

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

April 20, 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: ME-2023-003

Process State: Needs Meeting 4/20/2023

Project Driver:

Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects

- Add/Expand Bus Configuration
- Load at risk in planning and operational scenarios
- Reduce the amount of exposed potential local load loss during contingency conditions
- Eliminate simultaneous outages to multiple networked elements

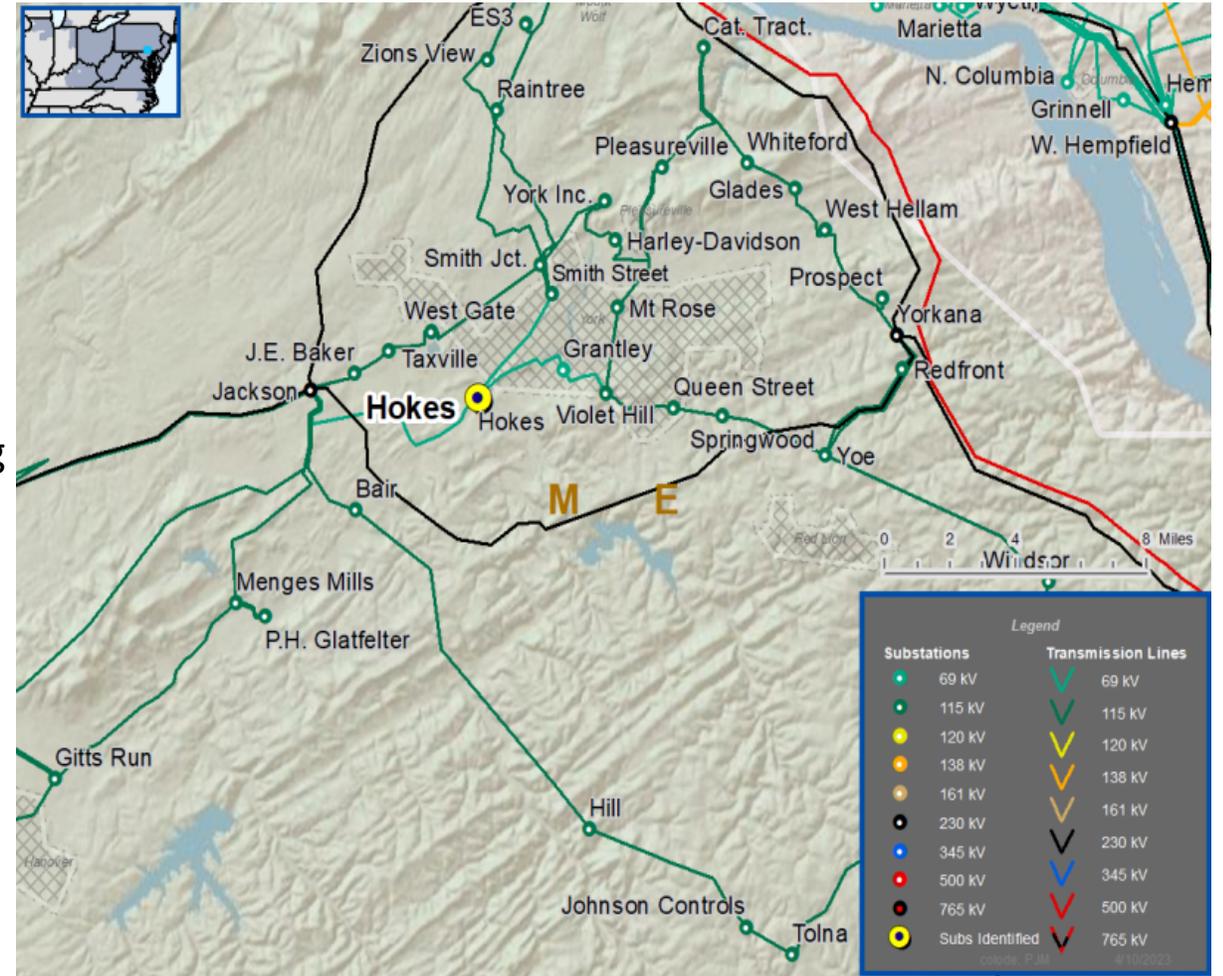
Problem Statement:

Hokes 69 kV Substation is a straight bus configuration.

The loss of Hokes Substation results in loss of approximately 23 MW of load and approximately 2636 customers.

Substation consists of:

- Three 69 kV transmission lines
- Two 69-13.2 kV distribution transformers



Need Number: ME-2023-004

Process State: Needs Meeting 4/20/2023

Project Driver:

Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects

- Add/Expand Bus Configuration
- Load at risk in planning and operational scenarios
- Reduce the amount of exposed potential local load loss during contingency conditions
- Eliminate simultaneous outages to multiple networked elements

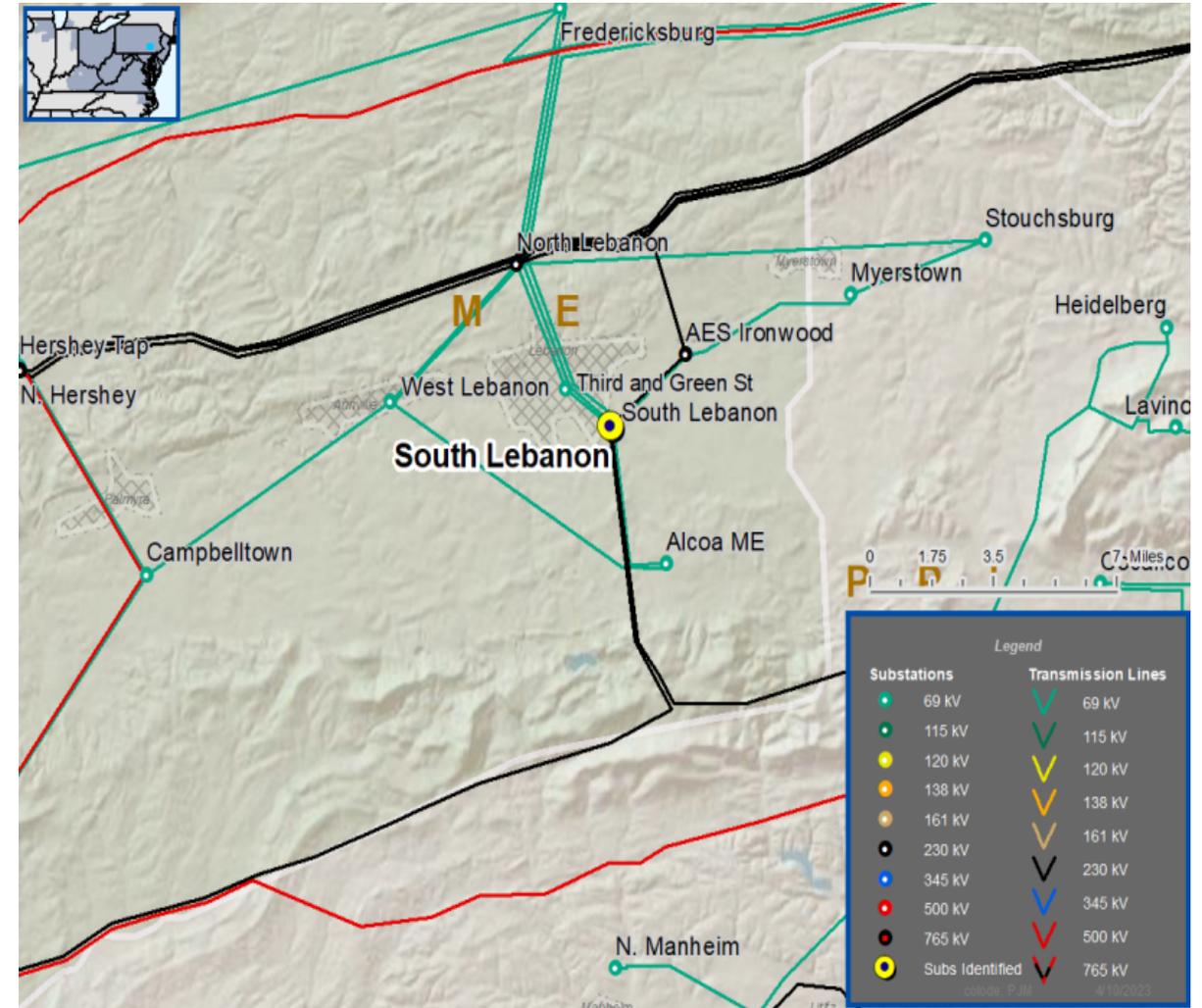
Problem Statement:

The 69 kV bus at South Lebanon Substation is a straight bus.

The loss of the 69 kV bus at South Lebanon Substation results in loss of approximately 30 MW of load and approximately 5301 customers.

Substation consists of:

- Two 230-69 kV transformers
- Two 230 kV transmission lines
- Four 69 kV transmission lines
- Two 69-13.2 kV distribution transformers



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



Met-Ed Transmission Zone M-3 Process McKnights Gap 69 kV Substation

Need Number: ME-2022-003

Process Stage: Solution Meeting 4/20/2023

Proposed Solution:

Rebuild McKnights Gap 69-13.2 kV Substation

McKnights Gap 69 kV Substation

Install new 69 kV switches

Alternatives Considered:

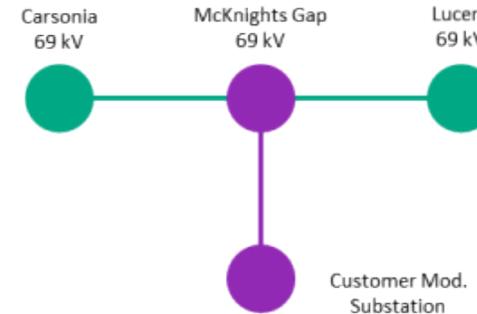
- No feasible alternatives to meet customer's request

Estimated Project Cost: \$0.8M

Projected In-Service: 12/29/2023

Project Status: Conceptual

Model: 2022 RTEP model for 2026 Summer (50/50)



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

Met-Ed Transmission Zone M-3 Process North Boyertown – West Boyertown 69 kV Line

Need Number: ME-2019-044

Process Stage: Solution Meeting: 4/20/2023

Previously Presented: Need Presented: 7/31/2019

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures
- Age/condition of steel tower or steel pole transmission line structures
- Age/condition of transmission line conductors

System Performance Projects

- Substation/line equipment limits

Problem Statement:

North Boyertown – West Boyertown 69 kV line is exhibiting deterioration.

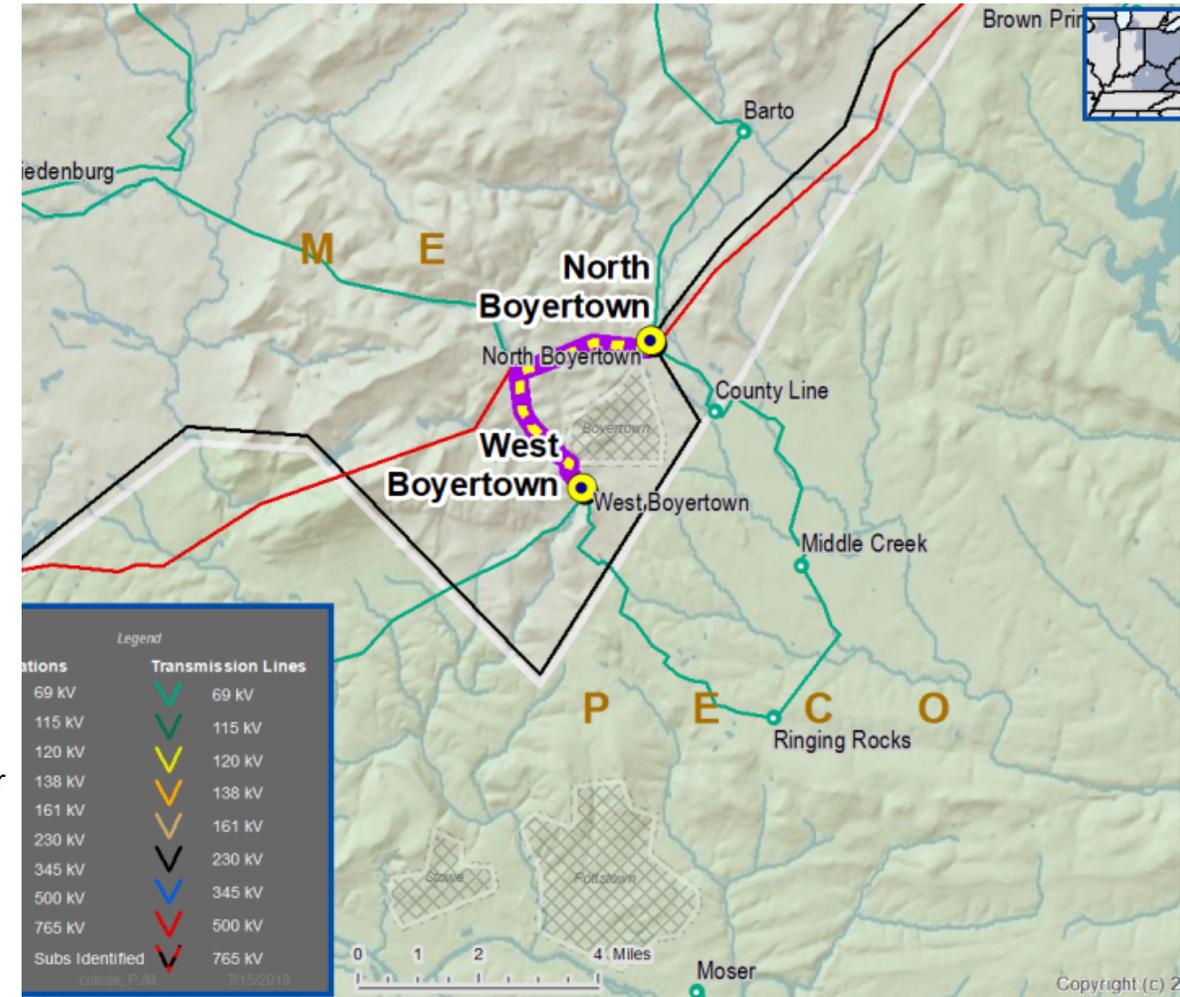
- Total line distance is approximately 3.6 miles.
- 42 out of 71 structures failed inspection (59% failure rate).
- Failure reasons include age, sound, and bayonet pole.

Thermal loading on the North Boyertown – West Boyertown 69 kV line is ~88% of the SE rating for loss of the North Boyertown – Cabot 69 kV line section (bus 204606 to bus 204834).

(2018 RTEP Model – 2023 Summer)

Transmission line ratings are limited by terminal equipment: (substation conductor, line relaying)

- Existing line rating: 71/72 MVA (SN/SE)
- Existing conductor rating: 80/96 MVA (SN/SE)





Met-Ed Transmission Zone M-3 Process North Boyertown – West Boyertown 69 kV Line

Need Number: ME-2019-044

Process State: Solutions Meeting: 04/20/2023

Proposed Solution:

Rebuild and reconductor North Boyertown – West Boyertown 69 kV Line

North Boyertown 69 kV Substation

Replace substation conductor

West Boyertown 69 kV Substation

Replace substation conductor

Transmission Line Rating:

- North Boyertown – West Boyertown 69 kV line:
Before Proposed Solution: 80/96 MVA (SN/SE) 90/114 MVA (WN/WE)
After Proposed Solution: 139/169 MVA (SN/SE) 158/201 MVA (WN/WE)

Alternatives Considered:

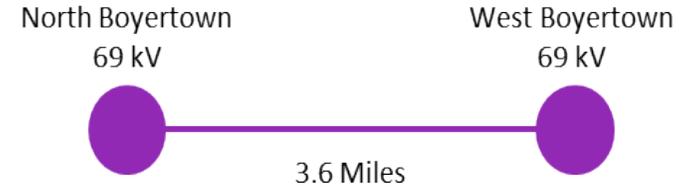
- Maintain existing condition

Estimated Project Cost: \$10.3M

Projected In-Service: 12/31/2027

Project Status: Conceptual

Model: 2018 RTEP model for 2023 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

4/20/2023 – V1 – Original version posted to pjm.com