

Subregional RTEP Committee – Western FirstEnergy Supplemental Projects

July 18, 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

Need Number: ATSI-2025-019
Process Stage: Need Meeting – 07/18/2025

Supplemental Project Driver(s):
Customer Services

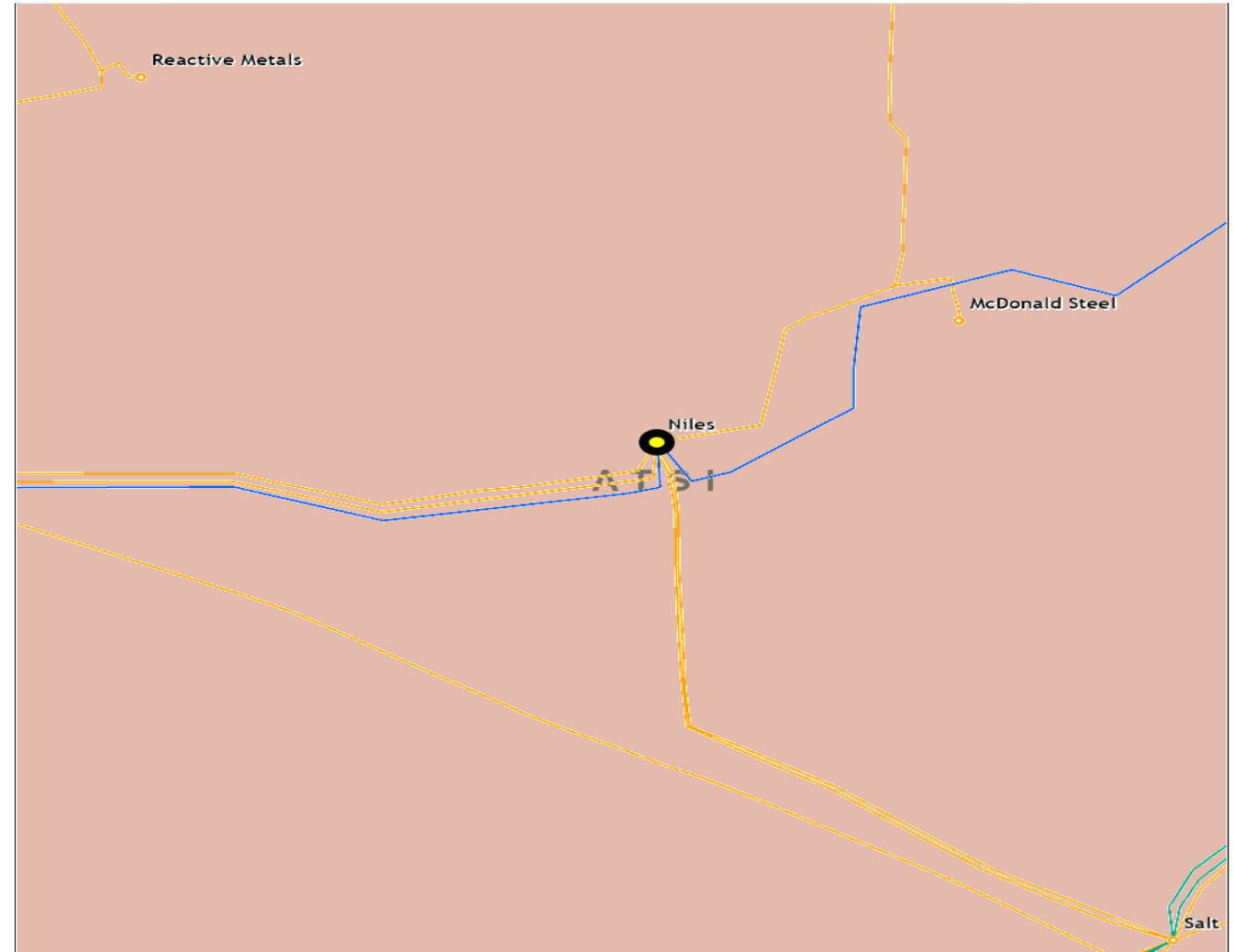
Specific Assumption Reference(s):

- 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 requested a new 138 kV delivery point near the Niles Substation. The anticipated load of the new customer connection is 300 MVA. The customer location is approximately 200 feet from Niles Substation.

Model: 2023 Series 2028 Summer RTEP 50/50



Need Number: ATSI-2025-021

Process Stage: Need Meeting – 07/18/2025

Project Driver(s):

Operational Flexibility and Efficiency

Equipment Performance and Risk

Infrastructure Resilience

Specific Assumption Reference(s):

System Performance Global Factors

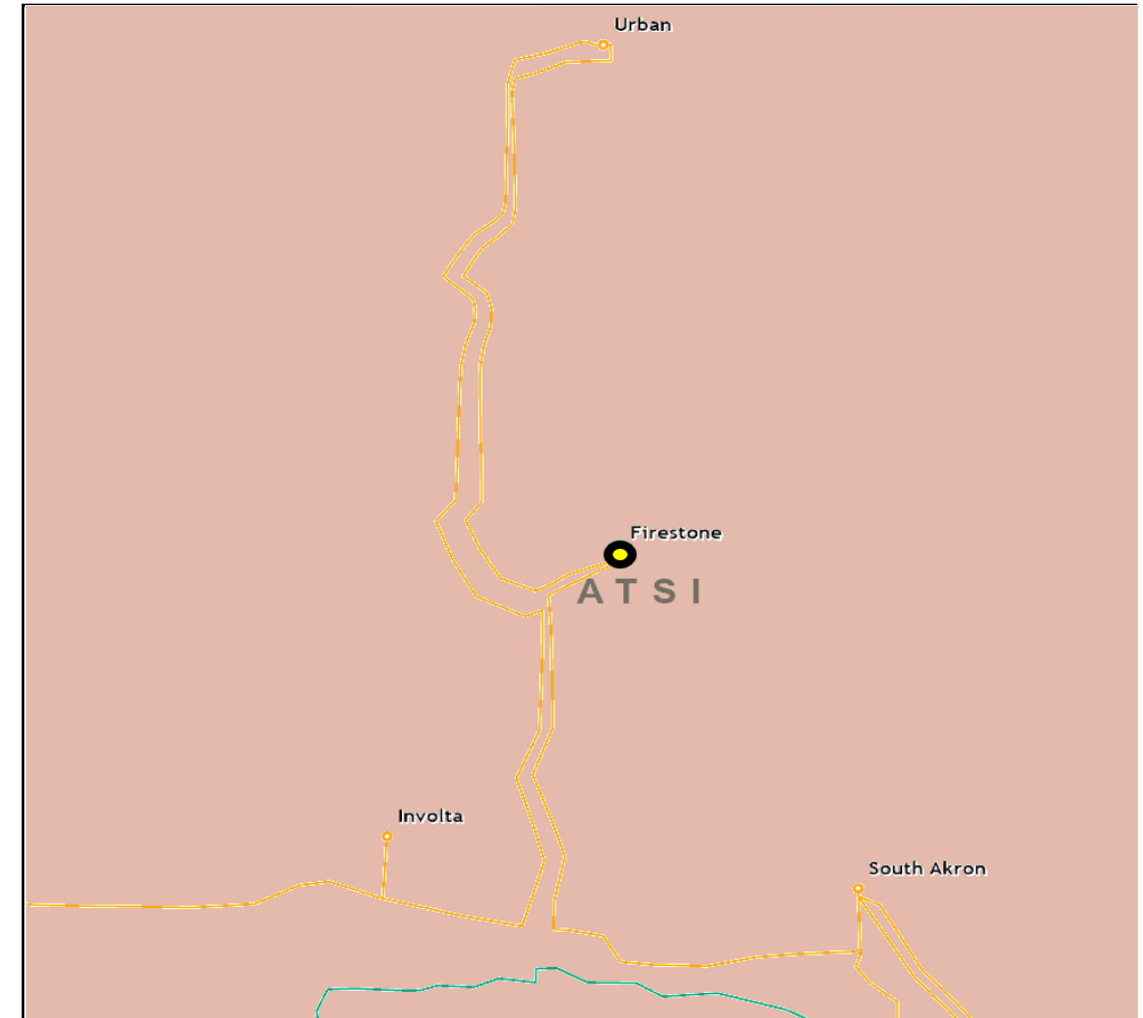
- System reliability and performance
- Load at risk in planning and operational scenarios
- Substation/line equipment limits

Add/Expand Bus Configuration

- Loss of substation bus adversely impacts transmission system performance
- Eliminate simultaneous outages to multiple networked elements under N-1 analysis
- Capability to perform system maintenance

Problem Statement:

- Firestone Substation's 138 kV bus is a partial ring bus configuration with three breakers and two normally open switches.
- A failure of the bus tie circuit breaker will result in an outage of the entire 138 kV bus and substation, including two distribution transformers. This contingency impacts an industrial customer and results in a total load loss of 7 MVA
- This contingency also interrupts the South Akron-Urban 138 kV Line resulting in a single ten-mile-long radial feed to Urban Substation.



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 Crossland – Sharon 138 kV Z-112 Line Customer Connection

Need Number: ATSI-2025-013
Process Stage: Solution Meeting – 07/18/2025
Previously Presented: Need Meeting – 04/11/2025

Supplemental Project Driver(s):
Customer Service

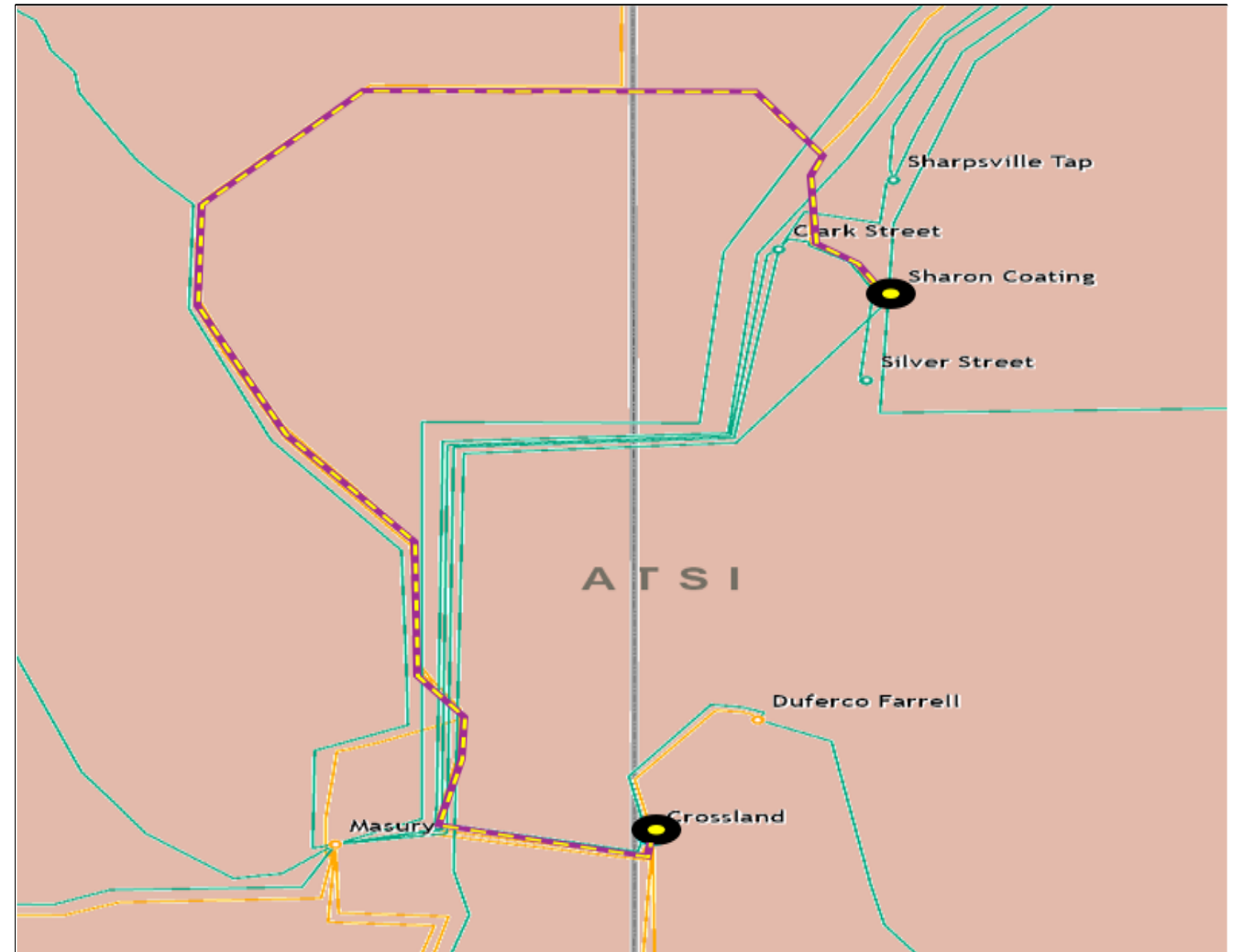
Specific Assumption Reference(s):

- 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 requested a new 138 kV delivery point near the Crossland - Sharon 138 kV Z-112 Line. The anticipated load of the new customer connection is 80 MVA. The request is approximately 6 miles from Crossland Substation.

Requested In-Service Date:
June 11, 2027





ATSI Transmission Zone M-3 Process

Crossland – Sharon 138 kV Z-112 Line Customer Connection

Need Number: ATSI-2025-013
Process Stage: Solution Meeting – 07/18/2025
Previously Presented: Need Meeting – 04/11/2025

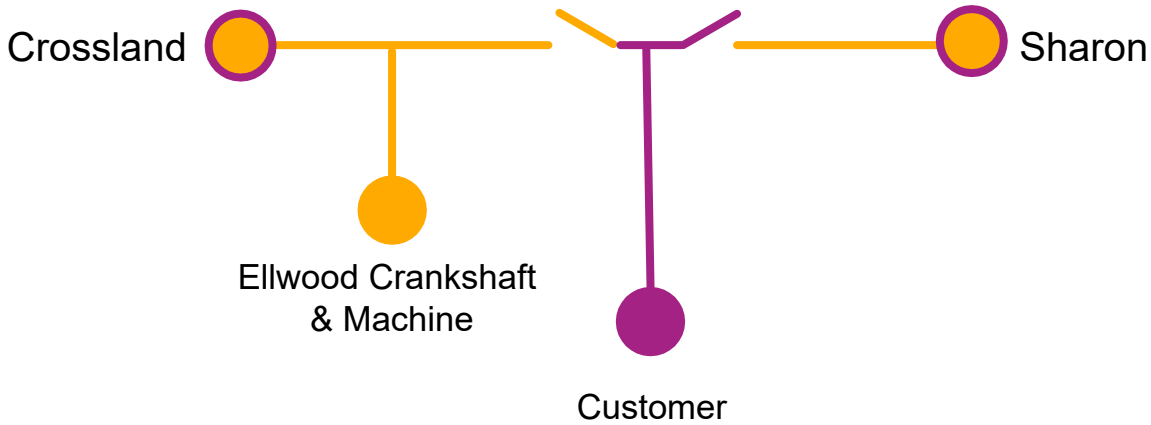
Proposed Solution:

- Install one main-line switch and one tap switch
- Construct approximately 200 feet of transmission line
- Adjust relay settings at Crossland and Sharon substations
- Install revenue metering

Alternatives considered:

No reasonable alternatives to meet customer’s request due to proximity to the Crossland – Sharon 138 kV Z-112 Line.

Estimated Project Costs: \$0.9M
Project In-Service Date: 6/11/2027
Status: Conceptual



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 Homer – Wellington 69 kV Line Customer Connection

Need Number: ATSI-2025-014
Process Stage: Solution Meeting – 07/18/2025
Previously Presented: Need Meeting – 04/11/2025

Supplemental Project Driver(s):
Customer Service

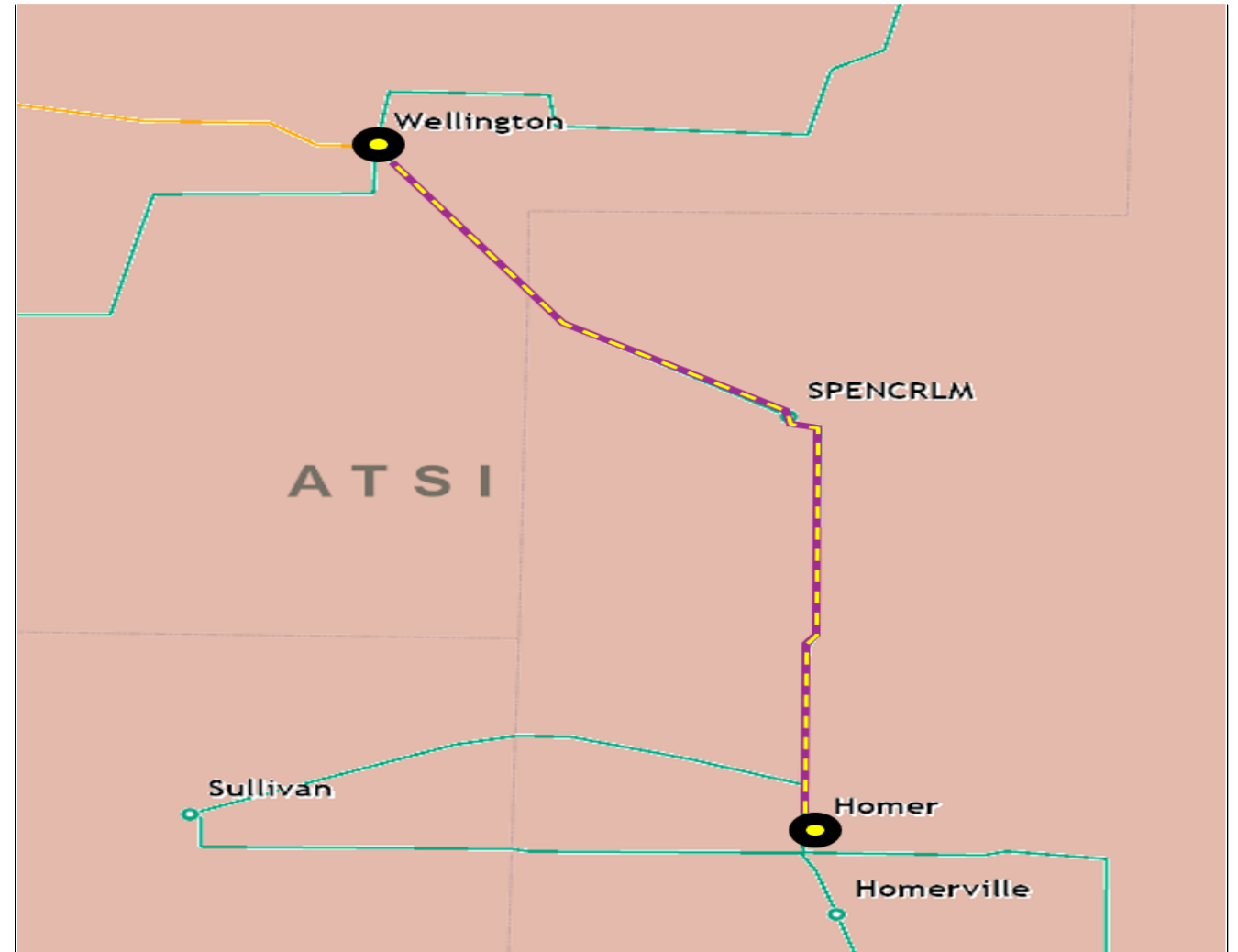
Specific Assumption Reference(s):

- 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 requested a new 69 kV delivery point near the Homer – Wellington 69 kV Line. The anticipated load of the new customer connection is 6.5 MVA. The request is approximately 5.8 miles from Homer Substation.

Requested In-Service Date:
March 14, 2026





ATSI Transmission Zone M-3 Process Homer – Wellington 69 kV Line Customer Connection

Need Number: ATSI-2025-014
Process Stage: Solution Meeting – 07/18/2025
Previously Presented: Need Meeting – 04/11/2025

Proposed Solution:

- Install two main-line switches and one tap switch
- Construct approximately 0.1 miles of 69 kV transmission line
- Adjust relay settings at Homer and Wellington substations
- Install revenue metering

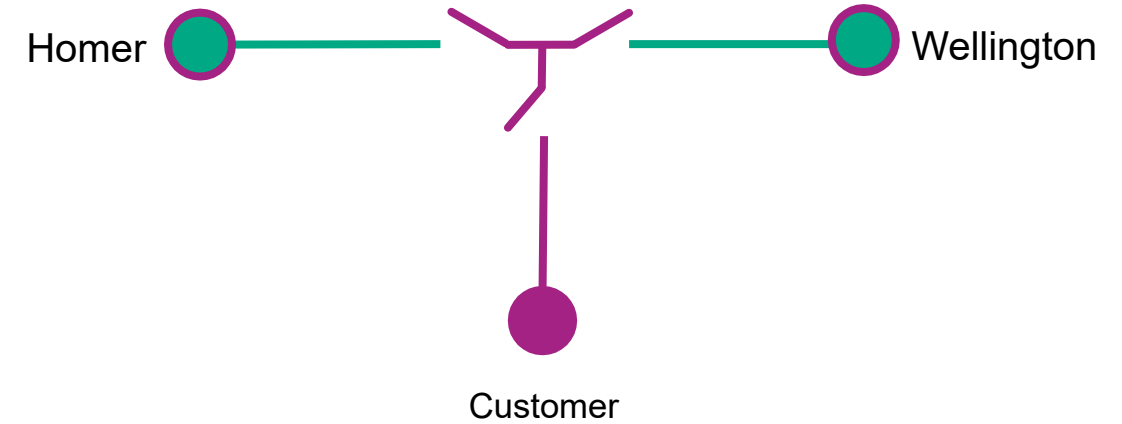
Alternatives considered:

No reasonable alternatives to meet customer's request due to proximity to the Homer – Wellington 69 kV Line.

Estimated Project Costs: \$0.9M

Project In-Service Date: 3/15/2026

Status: Conceptual



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

Changes to the Existing Projects

s1802: Originally presented in 09/28/2018 and 10/26/2018 SRRTEP Western meetings.
Changes are marked in **red**

Project Driver(s):

Equipment Material Condition, Performance and Risk
Operational Flexibility and Efficiency

Specific Assumption Reference(s)

Line Condition Rebuild / Replacement

Assessment of existing transmission lines for equipment characteristics that are at, or beyond their existing service life, or contain components that are obsolete.

- Aged or deteriorated wood pole transmission line structures.
- Negatively impact customer outage frequency and/or durations.
- Demonstrate an increasing trend in maintenance findings and/or costs

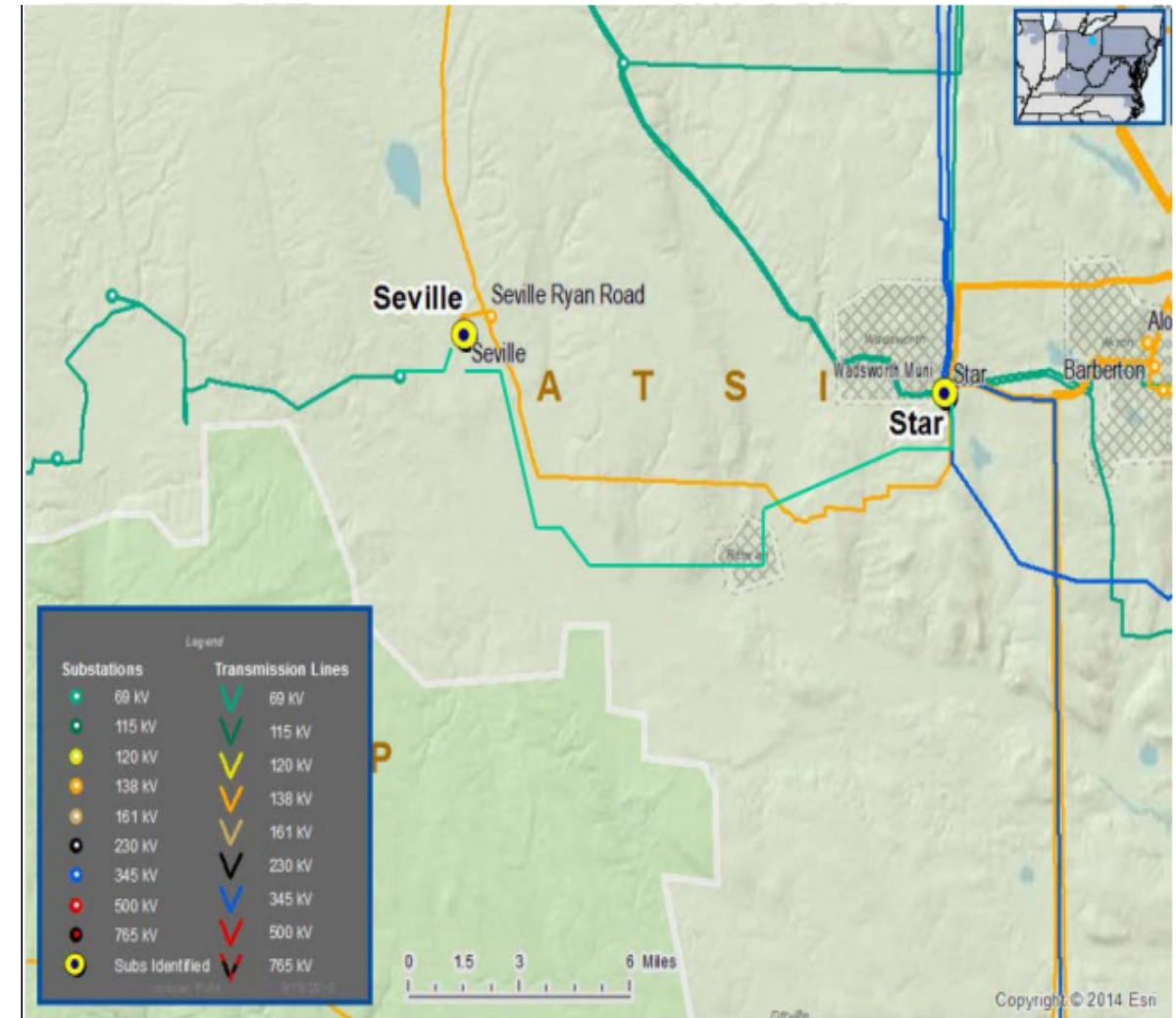
Network Radial Transmission Line

- Radial lines that serve multiple delivery points.

Problem Statement

Star-Seville (Rittman) 69 kV Condition Assessment (Approximately 18 miles)

- Identified obsolete and deteriorated equipment.
 - 56-year-old construction; poor inspection results, 82 % rejection rate.
 - Negative outage history over past 5 years;
 - Approximately 30 repair records over the past 5 years; increasing trend.
- Multiple transmission delivery points (3) impacted.
- Radial 69 kV transmission line with approximately 30 MWs and approximately 7,700 customer at risk.





ATSI Transmission Zone M-3 Process Star-Seville (Rittman) 69 kV Line – s1802 Scope Change

Potential Solution:

Star-Seville (Rittman) 69 kV Line

- Rebuild/reconductor approximately 18 miles of the existing Star-Seville (Rittman) 69 kV Line

Homer-Seville 69kV Line

- Reconductor the line from Acme Hill Substation to Seville Substation (structure 54A to 187), approximately 1.9 miles

Rittman 69 kV Substation – Terminal equipment to be replaced includes:

- Spark gap arresters, substation conductor, and disconnect switch

Star 69 kV Substation – Terminal equipment to be replaced includes:

- Substation conductor

Transmission Line Ratings:

- Star-Seville (Rittman) 69 kV Line
 - Before Proposed Solution: 44 / 45 / 50 / 50 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)
- Homer-Seville 69 kV Line (Seville T-Seville Branche)
 - Before Proposed Solution: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)
- Homer-Seville 69 kV Line (Seville T-Acme Hill Branche)
 - Before Proposed Solution: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 82 / 103 / 108 / 124 MVA (SN/SE/WN/WE)

Alternatives Considered:

- Maintain existing condition and elevated risk of failure.

Estimated Project Cost: ~~\$18.6 M~~ \$36.5 M

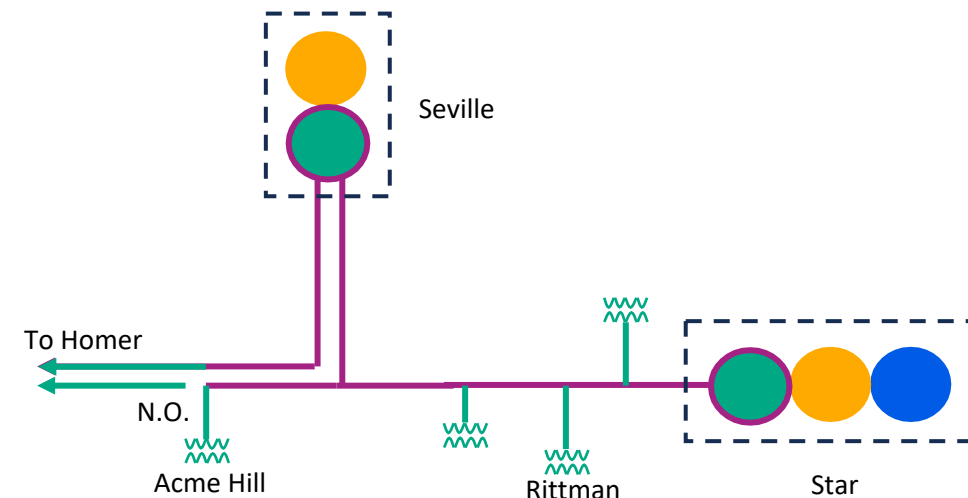
Projected IS Date: ~~12/31/2021~~ 12/31/2027

Status: ~~Conceptual~~ Engineering

Reason for Revision:

- The scope of reconductoring the line Homer-Seville 69 kV Line from Acme Hill Substation to Seville Substation was added.

SRRTEP Committee: Western – FirstEnergy Supplemental 07/18/2025



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

7/08/2025– V1 – Original version posted to pjm.com

7/16/2025 – V2 – Updated bubble diagram for s1802