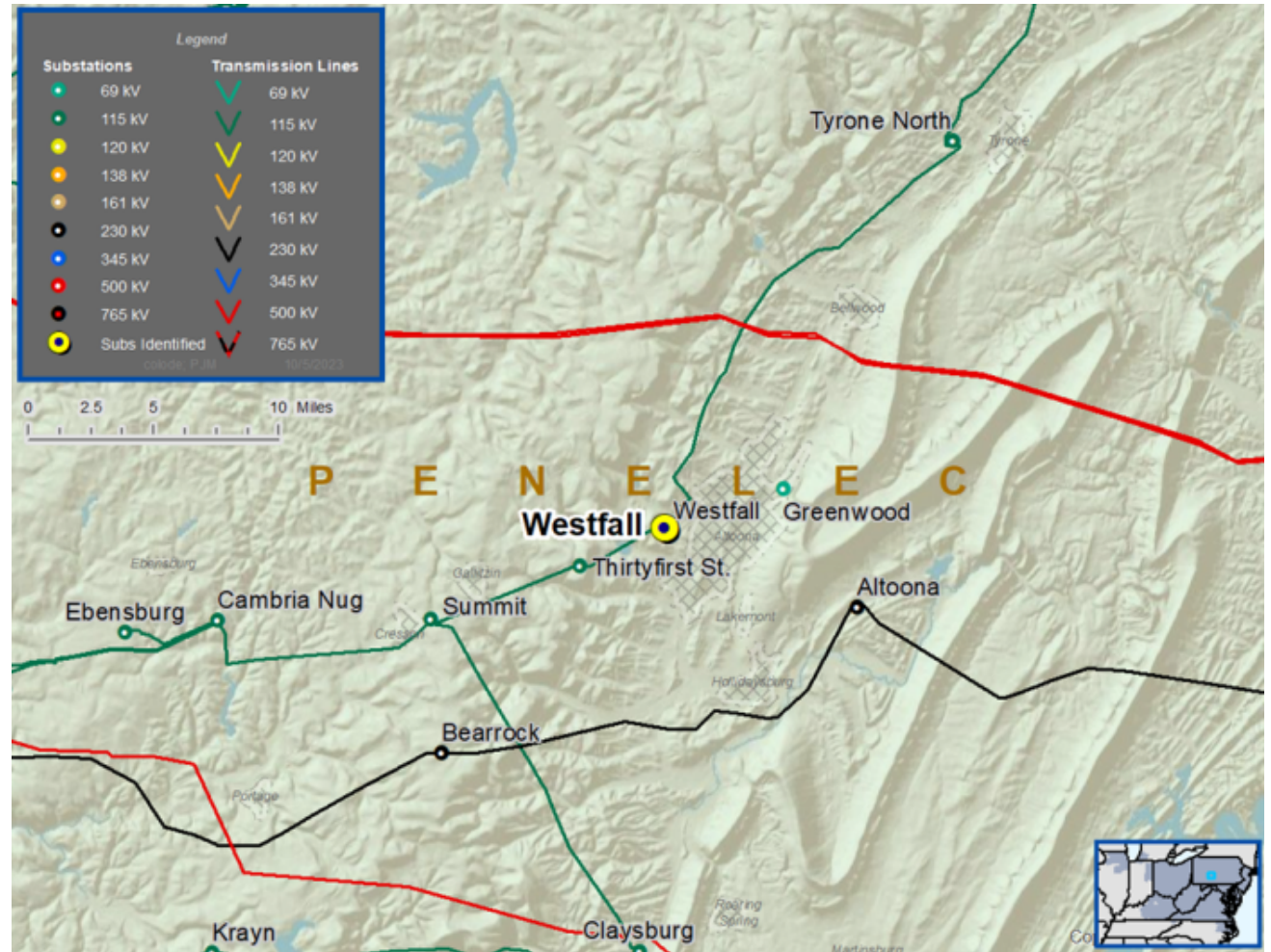
- System reliability and performance
- Substation and line equipment limits
- Reliability of Non-Bulk Electric System (Non-BES) Facilities

Problem Statement:

- The Westfall Substation control building is small and congested. The condition of the control building is deteriorating.
- Transmission line ratings are limited by terminal equipment

Thirty-First Street – Westfall 115 kV Line

- Existing line rating: 232/282 MVA SN/SE and 263/307 MVA WN/WE
- Existing transmission conductor rating: 232 / 282 MVA (SN / SE) and 263/334 MVA WN/WE





Penelec Transmission Zone M-3 Process Westfall Substation

Need Number: PN-2023-013

Process Stage: Solution Meeting 12/13/2023

Proposed Solution:

Westfall 115 kV Substation

- Replace the existing control building with a new Package Control Enclosure that can accommodate all relaying and equipment.

Transmission Line Ratings:

- **Thirty First St –Westfall 115 kV Line**
 - Existing line rating: 232/282/263/307 MVA SN/SE/WN/WE
 - Existing transmission conductor rating: 232/282/263/334 MVA SN/SE/WN/WE

Alternatives Considered:

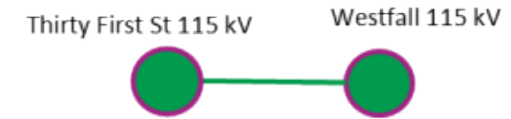
- No feasible alternatives as the existing control building is space constrained and cannot be safely expanded or rehabilitated.

Estimated Project Cost: \$6.7 M

Projected In-Service: 6/1/2025

Project Status: Engineering

Model: 2022 RTEP model for 2027 Summer (50/50)



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

12/3/2023 – V1 – Original version posted to pjm.com