Subregional RTEP Committee – Western
FirstEnergy Supplemental Projects
ATSI Transmission Zone

December 12, 2025

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

ATSI Transmission Zone M-3 Process
Collins Park – Ryan 69 kV

Need Number: ATSI-2025-037

Process Stage: Need Meeting 12/12/2025

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors:

- System reliability and performance

Line Condition Rebuild/Replacement:

- Age/condition of wood pole transmission line structures

Problem Statement:

The Collins Park West - Ryan 69 kV Line was constructed approximately 74 years ago and is approaching end of life. It is approximately 2.49 miles long with 50 transmission line structures, 40 of them being wood poles.

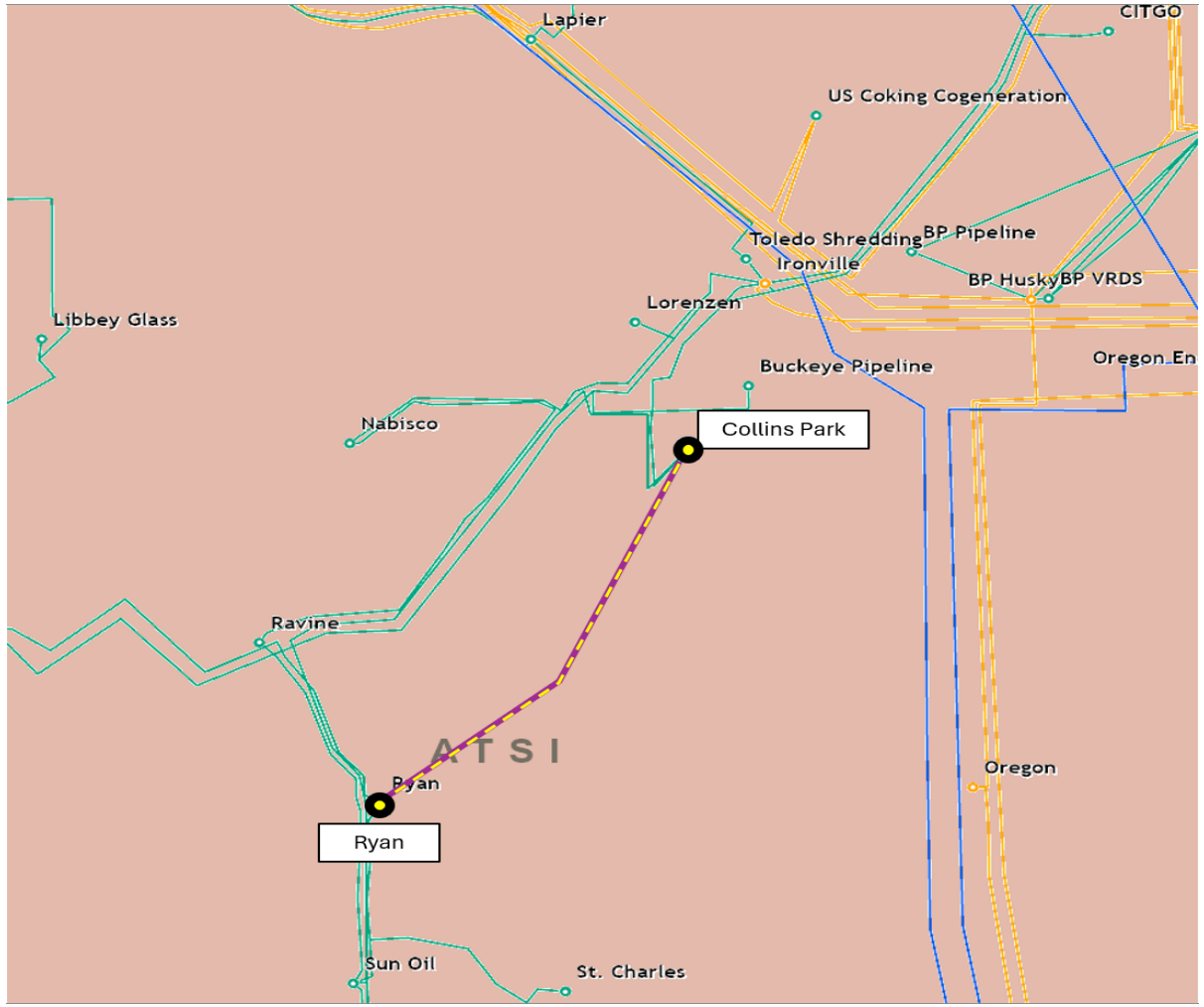
Per recent inspections, the line is exhibiting deterioration. Inspection findings include deteriorated wood poles and crossarms, shell rot, and decay.

Since 2021, the Collins Park West – Ryan 69 kV Line has had three unscheduled sustained outages.

Existing Transmission Line Ratings:

Collins Park West – Ryan 69 kV Line:

- 89 / 107 / 100 / 127 MVA (SN/SE/WN/WE)



ATSI Transmission Zone M-3 Process
Rockaway Substation 69 kV

Need Number: ATSI-2025-038

Process Stage: Need Meeting 12/12/2025

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance

Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment
- Communication technology

System Condition Projects

- Increasing negative trend in maintenance finds and/or cost
- Limited availability of spare parts, software obsolescence and/or compatibility, or vendor technical support
- Expected service life (at or beyond) or obsolescence
- Circuit breakers and other fault interrupting devices

Problem Statement:

The existing Rockaway Substation 69 kV oil circuit breakers 20, 21 and 22 and associated disconnect switches are 70 years old and approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

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.

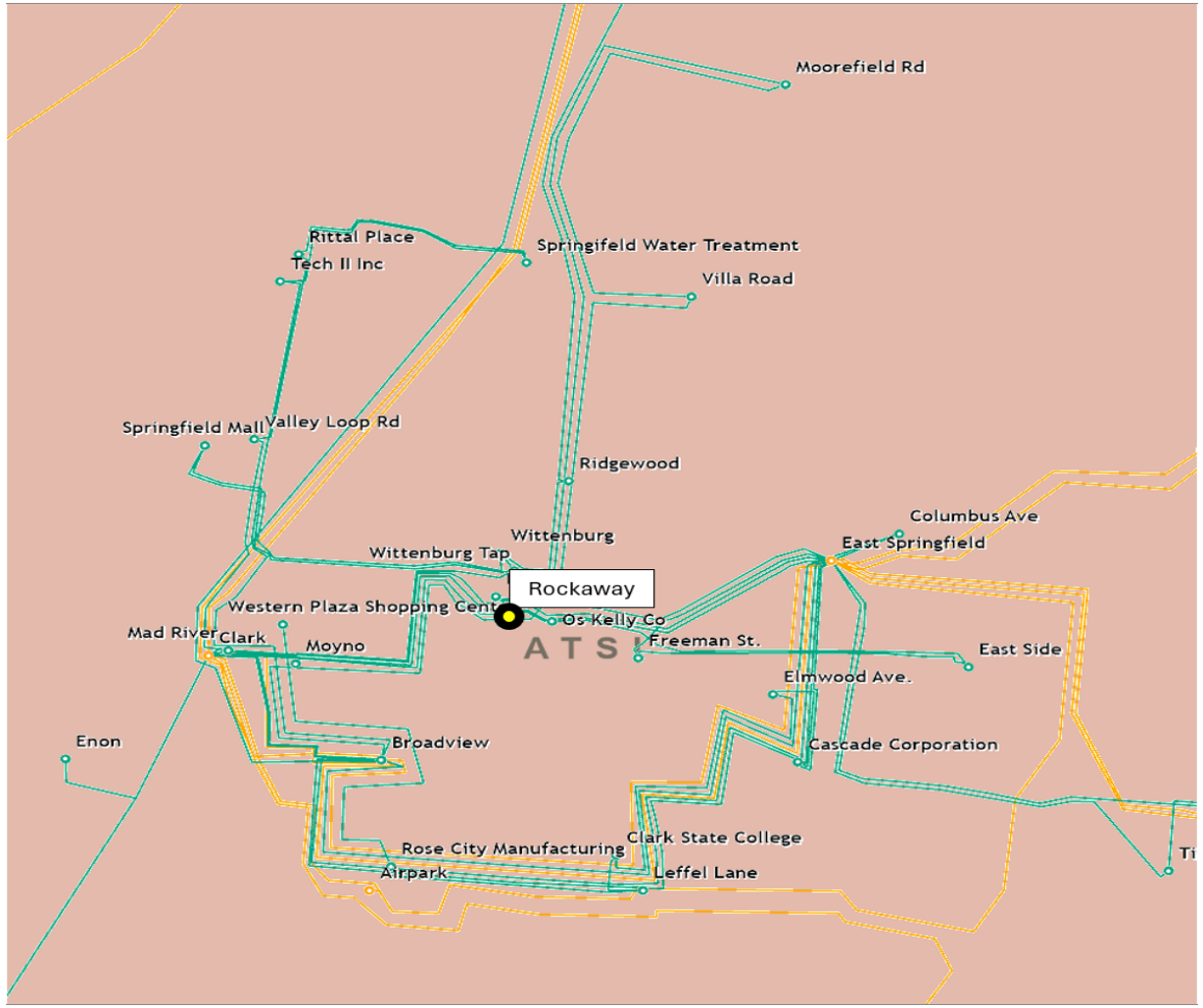
Transmission line ratings are limited by terminal equipment.

Rockaway - OS Kelly 69 kV Line:

- Existing line rating: 62 / 62 / 62 / 62 MVA (SN/SE/WN/WE)
- Existing conductor rating: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)

Rockaway - Springfield Medical 69 kV Line:

- Existing line rating: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)
- Existing conductor rating: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)



ATSI Transmission Zone M-3 Process
Chrysler Substation 138 kV

Need Number: ATSI-2025-039

Process Stage: Need Meeting 12/12/2025

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors
- System reliability and performance

Upgrade Relay Schemes
- Obsolete and difficult to repair communication equipment
- Communication technology

System Condition Projects
- Increasing negative trend in maintenance finds and/or cost
- Limited availability of spare parts, software obsolescence and/or compatibility, or vendor technical support
- Expected service life (at or beyond) or obsolescence
- Circuit breakers and other fault interrupting devices

Problem Statement:

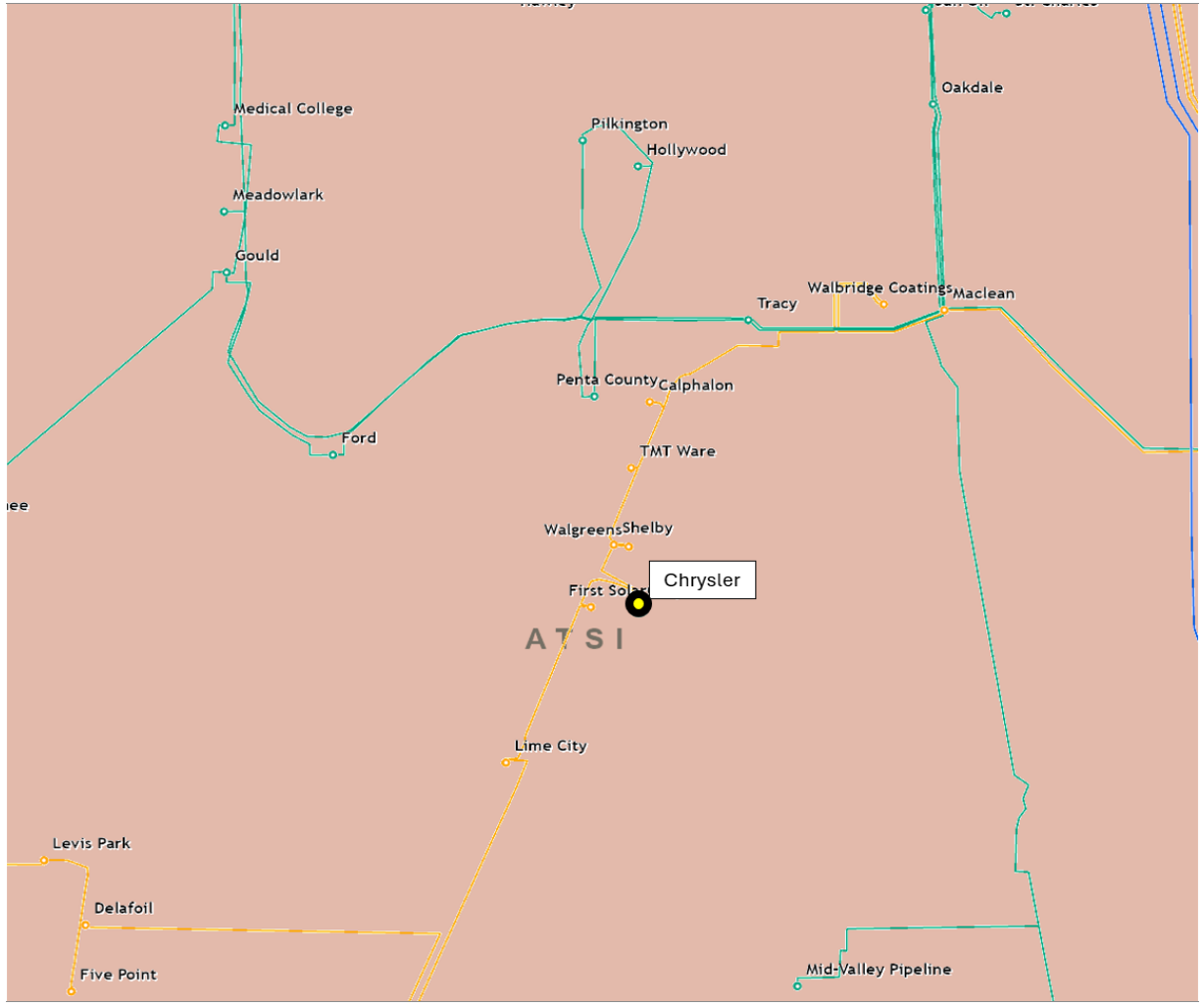
The existing Chrysler Substation 138 kV oil circuit breakers B13290, B13291, and B1392 and associated disconnect switches are 59 years old and approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

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.

Chrysler - Shelby 138 kV Line:
- Existing line rating: 278 / 343 / 327 / 396 MVA (SN/SE/WN/WE)
- Existing conductor rating: 278 / 343 / 327 / 420 MVA (SN/SE/WN/WE)

Chrysler - First Solar 138 kV Line:
- Existing line rating: 288 / 346 / 333 / 396 MVA (SN/SE/WN/WE)
- Existing conductor rating: 288 / 353 / 333 / 427 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

ATSI Transmission Zone M-3 Process
Newton Falls 138/69 kV Substation

Need Number: ATSI-2022-031

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting - 11/18/2022

Project Driver:

Equipment Condition/Performance/Risk

Infrastructure Resilience

Operational Flexibility and Efficiency

Specific Assumption Reference:

Global Considerations

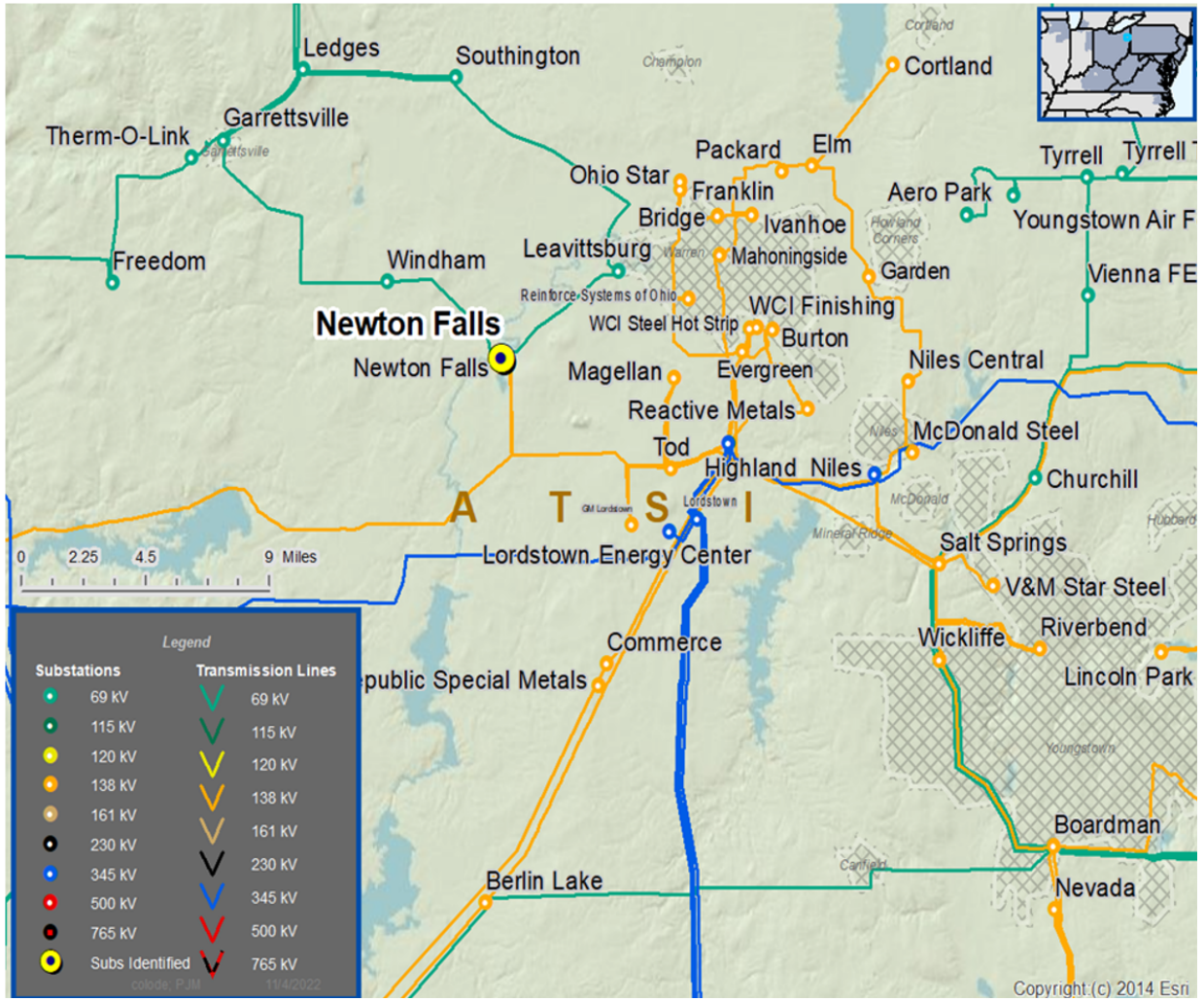
- *System reliability and performance*
- *Load at risk in planning and operational scenarios Add/Expand Bus Configuration*
- *Loss of substation bus adversely impacts transmission system performance*
- *Eliminate simultaneous outages to multiple networked elements under N-1 analysis*
- *Accommodate future transmission facilities*
- *Capability to perform system maintenance Build New Transmission Line*

Problem Statement:

The Newton Falls 138/69 kV Substation is served via two 138 kV lines, loss of one of those 138 kV lines results in the isolation of the 138-69 kV transformer.

The majority of the Newton Falls 69 kV area is operated as normally radial out of the Newton Falls substation. An N-1-1 outage will result in the loss of the 69 kV and 23 kV system loads. An N-1 outage results in the outage of approximately 25,000 customers and 69 MW of load.

Since 2018: The Hanna-Newton Falls 138 kV Line has experienced one (1) sustained outage. The GM Lordstown-Newton Falls 138 kV Line has experienced three (3) sustained outages.



ATSI Transmission Zone M-3 Process
Newton Falls 138/69 kV Substation

Need Number: ATSI-2022-031

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Convert Newton Falls Substation 138 kV yard into a six-breaker ring bus by installing three new 138 kV breakers.
- Build a new Whitman Station, a four-breaker 138 kV ring bus, near Reinforcements Systems of Ohio
- Cut into the Evergreen - Ivanhoe 138 kV Line 4.5 miles from Evergreen Substation and loop into the new Whitman Station four-breaker ring bus by constructing 0.6 miles of new transmission line.
- Construct five miles of new 138 kV line from Newton Falls Substation to the new four-breaker Whitman Station.
- Remote end upgrades at Bridge, Ohio Star Forge, Ivanhoe, Evergreen, and Franklin substations.

Transmission Line Ratings:

- Before Proposed Solution:
  - Evergreen - Ivanhoe 138 kV Line: 190 / 225 / 226 / 258 MVA (SN/SE/WN/WE)
- After Proposed Solution:
  - Evergreen - Whitman 138 kV Line: 200 / 242 / 226 / 286 MVA (SN/SE/WN/WE)
  - Whitman - Ivanhoe 138 kV Line: 200 / 242 / 226 / 286 MVA (SN/SE/WN/WE)
  - Whitman - Newton Falls 138 kV Line: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Alternatives Considered:

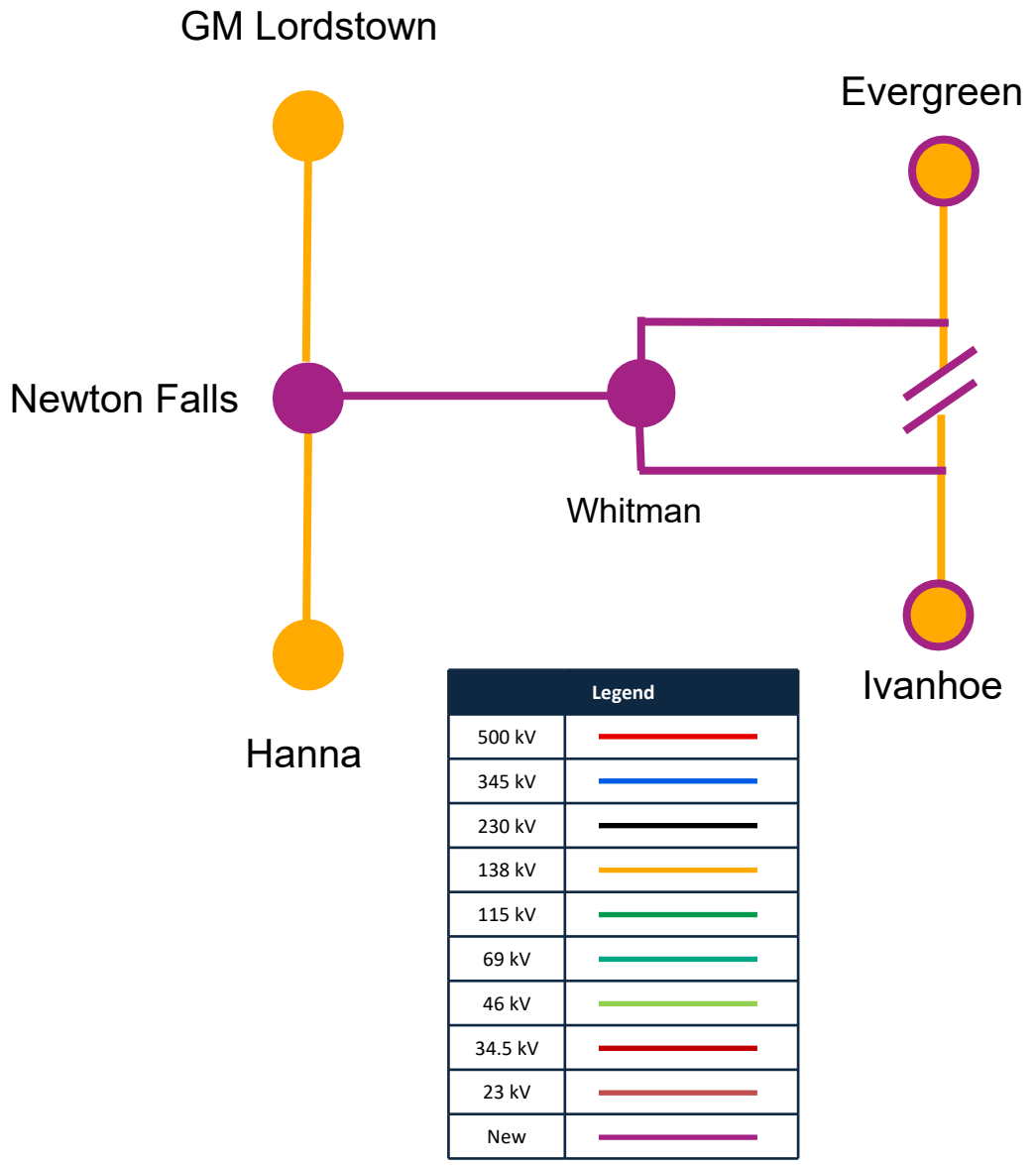
Maintain existing condition with elevated risk of customer outages under contingency scenarios.

Estimated Project Cost: $51.52M

Projected In-Service: 12/21/2028

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



ATSI Transmission Zone M-3 Process
Multiple Line Rehab/Rebuild

Need Number: ATSI-2019-059

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting - 07/24/2019

Project Driver:

Equipment Condition/Performance/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:

Line sections are exhibiting deterioration, increasing maintenance needs.

Transmission line is approaching end of life.

Transmission line ratings are limited by terminal equipment.

McDowell – Sharon (Y-300) 69 kV Line (18.8 Miles):

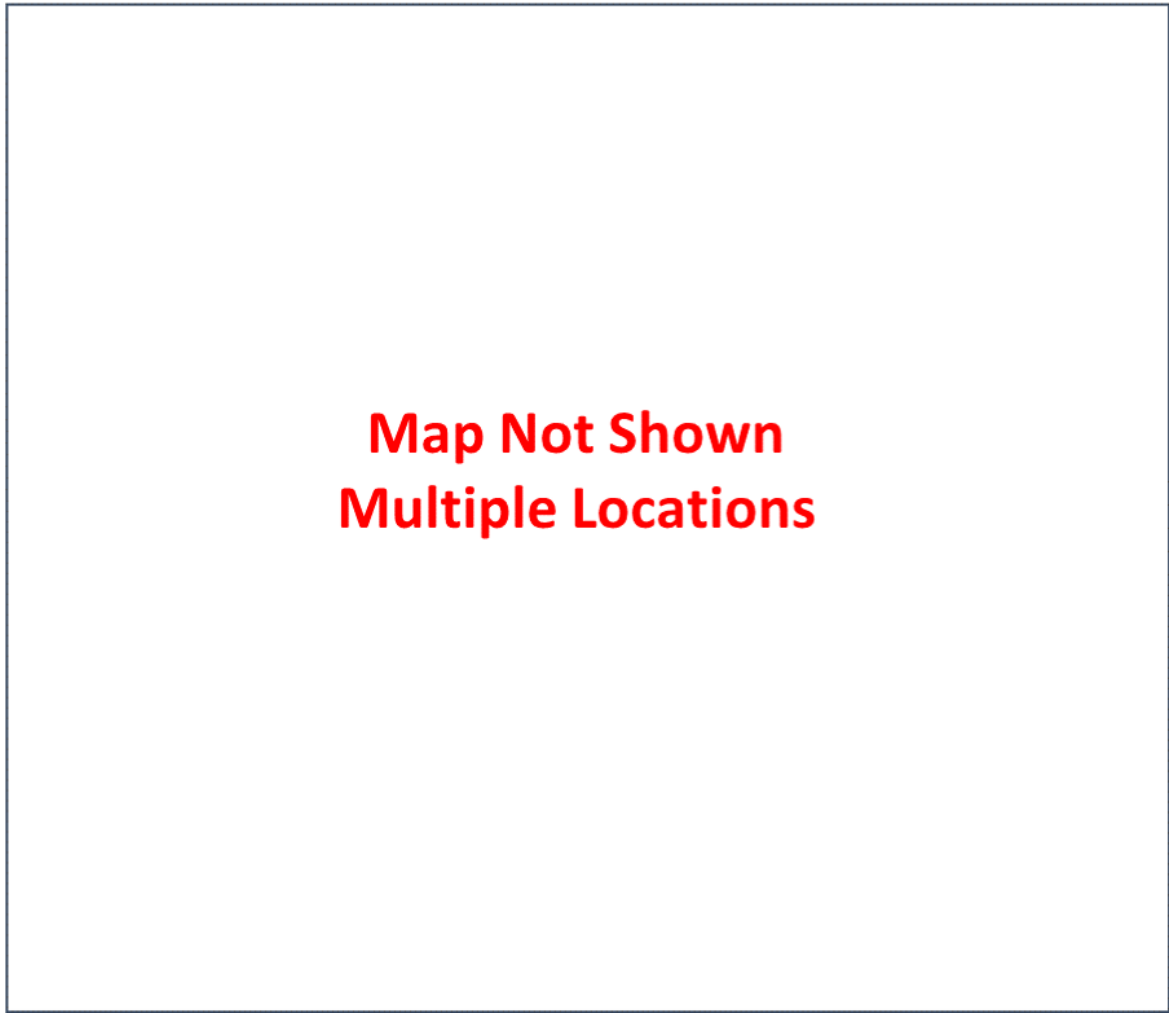
Transmission Line / Substation Locations: McDowell – Dept. of Corrections Existing Line Rating (SN / SE): 47 / 48 Existing Conductor Rating (SN / SE): 57 / 56 Limiting Terminal Equipment: Relay Length of Line (miles): 6.0 Identified Structures (end of life / total): 195 / 235 (83% Failure Rate) Failure reasons: Woodpecker holes, decay and age.

Transmission Line / Substation Locations: Dept. of Corrections – Mercer Forge Existing Line Rating (SN / SE): 47 / 56 Existing Conductor Rating (SN / SE): 47 / 56 Limiting Terminal Equipment: - Length of Line (miles): 1.0 Identified Structures (end of life / total): 195 / 235 (83% Failure Rate) Failure reasons: Woodpecker holes, decay and age.

Transmission Line / Substation Locations: Mercer Forge – Reznor Tap Existing Line Rating (SN / SE): 47 / 56 Existing Conductor Rating (SN / SE): 47 / 56 Limiting Terminal Equipment: - Length of Line (miles): 0.3 Identified Structures (end of life / total): 195 / 235 (83% Failure Rate) Failure reasons: Woodpecker holes, decay and age.

Transmission Line / Substation Locations: Reznor Tap – Mercer Tap Existing Line Rating (SN / SE): 47 / 56 Existing Conductor Rating (SN / SE): 47 / 56 Limiting Terminal Equipment: - Length of Line (miles): 1.1 Identified Structures (end of life / total): 195 / 235 (83% Failure Rate) Failure reasons: Woodpecker holes, decay and age.

Transmission Line / Substation Locations: Mercer Tap – Sharon 69kV Existing Line Rating (SN / SE): 72 / 72 Existing Conductor Rating (SN / SE): 80 / 96 Limiting Terminal Equipment: Relay Length of Line (miles): 10.4 Identified Structures (end of life / total): 195 / 235 (83% Failure Rate) Failure reasons: Woodpecker holes, decay and age.



ATSI Transmission Zone M-3 Process
Multiple Line Rehab/Rebuild

Need Number: ATSI-2019-059

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Rebuild the Sharon - McDowell 69 kV Line, including tap structures and lines up to customer facilities (19.2 miles total).
- Upgrade terminal equipment at Sharon and McDowell substations, including station conductor, relays, CCVTs, and disconnect switches.
- Replace line switches A-161 & A-179 (4 miles from McDowell Substation).

Sharon - Mercer 69 kV Line (no ratings change):

- Before Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)
- After Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Mercer - Reznor Thomas 69 kV Line:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Reznor Thomas - Mercer Forge 69 kV Line:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Mercer Forge - Department of Corrections 69 kV Line:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Department of Corrections - McDowell 69 kV Line:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Alternatives Considered:

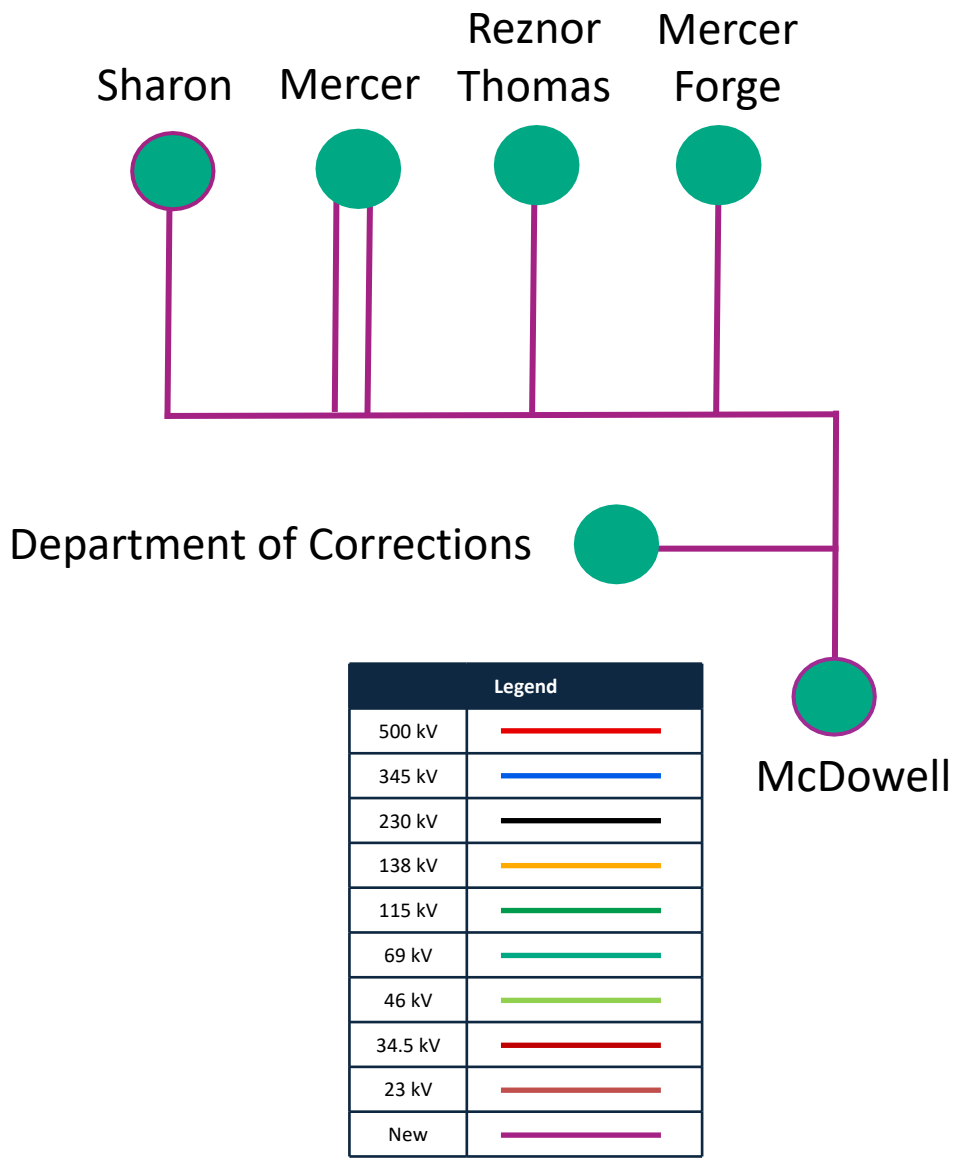
Maintain existing condition with elevated risk of failure and customer outages.

Estimated Project Cost: $63.7M

Projected In-Service: 12/31/2030

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



ATSI Transmission Zone M-3 Process
New Customer Connection

Need Number: ATSI-2025-033

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting - 11/14/2025

Project Driver:

Customer Service

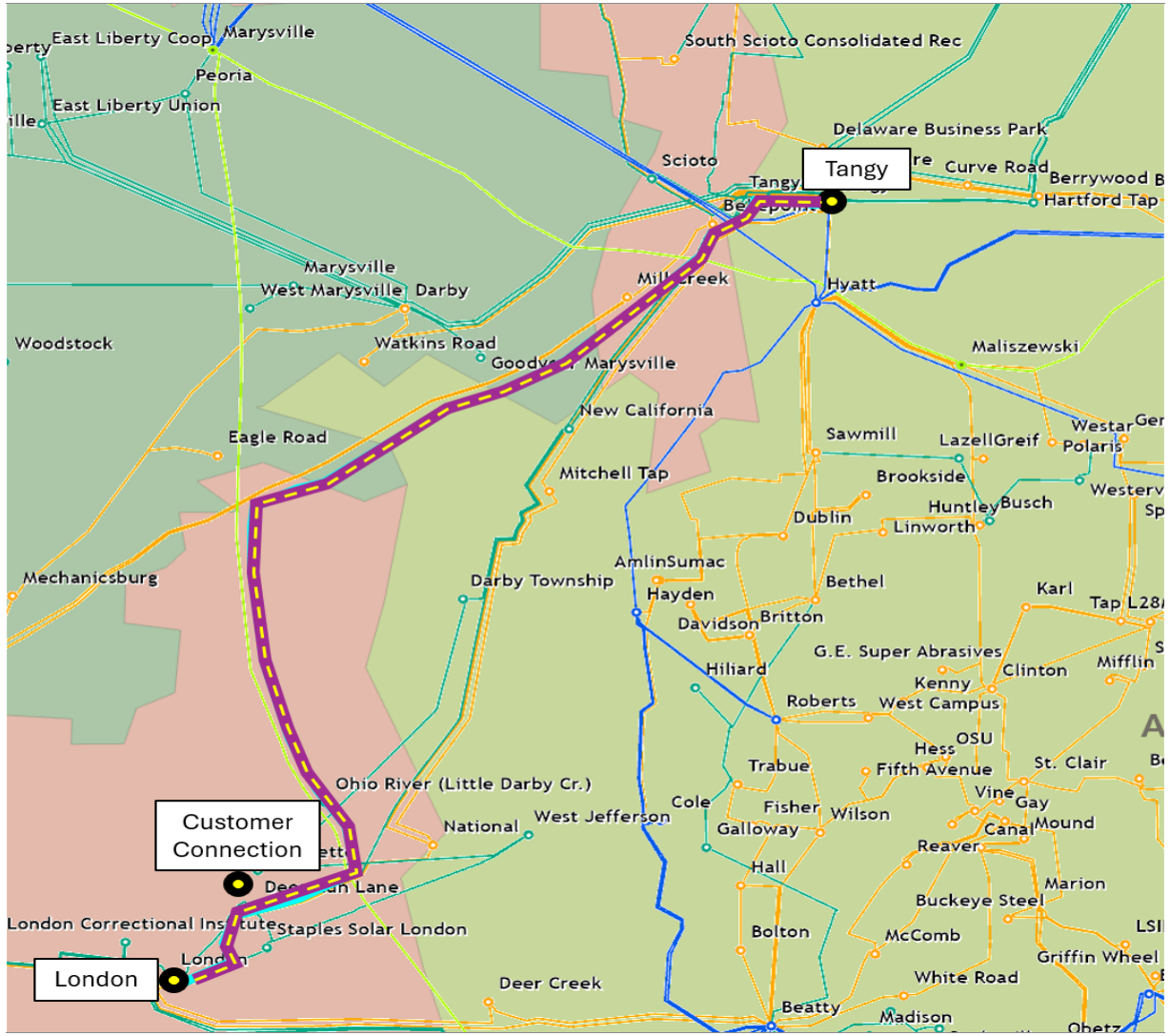
Specific Assumption Reference:

New Customer connection request will be evaluated based on FirstEnergy's "Requirements for Transmission Connected Facilities" document and FirstEnergy's "Transmission Planning Criteria" document

Problem Statement:

New Customer Connection – A customer located near the Londan - Tangy 138 kV Line requested a new 138 kV delivery point. The anticipated load of the new customer connection is 14 MVA. The service location is approximately 2.9 miles from London Substation.

The requested in-service date is 6/1/2027.



ATSI Transmission Zone M-3 Process
New Customer Connection

Need Number: ATSI-2025-033

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Install two main-line switches and one tap switch on the London - Tangy 138 kV Line
- Construct approximately 0.2 miles of transmission line to customer substation
- Adjust relay settings at London and Tangy substations
- Install revenue metering

Alternatives Considered:

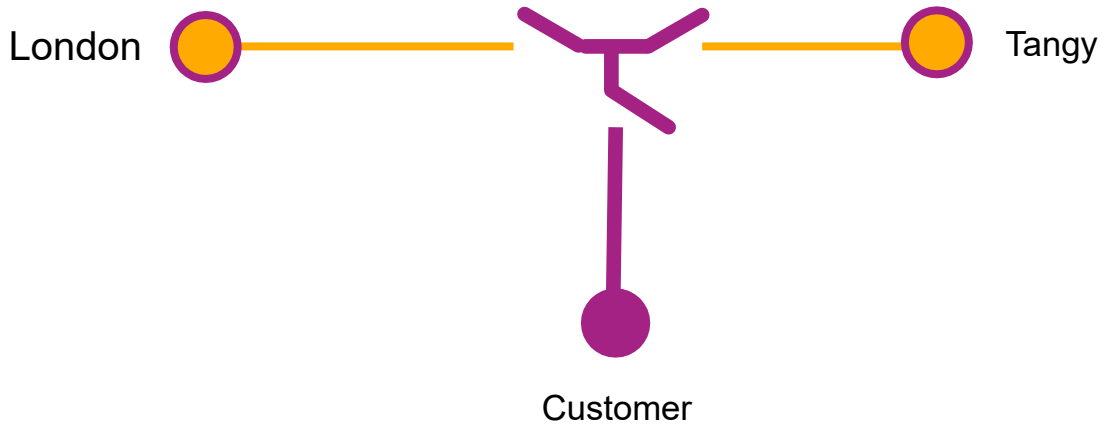
No reasonable alternatives to meet customer's request due to the proximity to the London - Tangy 138 kV Line.

Estimated Project Cost: $3.72M

Projected In-Service: 06/01/2027

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



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

ATSI Transmission Zone M-3 Process
New Customer Connection

Need Number: ATSI-2025-034

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting - 11/14/2025

Project Driver:

Customer Service

Specific Assumption Reference:

New Customer connection request will be evaluated based on FirstEnergy's "Requirements for Transmission Connected Facilities" document and FirstEnergy's "Transmission Planning Criteria" document

Problem Statement:

New Customer Connection – A customer located near the Nottingham - Yager No. 1 138 kV Line requested a new 138 kV delivery point. The anticipated load of the new customer connection is 3.8 MVA. The service location is approximately 13.6 miles from Yager Substation.

The requested in-service date is 11/1/2027

ATSI Transmission Zone M-3 Process
New Customer Connection

Need Number: ATSI-2025-034

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Install two main-line switches and one tap switch on the Nottingham - Yager No. 1 138 kV Line
- Construct approximately 850 feet of transmission line to the customer substation
- Adjust relay settings at Nottingham and Yager substations
- Install revenue metering

Alternatives Considered:

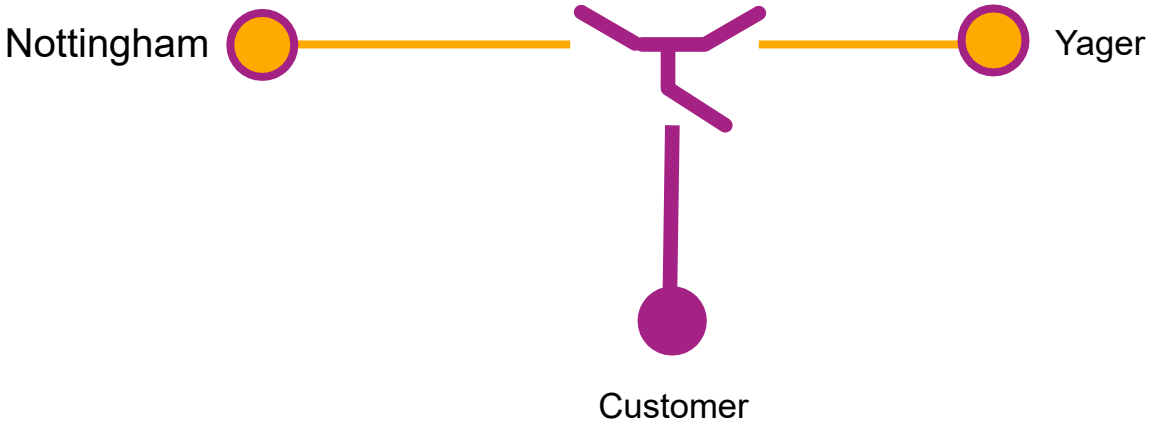
No reasonable alternatives to meet customer's request due to the proximity to the Nottingham - Yeager No. 1 138 kV Line

Estimated Project Cost: $2.32M

Projected In-Service: 04/19/2029

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



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

ATSI Transmission Zone M-3 Process
New Wholesale Connection

Need Number: ATSI-2025-030

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting 10/17/2025

Project Driver:

Customer Service

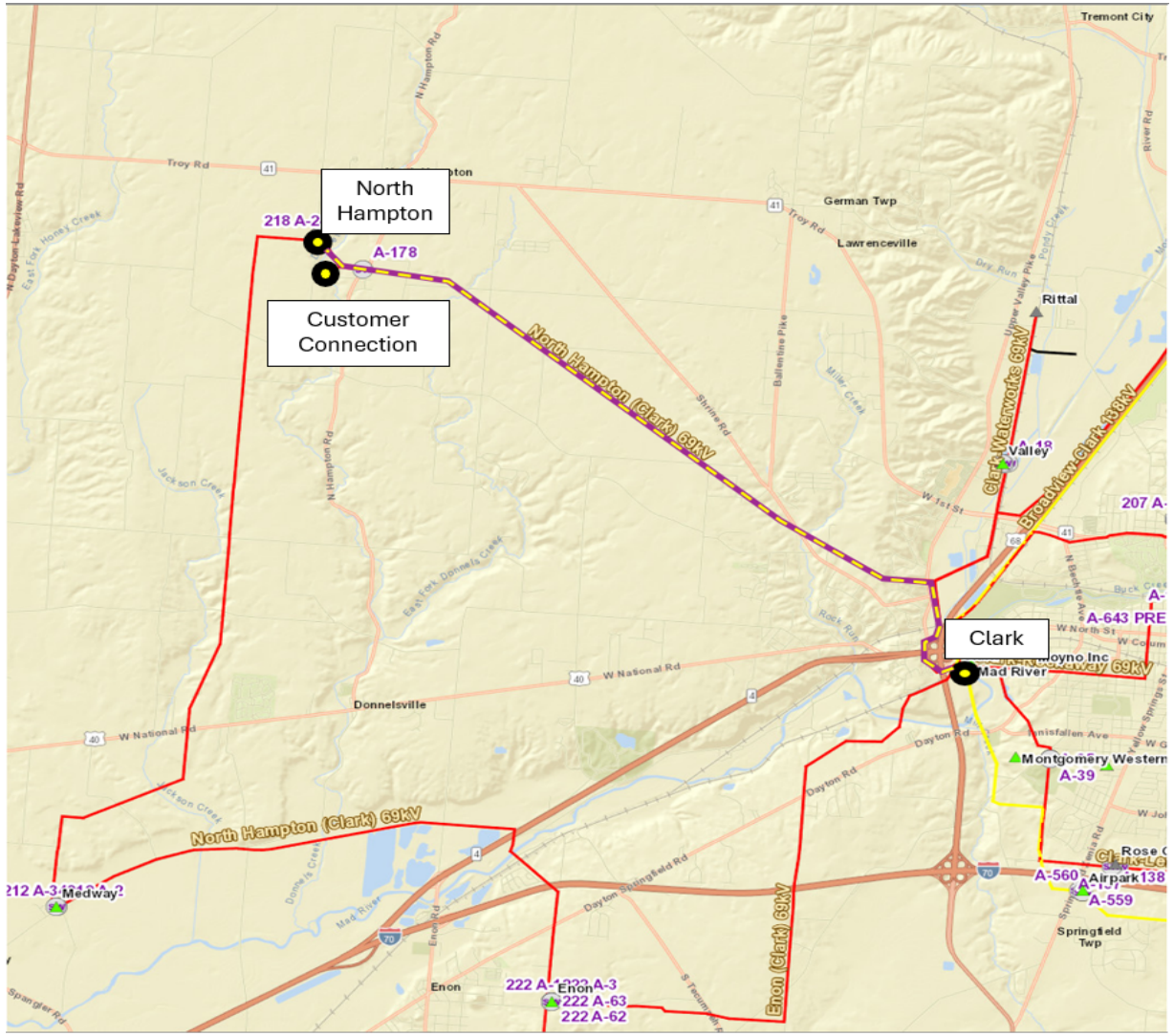
Specific Assumption Reference:

New wholesale connection request will be evaluated based on FirstEnergy's "Requirements for Transmission Connected Facilities" document and FirstEnergy's "Transmission Planning Criteria" document

Problem Statement:

New Wholesale Connection – A customer has requested a new 69 kV delivery point near the North Hampton (Clark) 69 kV Line. The anticipated load of the new customer connection is 14 MVA. The request is approximately 5.3 miles from North Hampton Substation.

Requested in-service date is 6/1/2028.



ATSI Transmission Zone M-3 Process
New Wholesale Connection

Need Number: ATSI-2025-030

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Install two main-line switches and one radial tap switch on the Clark - North Hampton 69 kV Line
- Construct approximately 200 feet of transmission line to the customer substation
- Adjust relay settings at North Hampton and Clark substations
- Install revenue metering

Alternatives Considered:

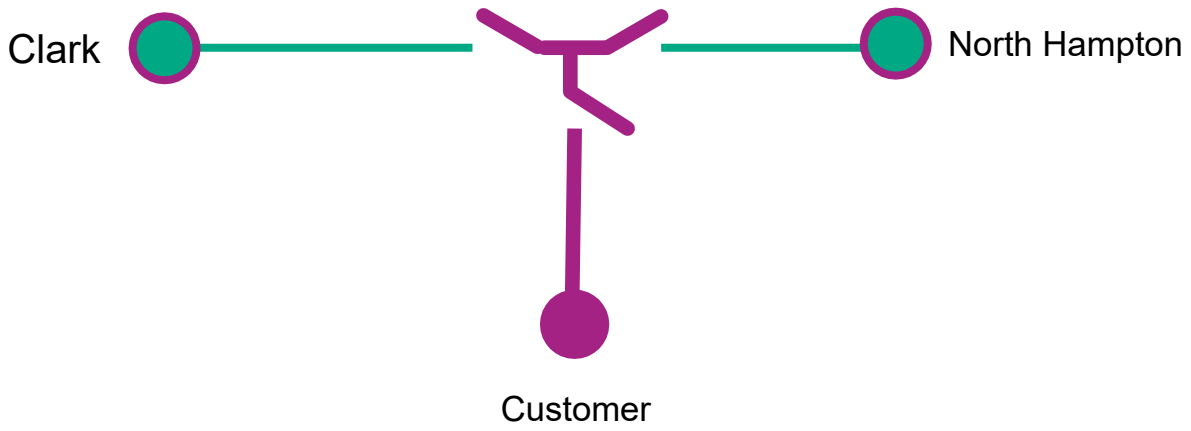
No reasonable alternatives to meet customer's request due to the proximity to the Clark - North Hampton 69 kV Line

Estimated Project Cost: $2.25M

Projected In-Service: 06/01/2028

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



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

ATSI Transmission Zone M-3 Process
Black River - Willow Creek 69 kV

Need Number: ATSI-2025-035

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Previously Presented: Need Meeting 11/14/2025

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

- *System reliability/performance*
- *Substation/Line equipment limits*
- *Transmission line switches*
- *Limited availability of spare parts and/or vendor technical support*

Problem Statement:

Manually operated switches A-66 and A-67 on the Black River - Willow Creek 69 kV Line are 50 years old and approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

The obsolete 2-way design and assembly of these switches is subject to dimensional changes in the supporting structure such as warping or deflection. These concerns may result in mis-operation with the potential for unintended arcing.

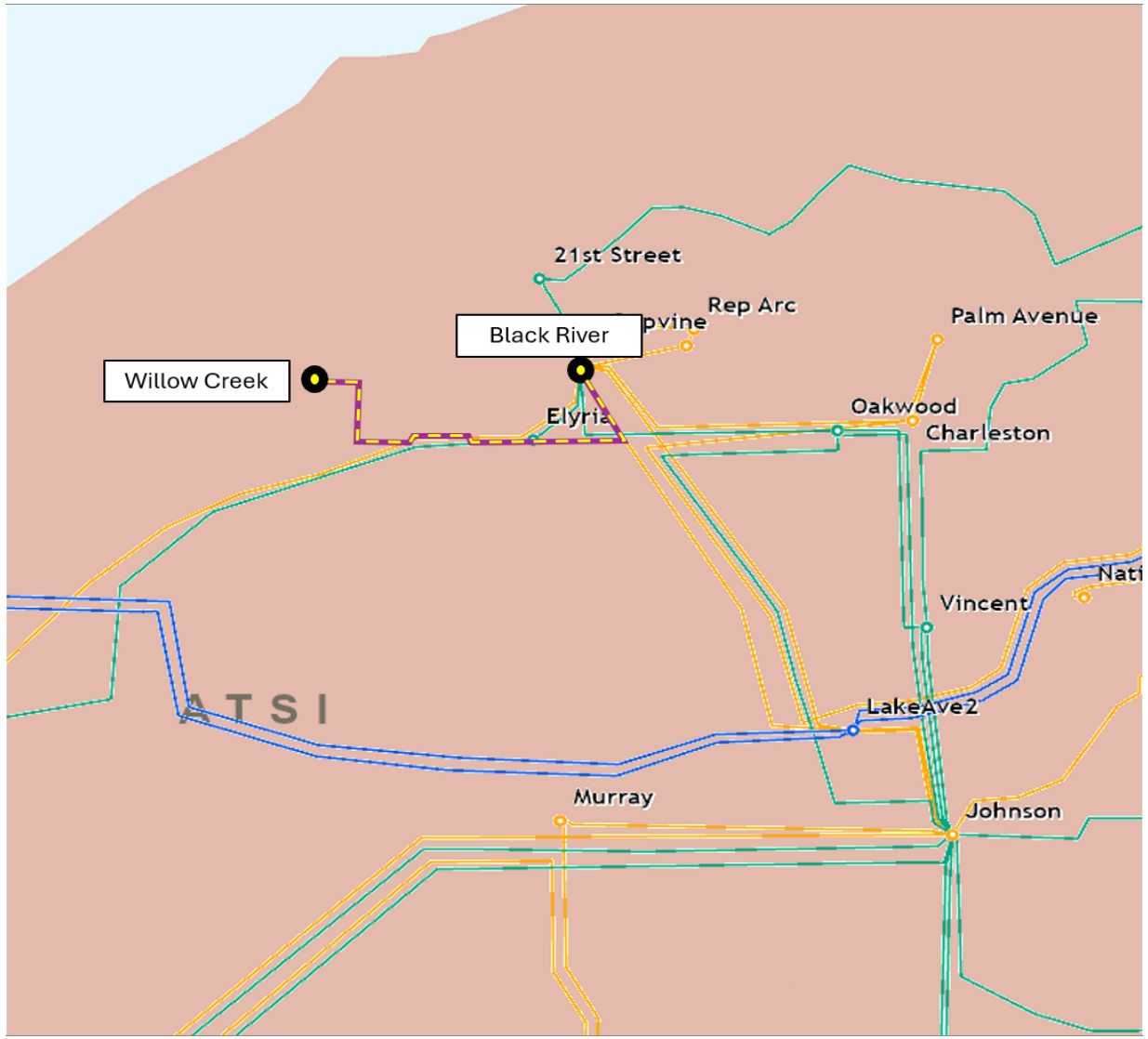
The line is currently limited by terminal equipment.

Thirty-Sixth Street Tap - Willow Creek Tap 69 kV Line:

- Existing Line Ratings: 82 / 103 / 108 / 124 MVA (SN/SE/WN/WE)
- Existing Conductor Ratings: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)

Black River Tap - Willow Creek Tap 69 kV Line:

- Existing Line Ratings: 82 / 103 / 108 / 124 MVA (SN/SE/WN/WE)
- Existing Conductor Ratings: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)



ATSI Transmission Zone M-3 Process
Black River - Willow Creek 69 kV

Need Number: ATSI-2025-035

Process Stage: Solution Meeting SRRTEP-W - 12/12/2025

Proposed Solution:

- Replace manually operated switches A-66 and A-67 on the Black River - Willow Creek 69 kV Line.
- New switches will be equipped with SCADA controlled motor operators
- Replace the existing structure with independent steel structures for the switches.

Black River Tap - Willow Creek Tap 69 kV Line:

- Before Proposed Solution: 82 / 103 / 108 / 124 MVA (SN/SE/WN/WE)
- After Proposed Solution: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)

Alternatives Considered:

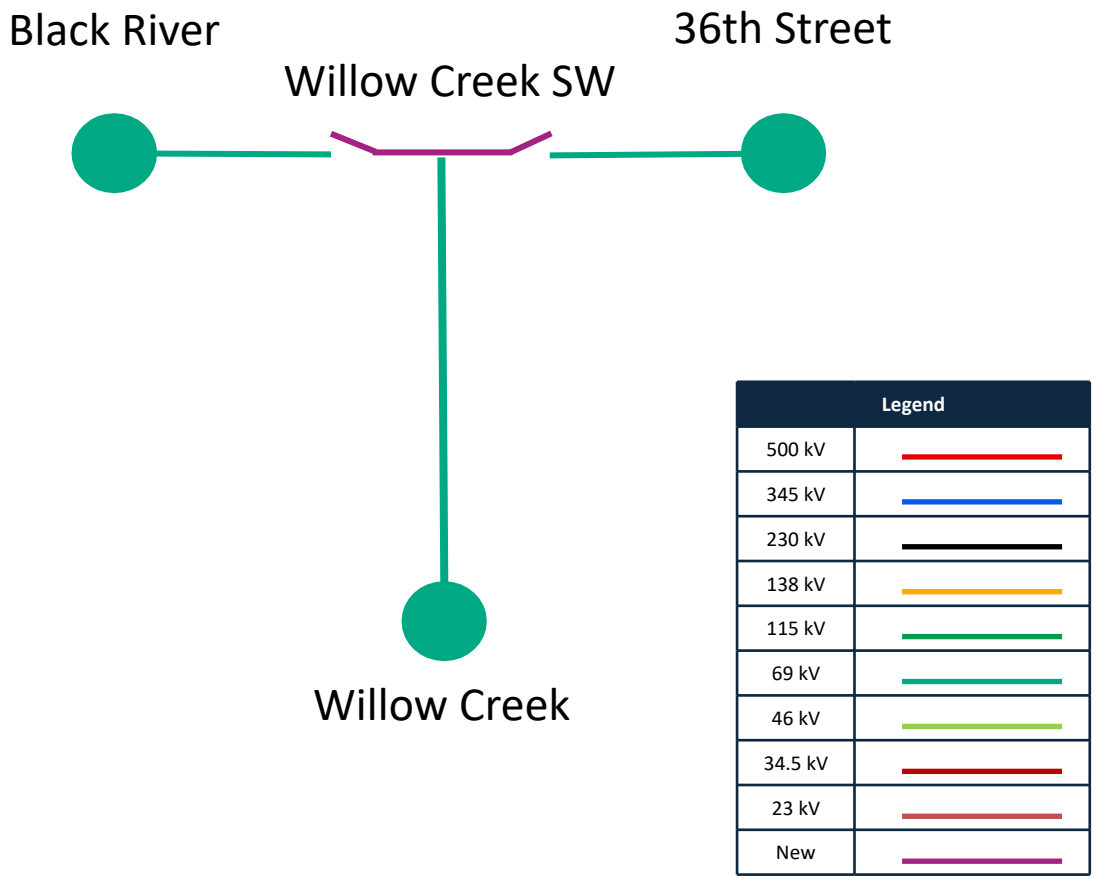
Maintain existing condition with elevated risk of equipment failure due to deteriorated conditions

Estimated Project Cost: $1.53M

Projected In-Service: 12/31/2026

Project Status: Conceptual

Model: 2024 RTEP - 2029 Summer & Winter 50/50 Case



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

12/02/2025– V1 – Original version posted to pjm.com