

Transmission Expansion Advisory Committee FirstEnergy Supplemental Projects

November 6th, 2024

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: APS-2024-079

Process Stage: Need Meeting – 11/06/2024

Project Driver:

Equipment Material Condition, Performance and Risk

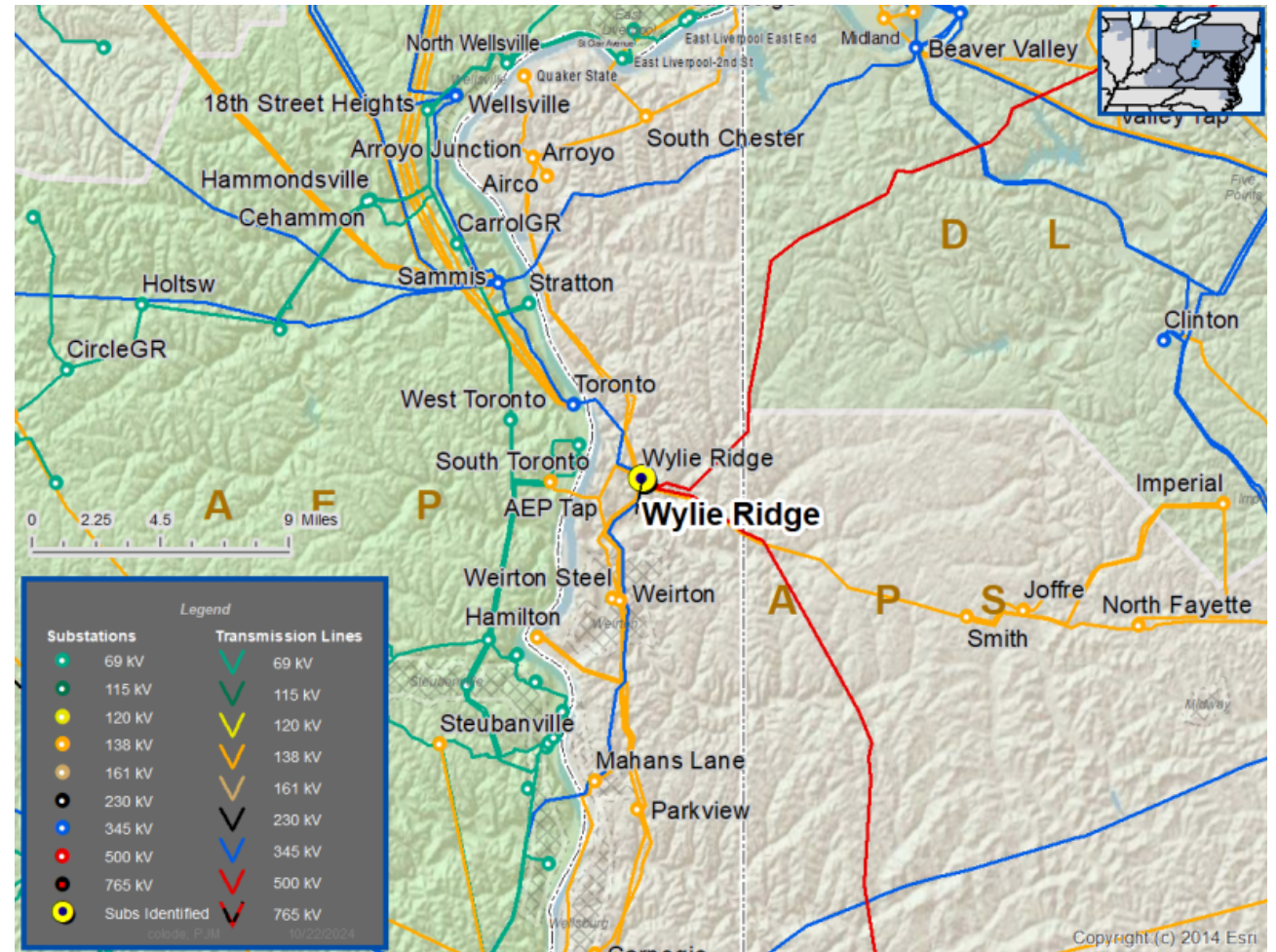
Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Add/Replace Transformers
- Past System Reliability/Performance

Problem Statement:

- The Wylie Ridge No. 3 345/138 kV Transformer is approximately 50 years old and is approaching end of life.
- The transformer has increased hydrogen readings and low dielectric strength.
- The transformer has increased moisture content which indicates presence of polar contaminants .
- Replacement components are difficult to source leading to non-standard repairs.
- Existing transformer ratings:
 - 407 / 516 MVA (SN/SSTE)
 - 480 / 548 MVA (WN/WSTE)



Need Number: APS-2024-080

Process Stage: Need Meeting – 11/06/2024

Project Driver:

Equipment Material Condition, Performance and Risk

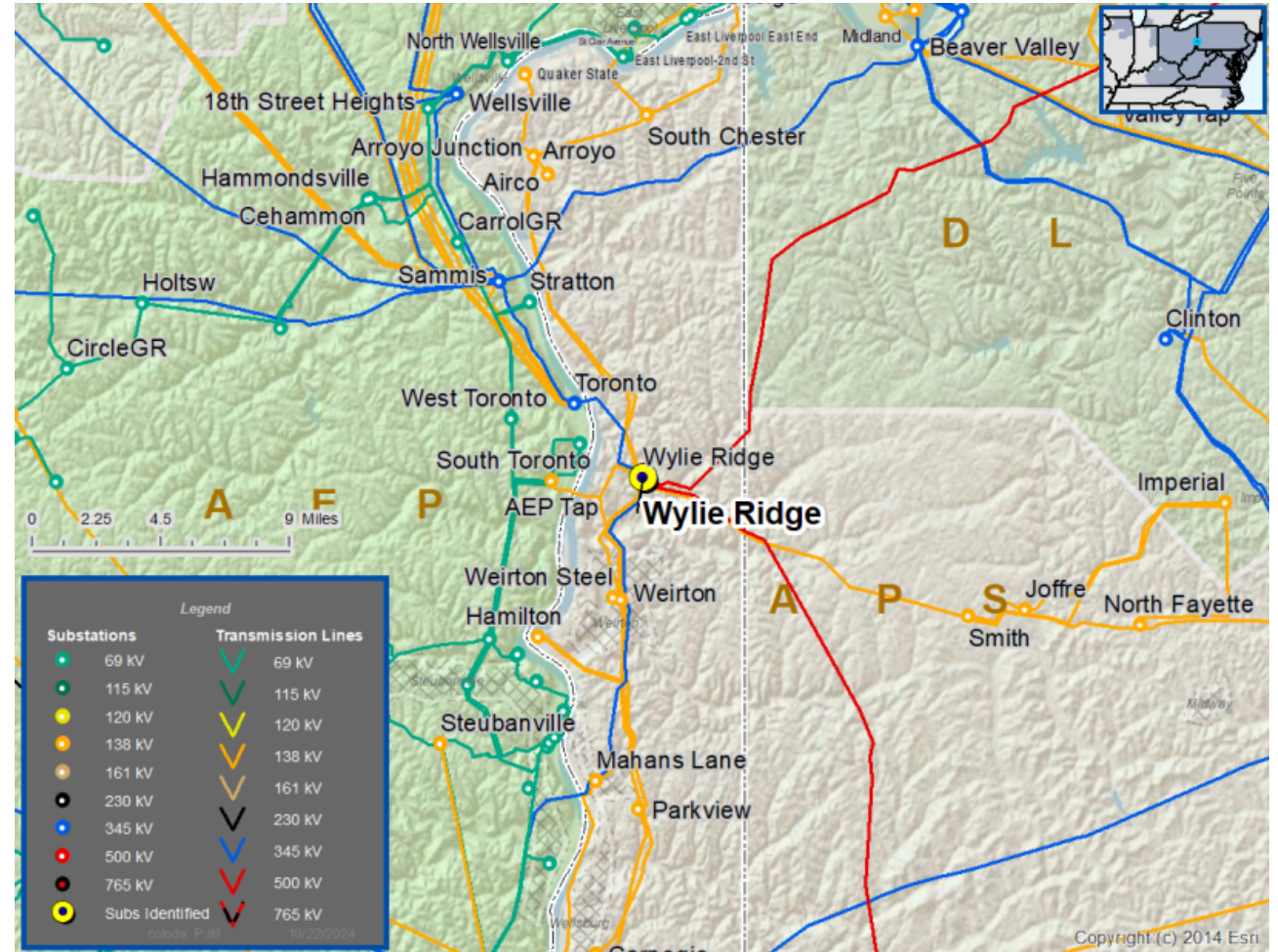
Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Add/Replace Transformers
- Past System Reliability/Performance

Problem Statement:

- The Wylie Ridge No. 7 500/345 kV Transformer is approximately 48 years old and is approaching end of life.
- The transformer has increased hydrogen and ethylene readings and low dielectric strength.
- The transformer has increased moisture content which indicates presence of polar contaminants.
- Replacement components are difficult to source leading to non-standard repairs.
- Existing transformer ratings:
 - 881 / 883 MVA (SN/SSTE)
 - 883 / 883 MVA (WN/WSTE)



Need Number: APS-2024-091

Process Stage: Need Meeting – 11/06/2024

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Global Factors

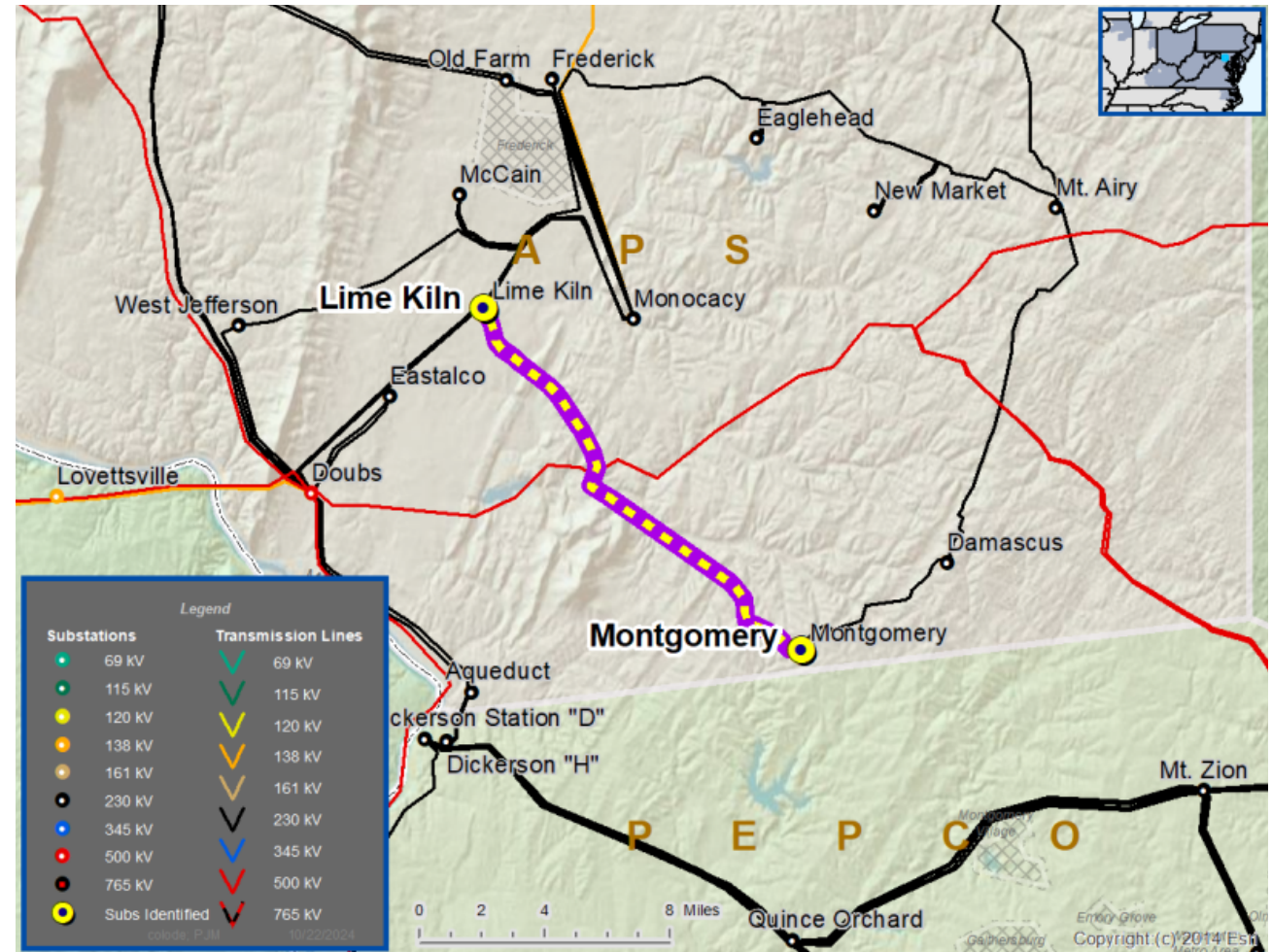
- System reliability/performance
- Substation/Line equipment limits

Line Condition Rebuild/Replacement

- Age/condition of wood transmission line structures

Problem Statement:

- The Lime Kiln – Montgomery 230 kV Line was constructed approximately 45 years ago and is approaching end of life. It is approximately 13 miles long with 98 wooden H-frame structures.
- Per recent inspections, the line is exhibiting deterioration.
 - Inspection findings include 54 structures failed inspection due to woodpecker damage and rot.
- The line is currently limited by terminal equipment.
- Since 2022, there have been two unscheduled, sustained outages on the line.
- Existing Transmission Line Ratings:
 - 548 / 688 / 699 / 804 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: APS-2024-061

Process Stage: Solution Meeting – 11/06/2024

Previously Presented: Need Meeting – 06/04/2024

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects Global Factors

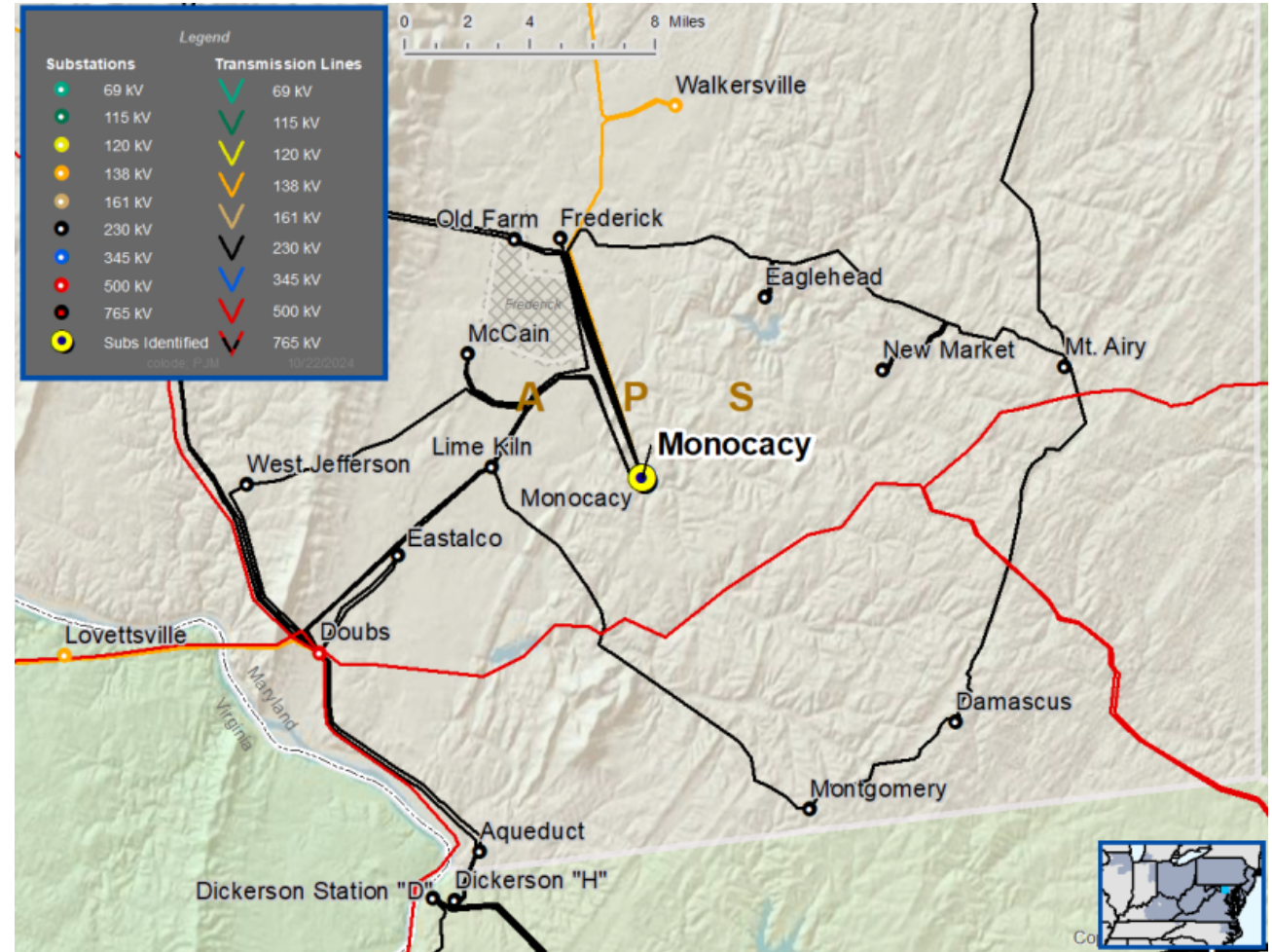
- System reliability and performance

Add/Replace Transformers

Past System Reliability/Performance

Problem Statement:

- The Monocacy No. 4 230/138 kV Transformer is approximately 51 years old and is approaching end of life.
- The transformer has experienced an increase in the level of acetylene.
- The transformer relaying is obsolete.
- Existing transformer ratings:
 - 260 / 338 MVA (SN / SSTE)
 - 313 / 368 MVA (WN / WSTE)



Need Number: APS-2024-061

Process Stage: Solution Meeting – 11/06/2024

Proposed Solution:

- At Monocacy Substation:
 - Replace No. 4 230/138 kV 224 MVA Transformer with a new 266 MVA unit
 - Replace transformer conductor, circuit breakers, disconnect switches and relaying

Anticipated Transformer Circuit Ratings:

- Monocacy No. 4 230/138 kV Transformer:
 - Before Proposed Solution: 260 / 338 / 313 / 368 MVA (SN/SSTE/WN/WSTE)
 - After Proposed Solution: 266 / 346 / 320 / 377 MVA (SN/SSTE/WN/WSTE)

Alternatives Considered:

- Maintain the transformer in existing condition with elevated risk of failure.

Estimated Project Cost: \$9.00 M

Projected In-Service: 12/31/2027

Project Status: Engineering

Model: 2023 RTEP model for 2028 Summer (50/50)

Monocacy 138 kV



Monocacy 230 kV

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

11/28/2024– V1 – Original version posted to pjm.com