Subregional RTEP Committee – Western
FirstEnergy Supplemental Projects

APS Transmission Zone

June 17, 2026

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

APS Transmission Zone M-3 Process
Burma - Ridgway 138 kV Line

Need Number: APS-2026-007

Process Stage: Need Meeting 06/17/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

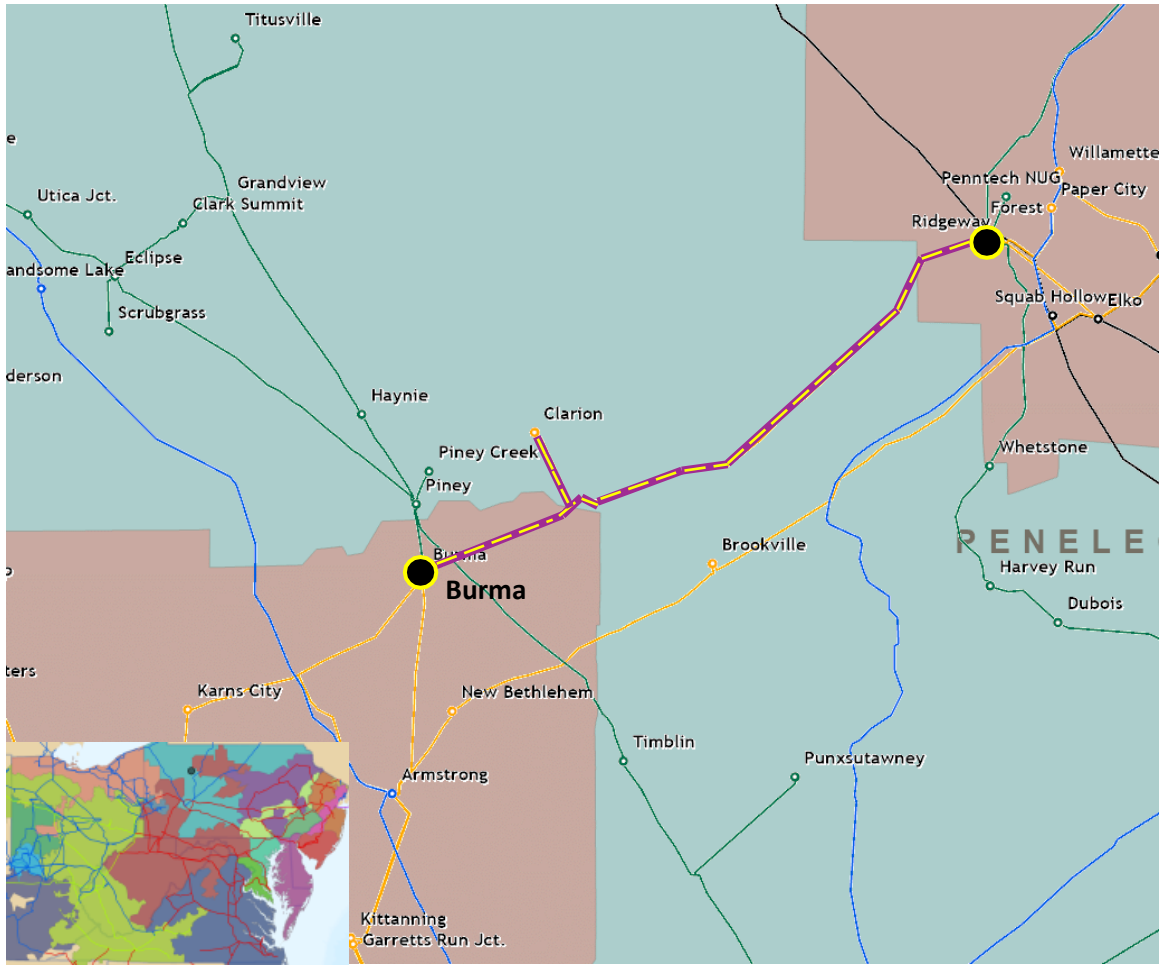
- System reliability/performance
- Substation/Line equipment limits

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures

Problem Statement:

The Burma - Ridgway 138 kV Line was constructed approximately 44 years ago and is approaching end of life. It is 51.4 miles long with wood pole transmission line structures. The loop to Clarion Substation is established where the Burma - Clarion 138 kV Line and the Clarion - Ridgway 138 kV Line are terminated and interconnected through the Clarion Substation. The Clarion loop consists of approximately 3.7 miles of the Burma - Clarion 138 kV Line and 3.7 miles of the Clarion - Ridgway 138 kV Line. The Clarion loop contains 71 wood pole structures, which are approximately 48 years old and also approaching end of life.



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APS Transmission Zone M-3 Process
Burma - Ridgway 138 kV Line Rebuild

Problem Statement (Cont'):

Per recent inspections, the line is exhibiting deterioration. Inspection findings include:

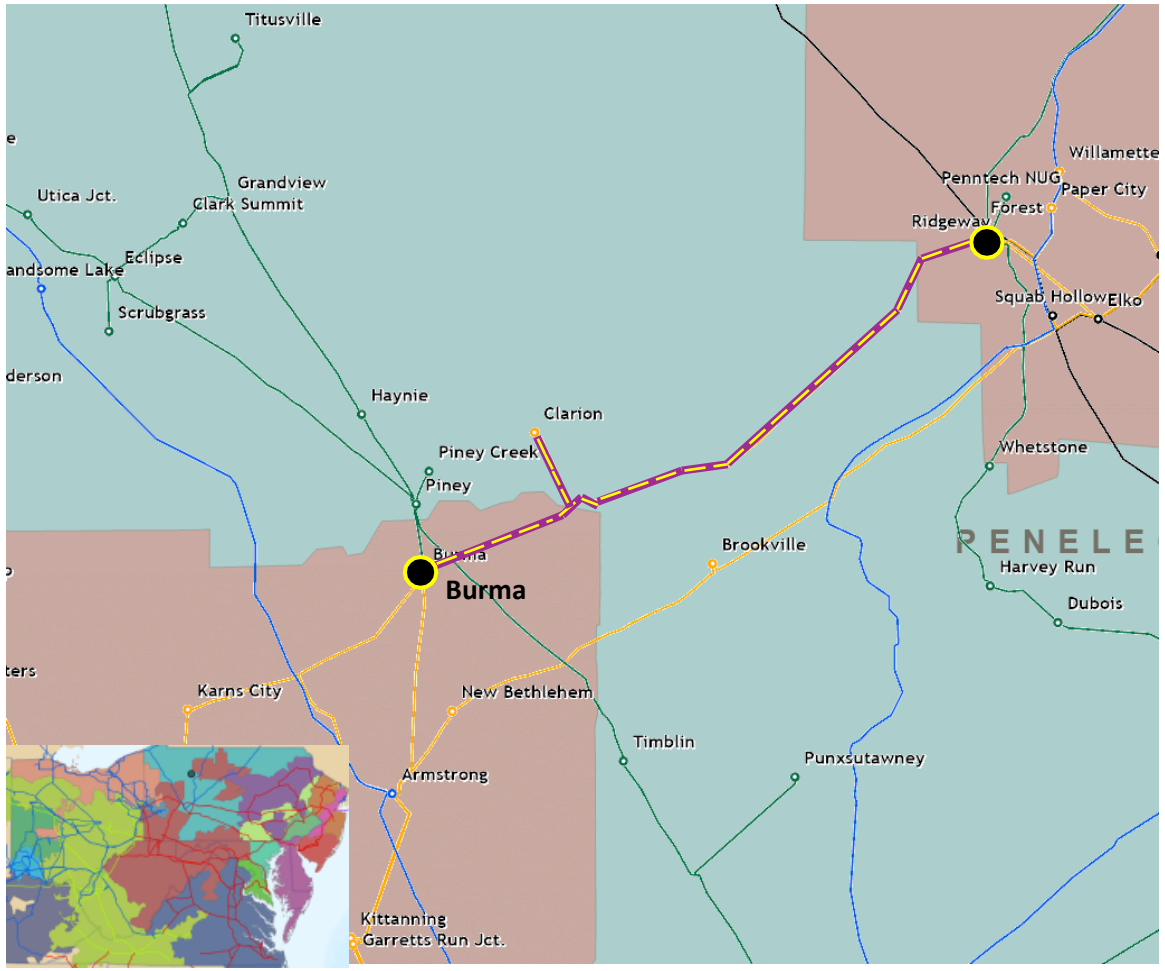
- 13 structures are phase-raised of which one phase-raised structure is on the Clarion loop.
- 54 structures require repairs to insulators and related hardware, indicating that components are reaching end of life.
- 86 structures failed inspection due to sound, woodpecker damage, top rot, decay, cracking, and/or delamination of cross-arms of which 22 are on the Clarion loop.
- The transmission line is equipped with Lapp Polypace type insulators which have been the subject of multiple failures due to poor condition and poor design.

The line has experienced six unplanned sustained outages over the last five years. Four outages occurred in 2025, and one outage was related to failure of polymer insulators on the line.

The line is currently limited by terminal equipment.

Burma - Clarion 138 kV Line:
Existing Line Rating: 294 / 350 / 349 / 401 MVA (SN/SE/WN/SE)
Existing Conductor Rating: 308 / 376 / 349 / 445 MVA (SN/SE/WN/SE)

Clarion - Ridgway 138 kV Line:
Existing Line Rating: 287 / 342 / 342 / 380 MVA (SN/SE/WN/SE)
Existing Conductor Rating: 308 / 376 / 349 / 445 MVA (SN/SE/WN/SE)



APS Transmission Zone M-3 Process
New Customer Request

Need Number: APS-2026-016

Process Stage: Need Meeting 06/17/2026

Project Driver: Customer Service

Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A retail customer requested 138 kV service for a load of approximately 2 MW near the existing Glenville - Weston 138 kV Line. The request is approximately 1.4 miles from Sand Fork Substation.

Requested in-service date is 04/06/2027.

APS Transmission Zone M-3 Process
New Customer Request

Need Number: APS-2026-021

Process Stage: Need Meeting 06/17/2026

Project Driver: Customer Service

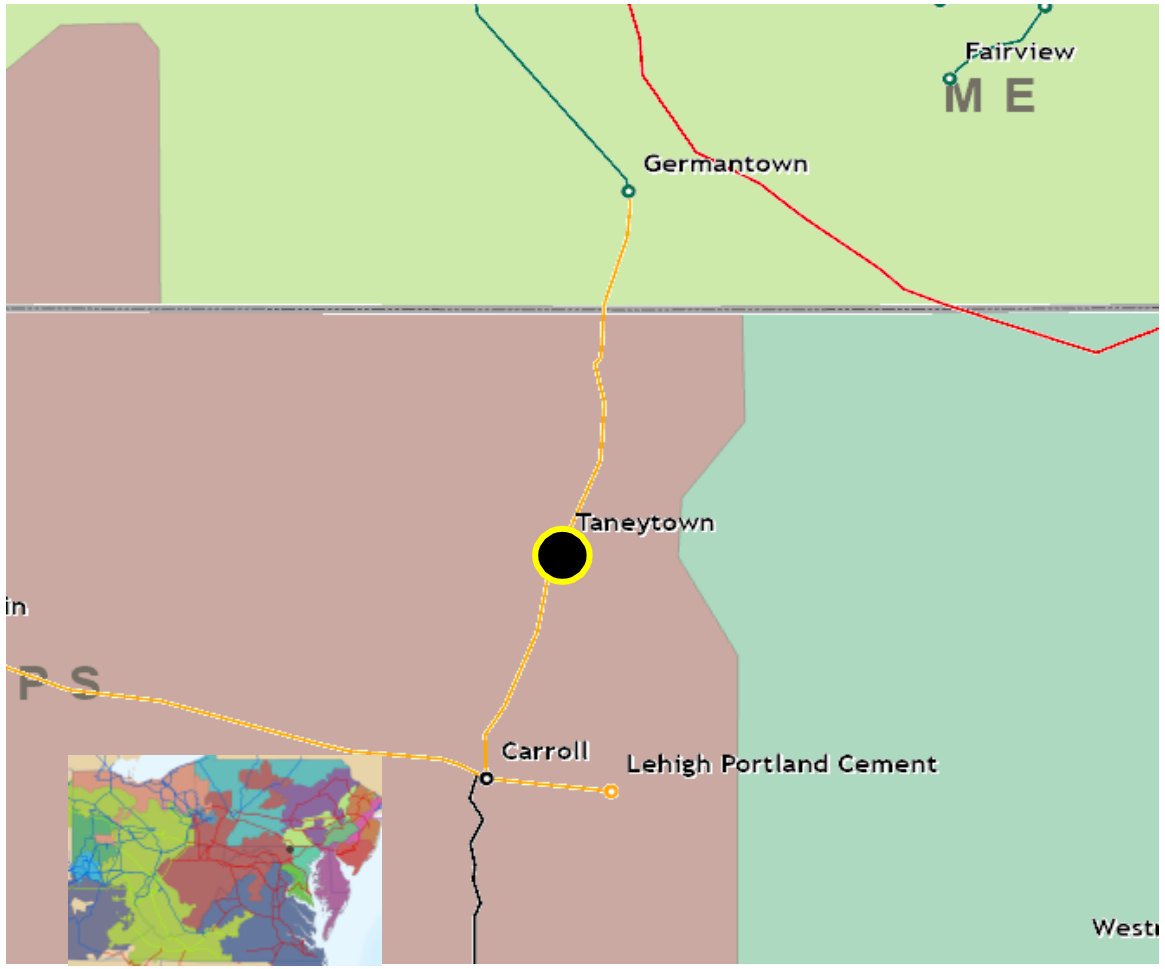
Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A retail customer requested service for load of approximately 25 MW near the existing Taneytown No. 1 Substation.

Requested in-service date is 12/30/2028.



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-022
Process Stage: Need Meeting 06/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:
System Performance Projects Global Factors
- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

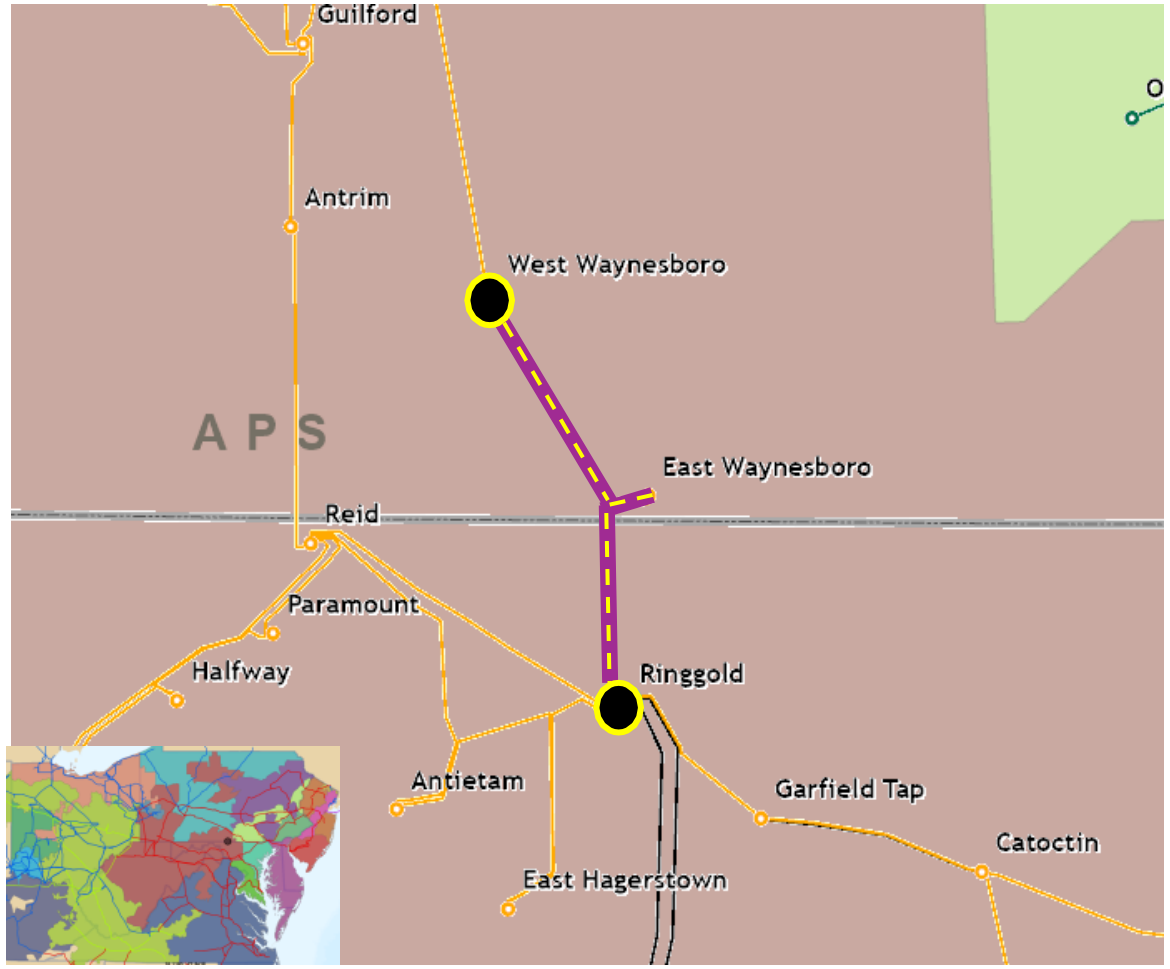
Problem Statement:
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Ringgold - West Waynesboro 138 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Ringgold - West Waynesboro 138 kV Line:
Existing Line Rating: 210 / 250 / 250 / 287 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 221 / 268 / 250 / 317 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-024
Process Stage: Need Meeting 06/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:
System Performance Projects Global Factors
- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

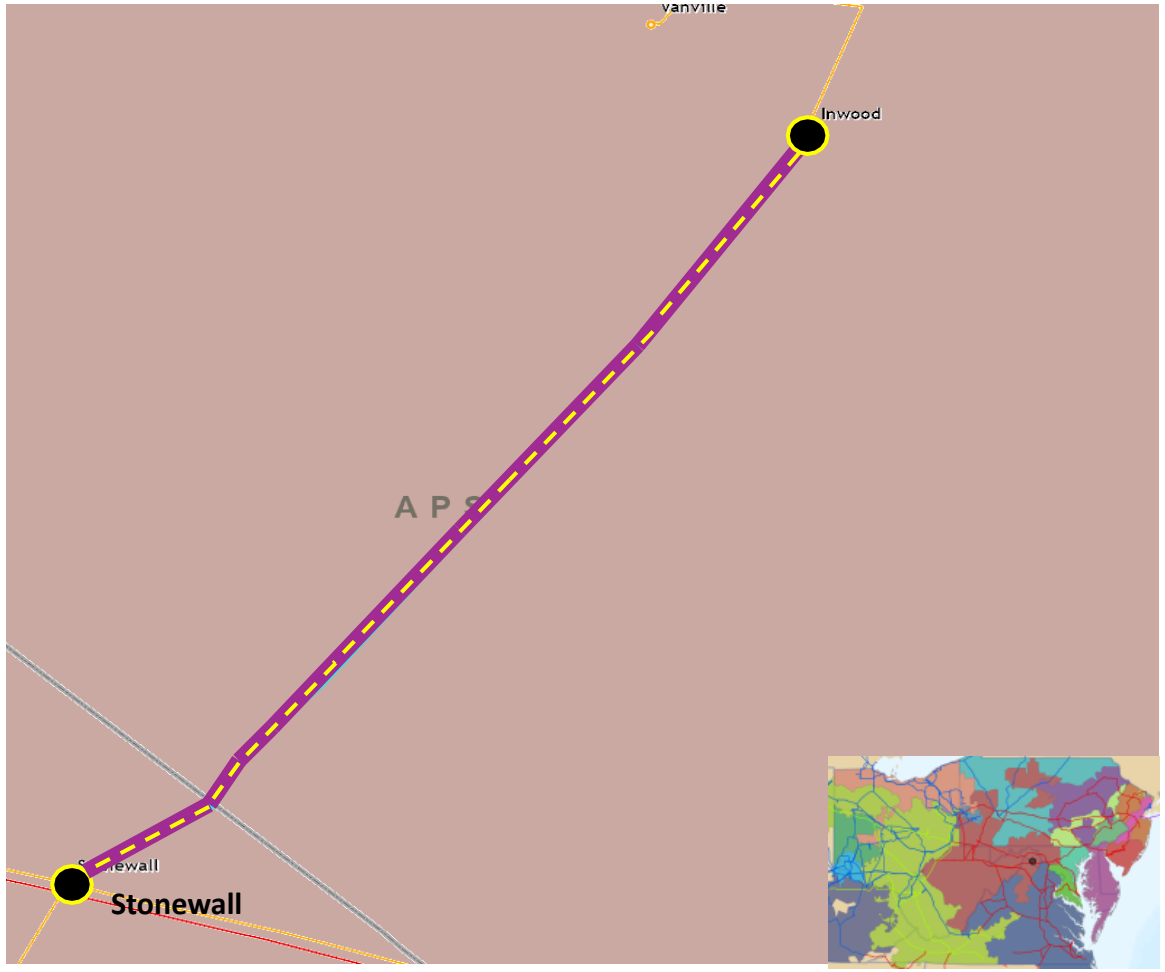
Problem Statement:
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Inwood - Stonewall 138 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Inwood - Stonewall 138 kV Line:
Existing Line Rating: 300 / 358 / 349 / 410 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 308 / 376 / 349 / 445 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-027

Process Stage: Need Meeting 06/17/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:

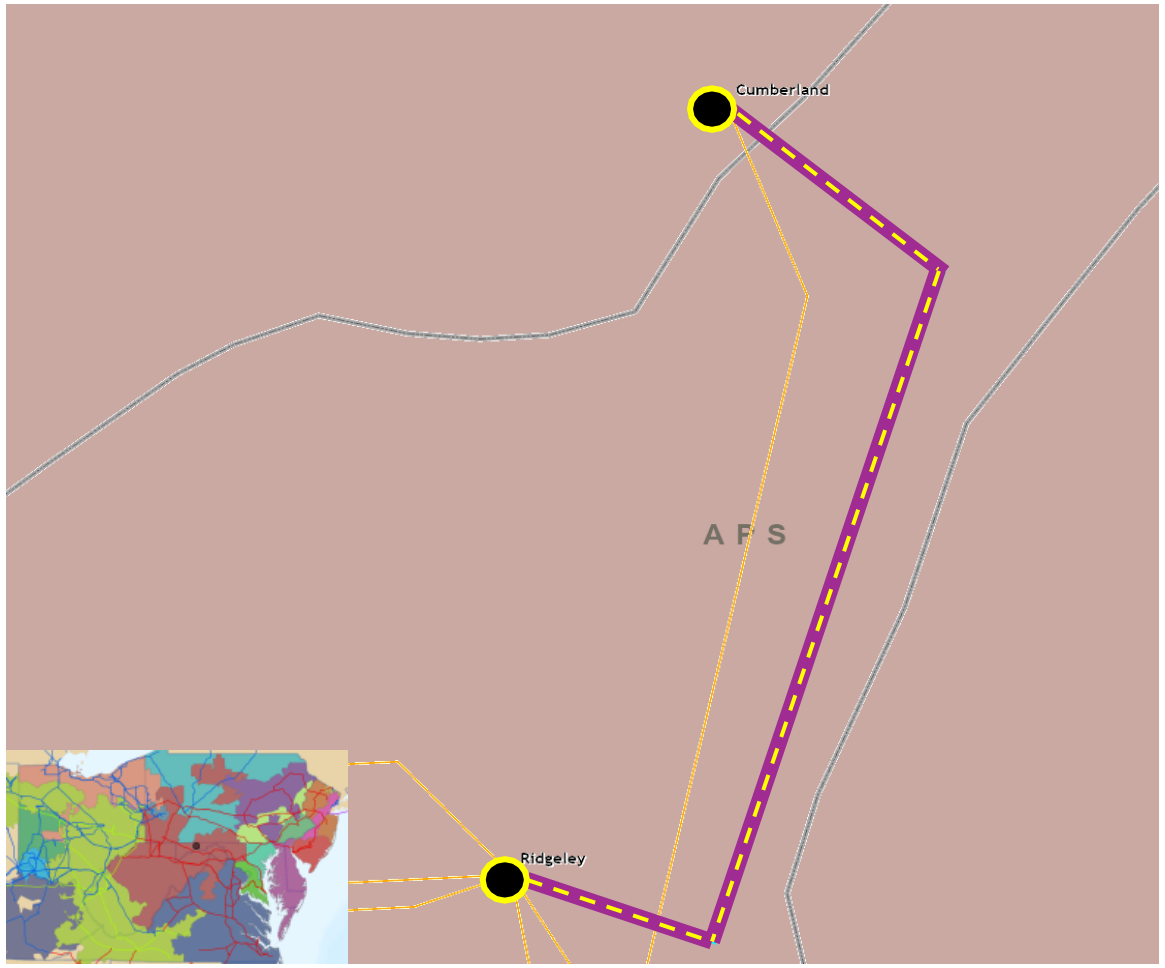
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Ridgeley - Cumberland 138 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Ridgeley - Cumberland 138 kV Line:
Existing Line Rating: 292 / 314 / 325 / 343 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 308 / 376 / 349 / 445 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-029

Process Stage: Need Meeting 06/17/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:

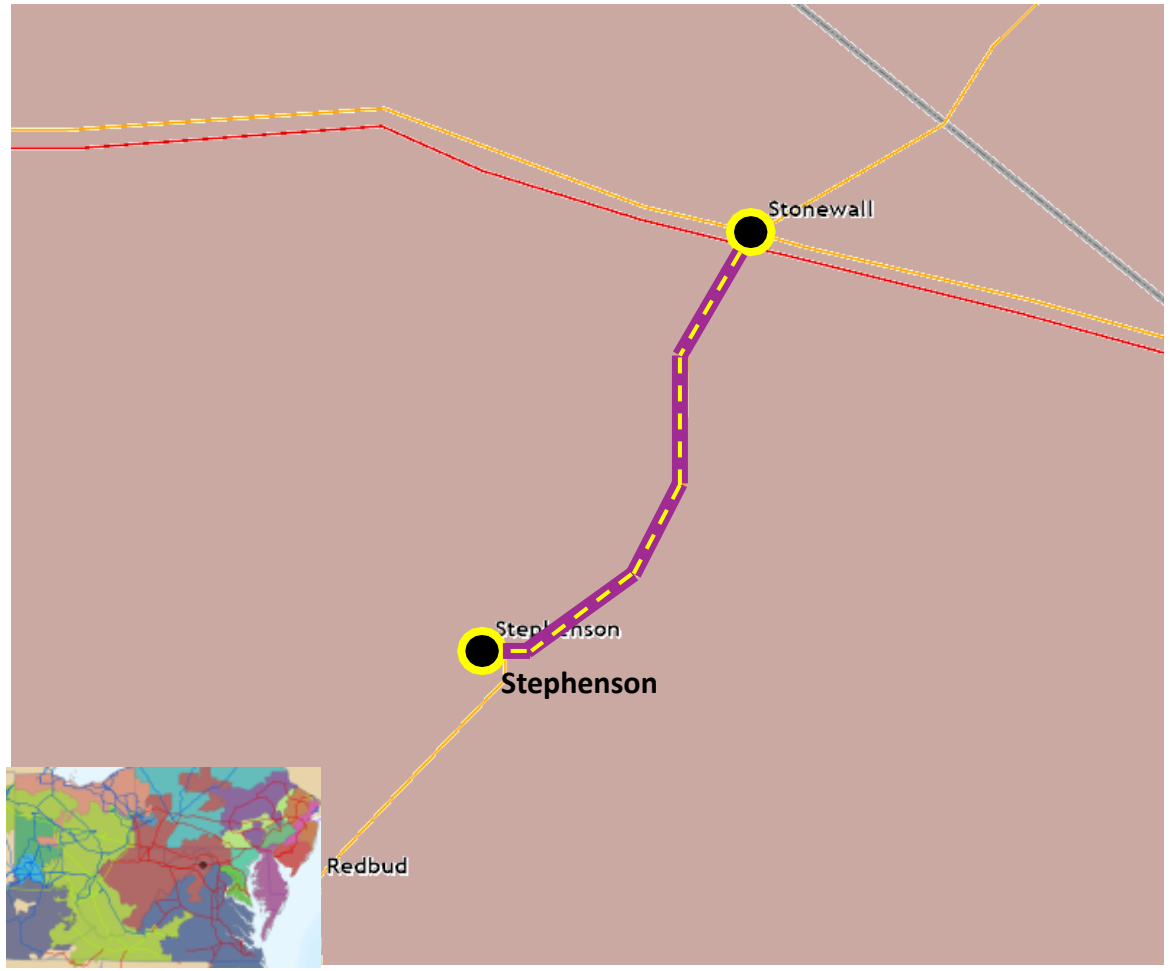
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Stephenson - Stonewall 138 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Stephenson - Stonewall 138 kV Line:
Existing Line Rating: 292 / 314 / 325 / 343 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 353 / 406 / 353 / 428 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-031

Process Stage: Need Meeting 06/17/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:

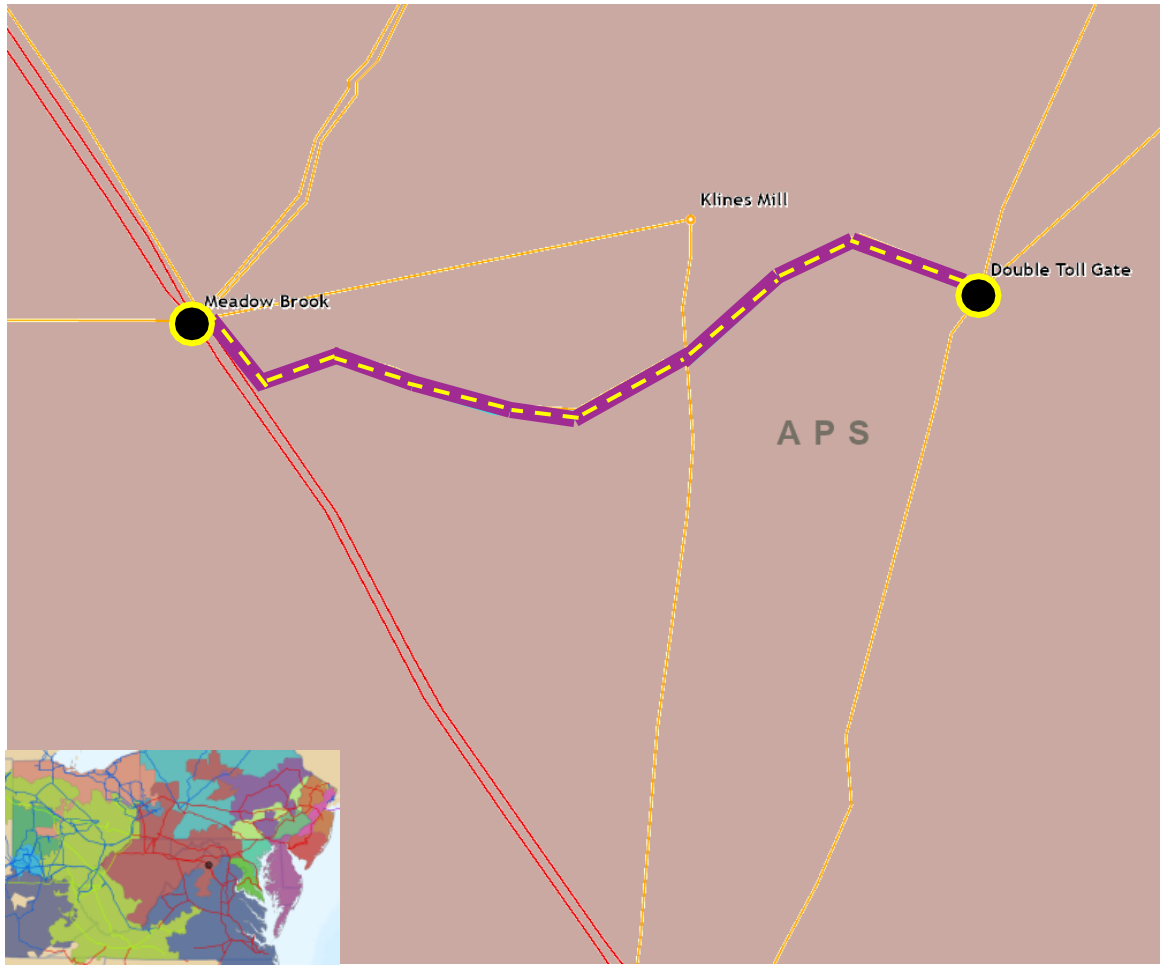
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Double Toll Gate - Meadow Brook 138 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Double Toll Gate - Meadow Brook 138 kV Line:
Existing Line Rating: 299 / 358 / 349 / 410 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 308 / 376 / 349 / 445 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-032

Process Stage: Need Meeting 06/17/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:

FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Gordonsville - Pratts 115 kV Line.

Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

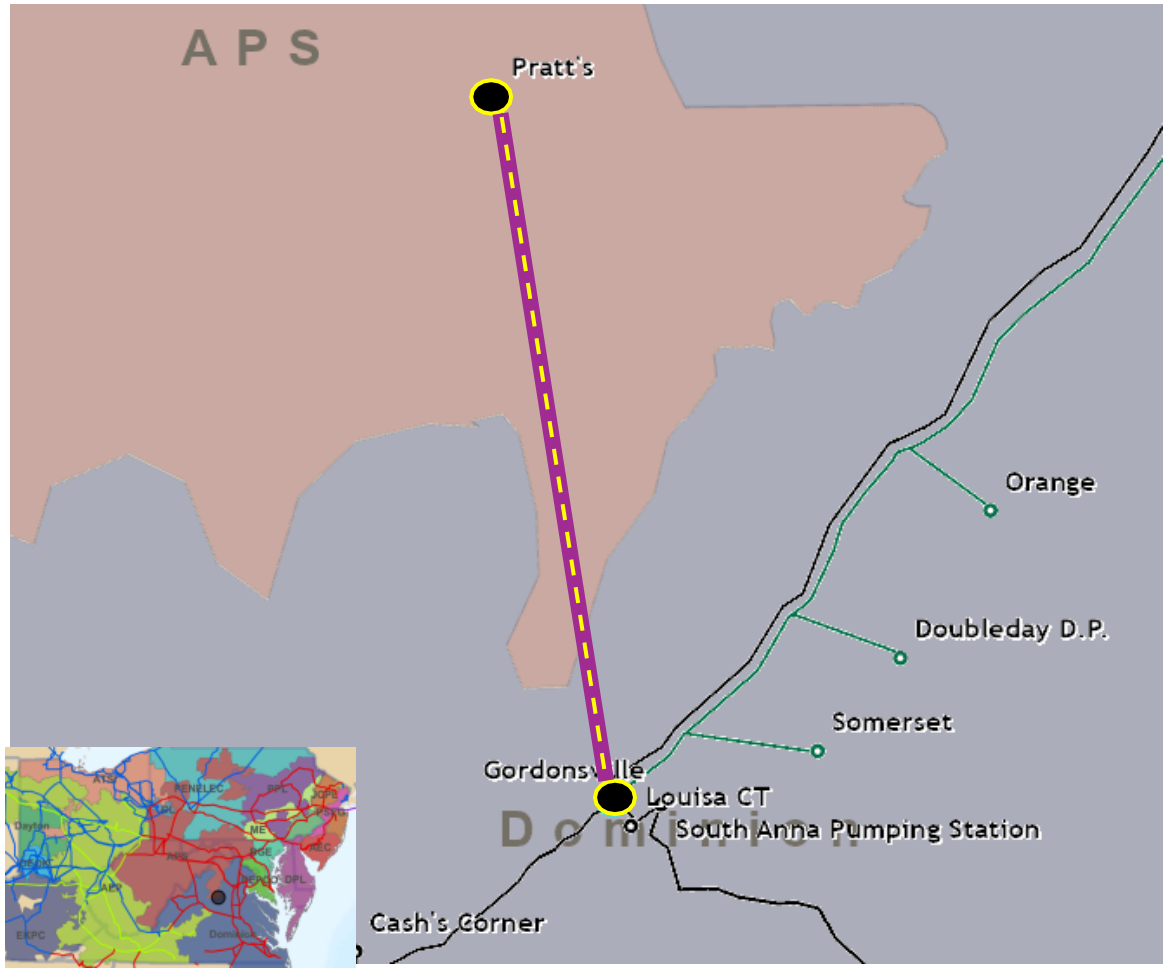
In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.

Gordonsville - Pratts 115 kV Line:

Existing Line Rating: 145 / 184 / 181 / 213 MVA (SN/SE/WN/WE)

Existing Conductor Rating: 257 / 313 / 291 / 371 MVA (SN/SE/WN/WE)



APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2026-033
Process Stage: Need Meeting 06/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:
System Performance Projects Global Factors
- System reliability and performance
- Substation/line equipment limits

Upgrade Relay Schemes
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:
FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation on the Riverton - Viscose 138 kV Line.

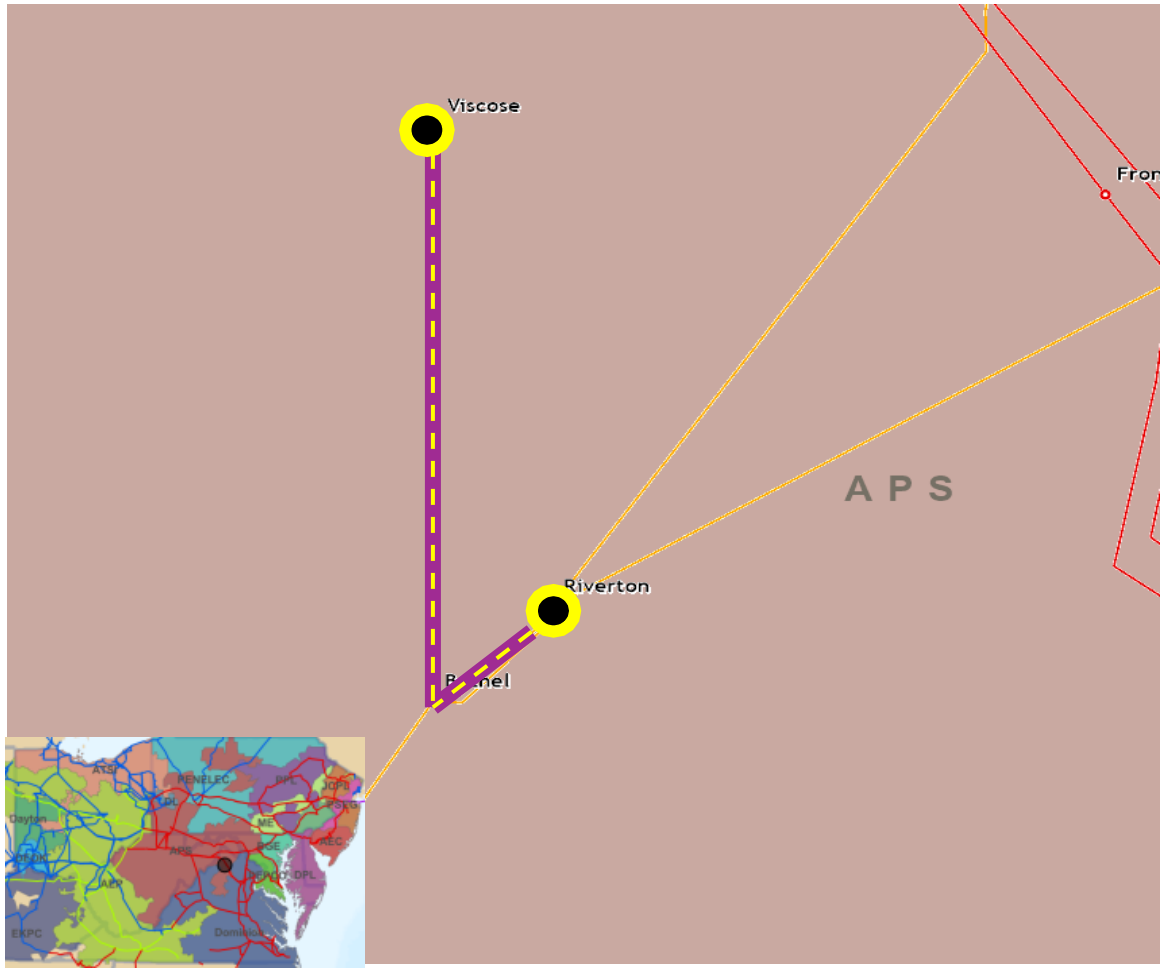
Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment

Bethel - Riverton 138 kV Line:
Existing Line Rating: 160 / 192 / 180 / 228 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 160 / 192 / 180 / 228 MVA (SN/SE/WN/WE)

Bethel - Viscose 138 kV Line:
Existing Line Rating: 150 / 177 / 178 / 202 MVA (SN/SE/WN/WE)
Existing Conductor Rating: 158 / 190 / 178 / 225 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

APS Transmission Zone M-3 Process
New Customer Request

Need Number: APS-2026-006

Process Stage: Solution Meeting SRRTEP-W - 06/17/2026

Previously Presented: Need Meeting 03/19/2026

Project Driver: Customer Service

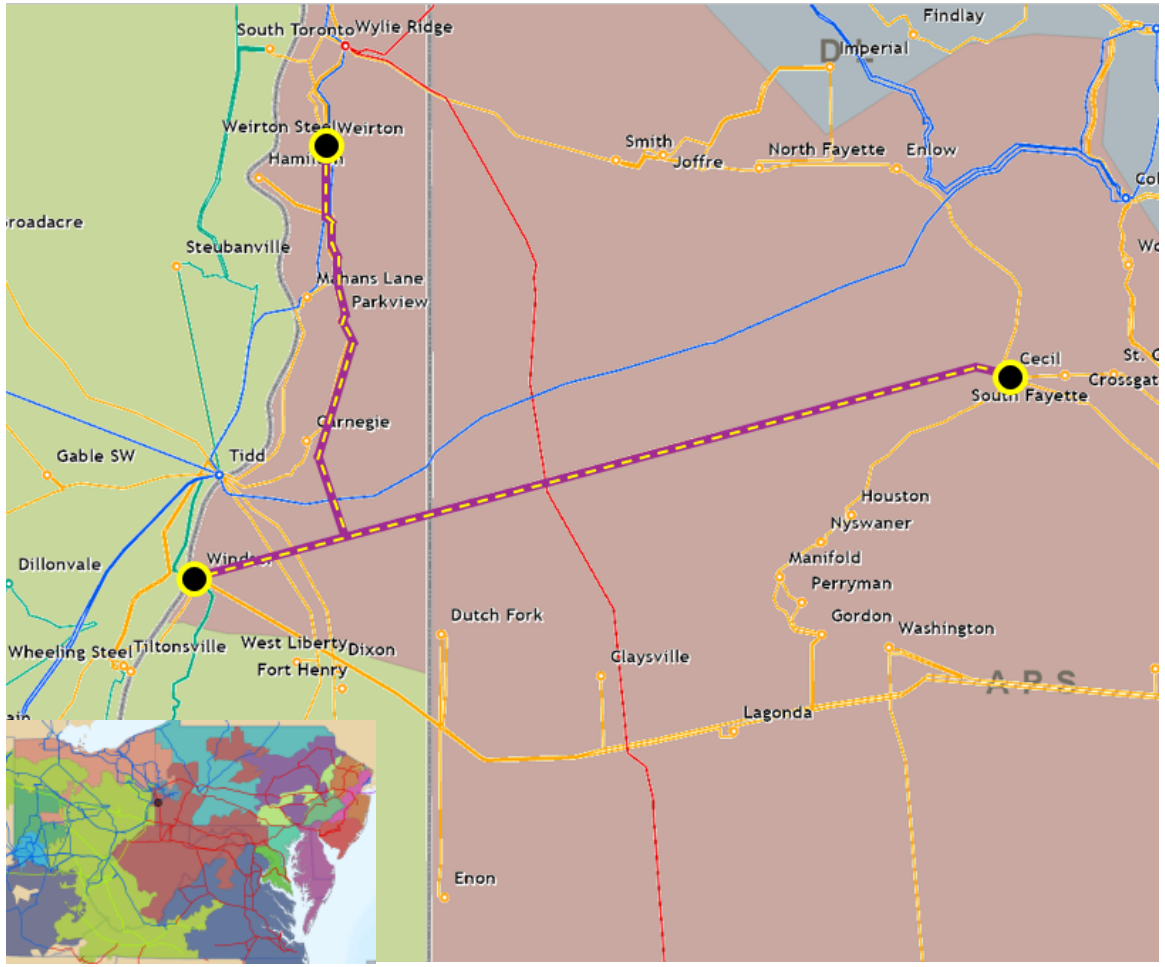
Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A retail customer requested 138 kV service for load of approximately 29 MW. The customer's location is in close proximity to the Cecil - Weirton - Windsor (Buffalo Junction) 138 kV Line.

The requested in-service date is 4/1/2026.



APS Transmission Zone M-3 Process
New Customer Request

Need Number: APS-2026-006

Process Stage: Solution Meeting SRRTEP-W - 06/17/2026

Proposed Solution:

Cecil - Weirton - Windsor (Buffalo Junction) 138 kV Line:

- Construct a 138 kV tap near structure #111 on the Cecil - Weirton - Windsor (Buffalo Junction) 138 kV Line.
- Install two 1200 A switches at the tap location.
- Construct 1 to 2 spans of transmission line from the new tap to the customer site.
- Install one 1200 A switch at the tap point.
- Install 138 kV revenue metering and adjust relay settings at Cecil, Weirton, and Windsor substations.

Alternatives Considered:

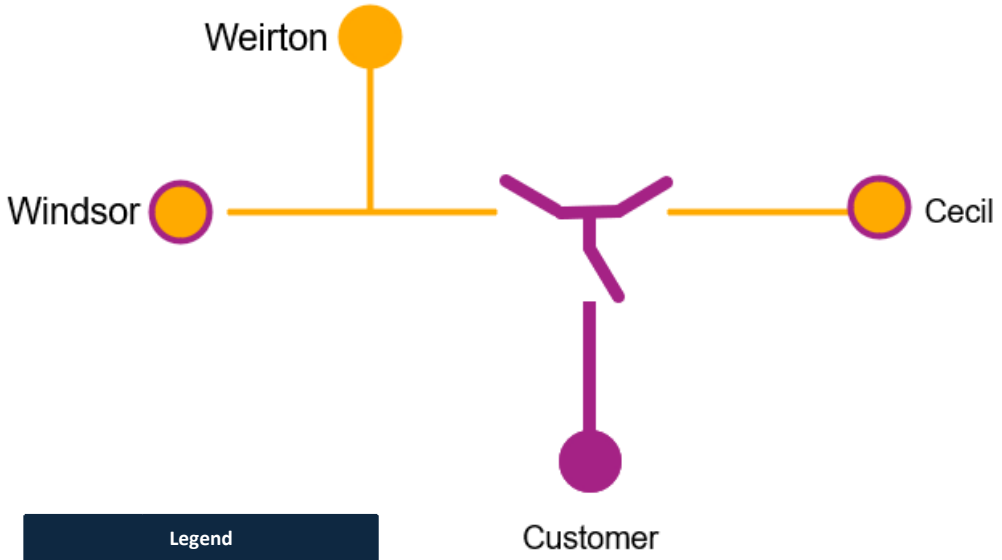
No reasonable alternatives due to the customer's proximity to the Cecil - Weirton - Windsor 138 kV Line.

Estimated Project Cost: $1.40 M

Projected In-Service: 07/17/2028

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



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

APS Transmission Zone M-3 Process
Dutch Fork – Enon 138 kV Line

Need Number: APS-2023-033

Process Stage: Solution Meeting SRRTEP-W - 06/17/2026

Previously Presented: Need Meeting 10/20/2023

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures
- System characteristics including lightning and grounding performance, galloping overlap, insulation coordination, structural capacity needs, clearance margins, and future needs (e.g., fiber path)

System Performance Projects Global Factors

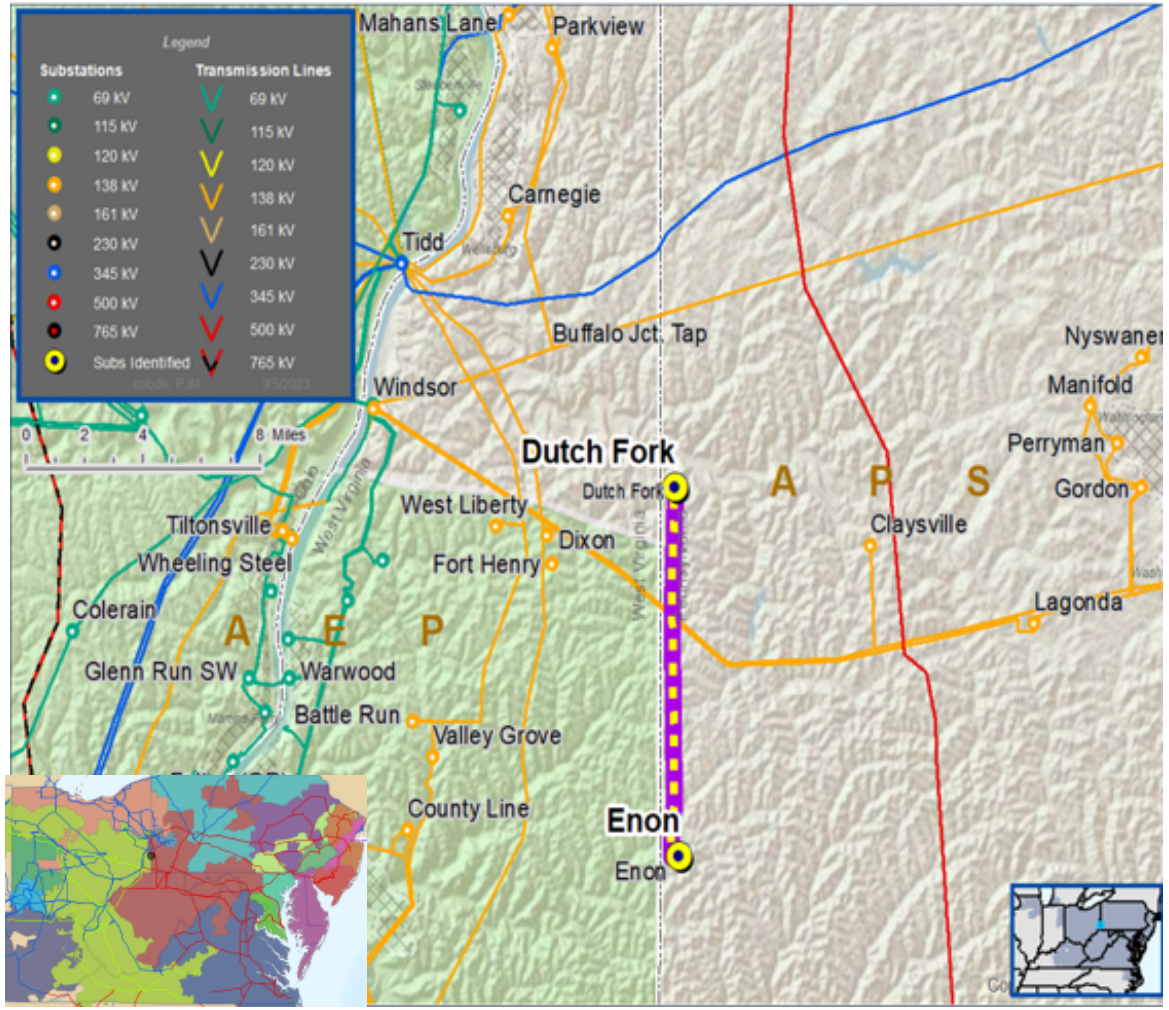
- Substation/line equipment limits

Problem Statement:

Enon Substation is fed radially from Dutch Fork. With an N-1 outage of the Dutch Fork – Enon 138 kV Line, 93 MW is lost at Enon. The Dutch Fork – Enon 138 kV Line is exhibiting deterioration.

Total line distance is approximately 12.5 miles.

39 of 79 structures failed inspection.



APS Transmission Zone M-3 Process
Dutch Fork – Enon 138 kV Line

Need Number: APS-2023-033

Process Stage: Solution Meeting SRRTEP-W - 06/17/2026

Proposed Solution:

Rebuild 12.5 miles of the Dutch Fork - Enon 138 kV Line with Light Duty (LD) steel horizontal structures and install OPGW.

At Dutch Fork Substation: Remove wave trap, replace circuit breaker, disconnect switches, substation conductor and relaying.

At Enon Substation: Remove wave trap.

Dutch Fork - Enon 138 kV Line Ratings:

Existing Line Ratings: 229 / 229 / 229 / 229 MVA (SN/SE/WN/WE)

New Line Ratings: 308 / 376 / 349 / 445 MVA (SN/SE/WN/WE)

Alternatives Considered:

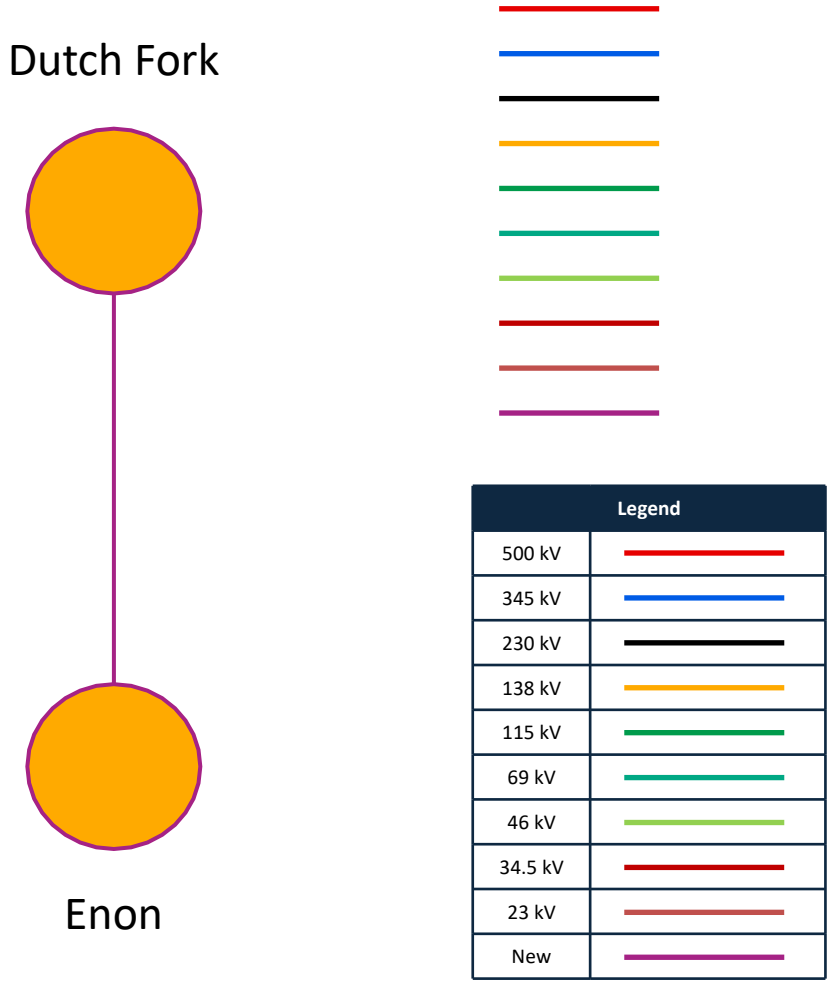
Maintain the line in existing condition.

Estimated Project Cost: $41.70M

Projected In-Service: 12/08/2029

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Cancellations

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

APS Transmission Zone M-3 Process Misoperation Relay Projects

Need Number: APS-2024-101

Process Stage: Project Cancellation – APS-2024-101

Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

System Condition Projects

- Substation Condition Rebuild/Replacement

Upgrade Relay Schemes

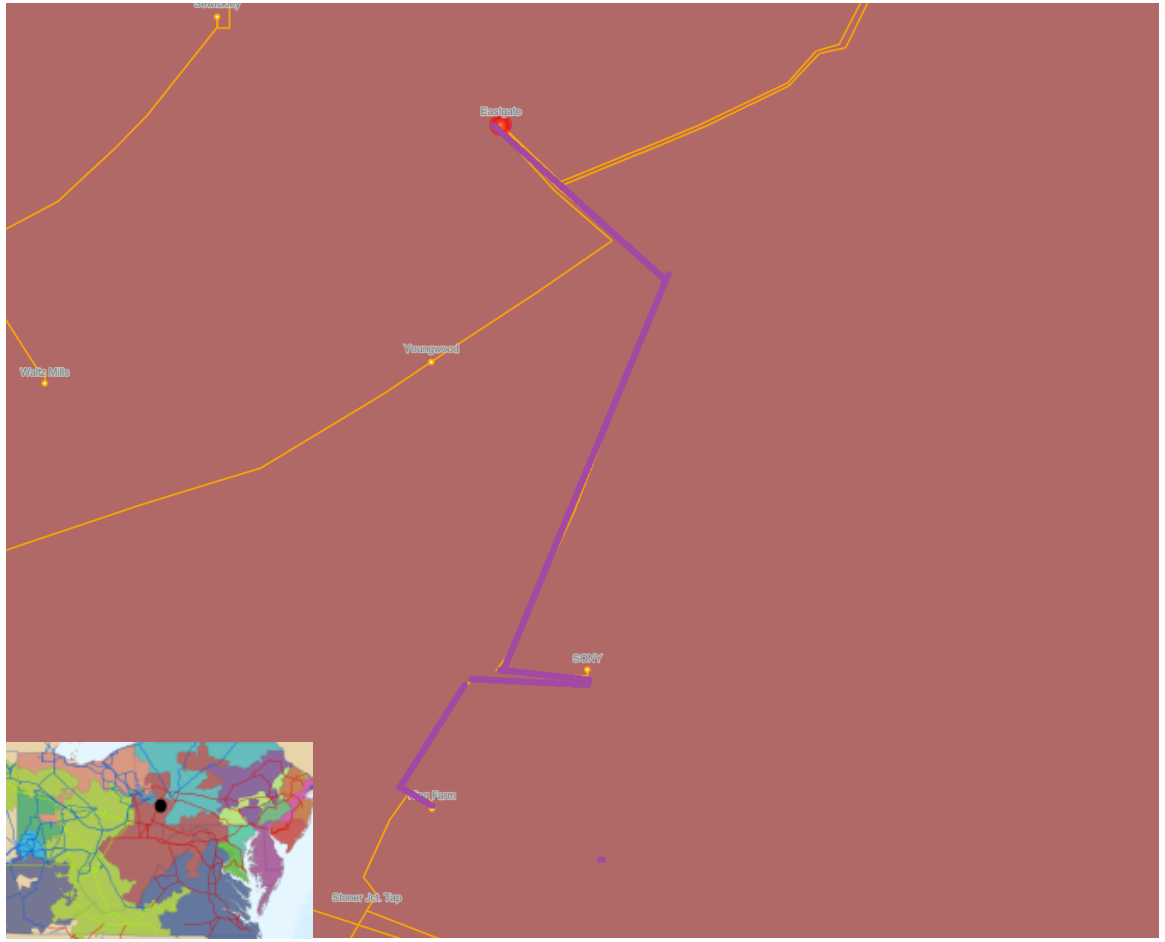
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

Problem Statement:

FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation. Proper operation of the protection scheme requires all the separate components perform adequately during a fault.

In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.

Transmission line ratings are limited by terminal equipment.



APS Transmission Zone M-3 Process
Misoperation Relay Projects

Need #	Transmission Line / Substation Locations	Existing Line Rating MVA (SN / SE / WN / WE)	Existing Conductor Rating MVA (SN / SE / WN / WE)
APS-2024-101	King Farm – Sony 138 kV Line	160 / 192 / 180 / 228	160 / 192 / 180 / 228
	Sony – Eastgate Tap 138 kV Line	149 / 152 / 168 / 168	149 / 152 / 168 / 168
	Eastgate Tap – Luxor 138 kV Line	142 / 147 / 162 / 162	149 / 152 / 168 / 168
	Eastgate Tap – Eastgate 138 kV Line	164 / 206 / 216 / 248	221 / 268 / 250 / 317

Reason for Cancellation: Attachment M-3 no longer required.

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

06/05/2026– V1 – Original version posted to pjm.com