

Subregional RTEP Committee – Western FirstEnergy Supplemental Projects

ATSI Transmission Zone

October 16, 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

Need Number: ATSI-2026-066

Process Stage: Need Meeting 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

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 Carlisle-Shinrock 138 kV Line was constructed approximately 56 years ago and is approaching end of life. It is approximately 30-miles long with 315 transmission line structures.

Per recent inspections, the line is exhibiting deterioration resulting in increased maintenance costs. Inspection findings include:

- 75% (236) of wood pole structures have measurable shell rot
- 9% (29) of wood pole structures have cracked crossarms

There have been four unscheduled sustained outages on this line in the past five years (2021-2025)

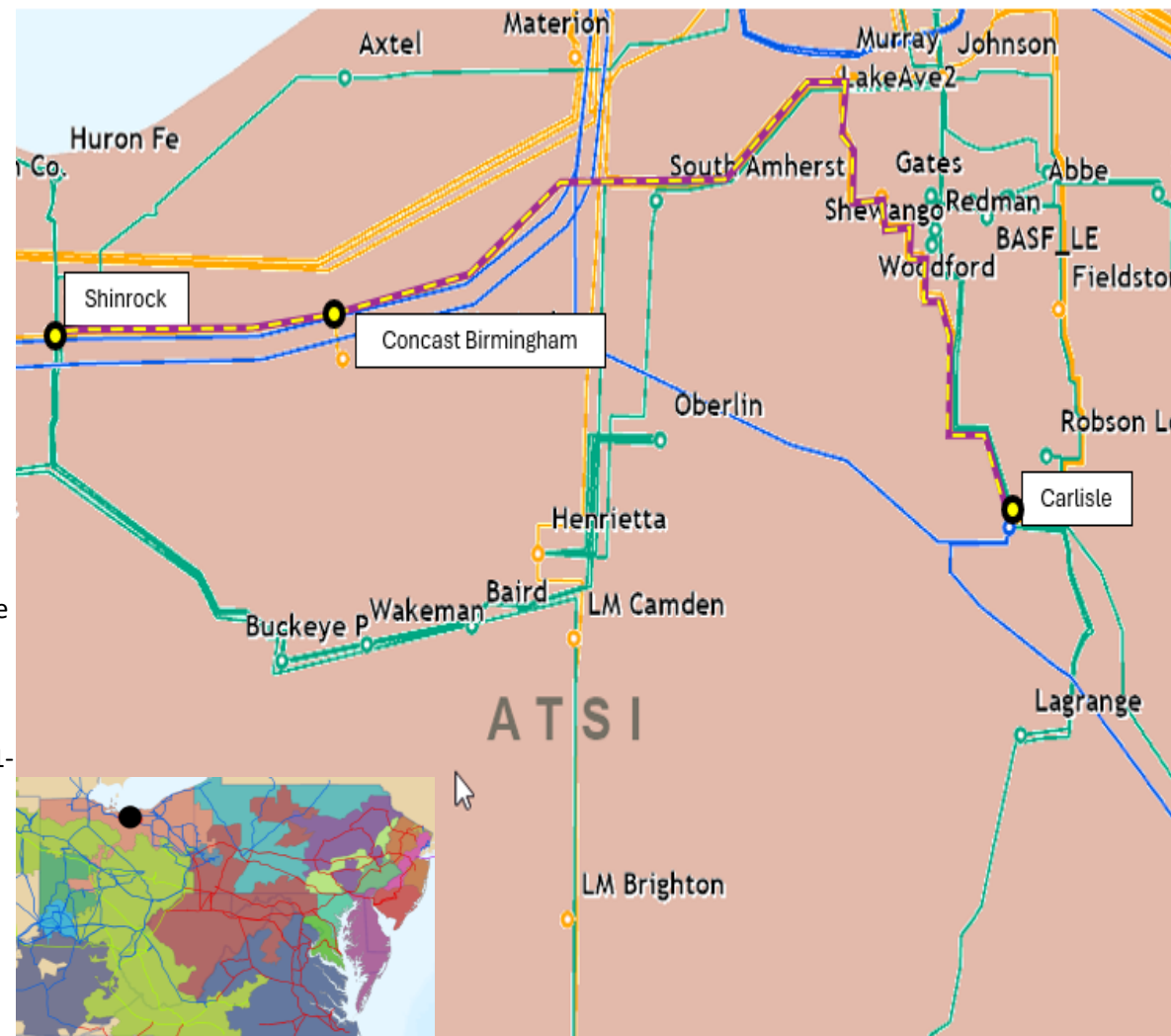
Existing Transmission Line Ratings:

Carlisle - Concast Birmingham Tap 138 kV Line:

220 / 268 / 254 / 324 MVA (SN/SE/WN/WE)

Concast Birmingham Tap - Shinrock 138 kV Line:

220 / 268 / 254 / 324 MVA (SN/SE/WN/WE)



Need Number: ATSI-2026-064

Process Stage: Need Meeting 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

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 Clark-Greene 138 kV Line was constructed approximately 70 years ago and is approaching end of life. It is approximately 28-miles long with 368 transmission line structures.

Per recent inspections, the line is exhibiting deterioration resulting in increased maintenance costs. Inspection findings include:

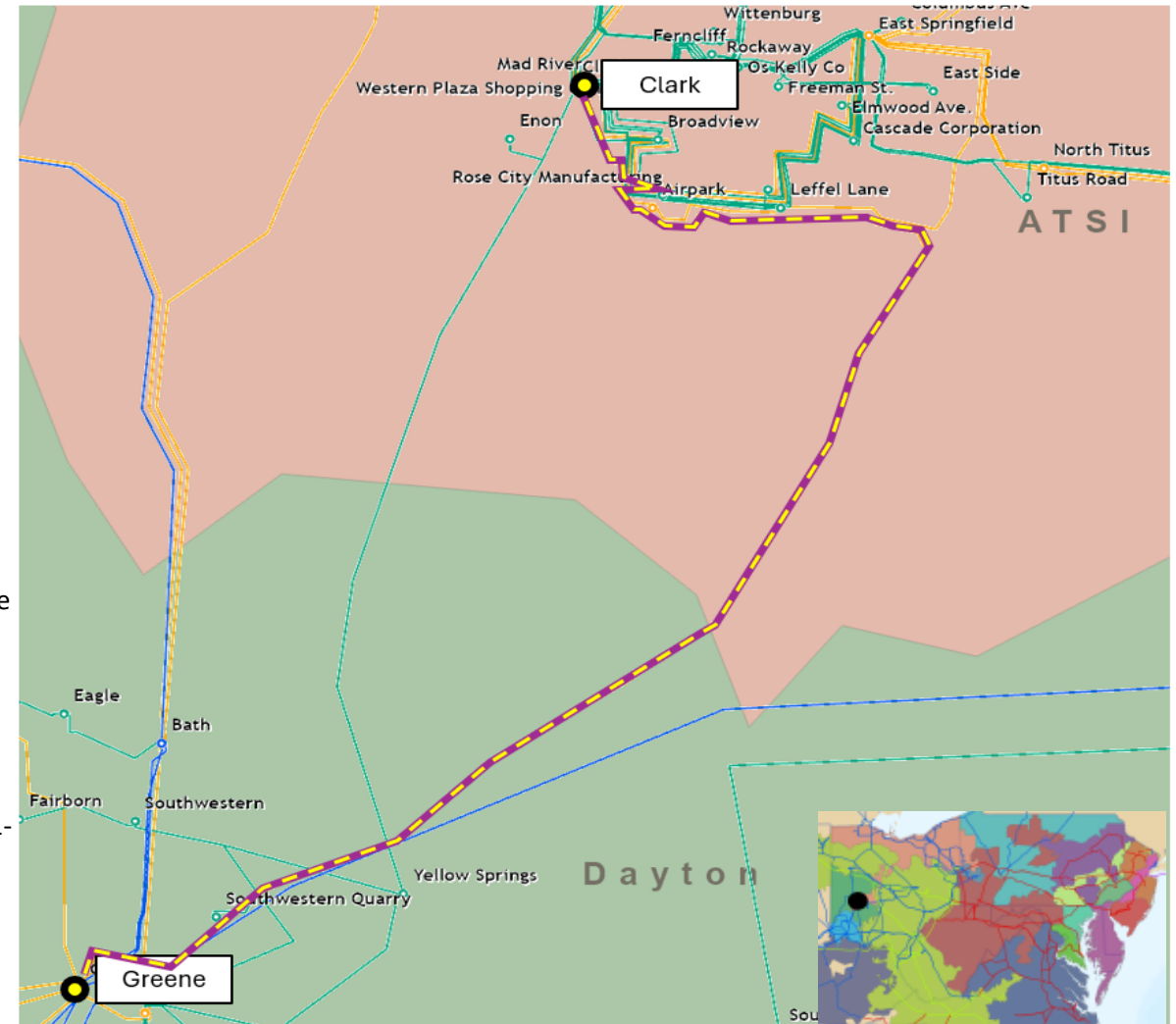
- 38% (115) of wood pole structures are in the early stages of decay
- 20% (60) of wood pole structures have measurable shell rot
- 69% (208) of wood pole structures have crossarms that are visually sagging
- 15% (46) of wood pole structures have cracked crossarms

There have been two unscheduled sustained outages on this line in the past five years (2021-2025)

Existing Transmission Line Ratings:

Clark - Green 138 kV Line

- 233 / 282 / 263 / 330 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: ATSI-2019-070

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 07/24/2019

Project Driver: Equipment Condition/Performance/Risk
Infrastructure Resilience
Operational Flexibility and Efficiency

Specific Assumption References:

Global Factors

- System Reliability and Performance
- Substation/line equipment limits
- Reliability of Non-BES Facilities
- Load at risk in planning and operational scenarios.
- Load and/or customers at risk on single transmission lines

Line Condition Rebuild / Replacement

- Customer outage frequency and/or durations
- Increasing negative trend in maintenance findings and/or costs

Network Radial Lines

- Load at risk and/or customers affected
- Radial lines defined by normally open points

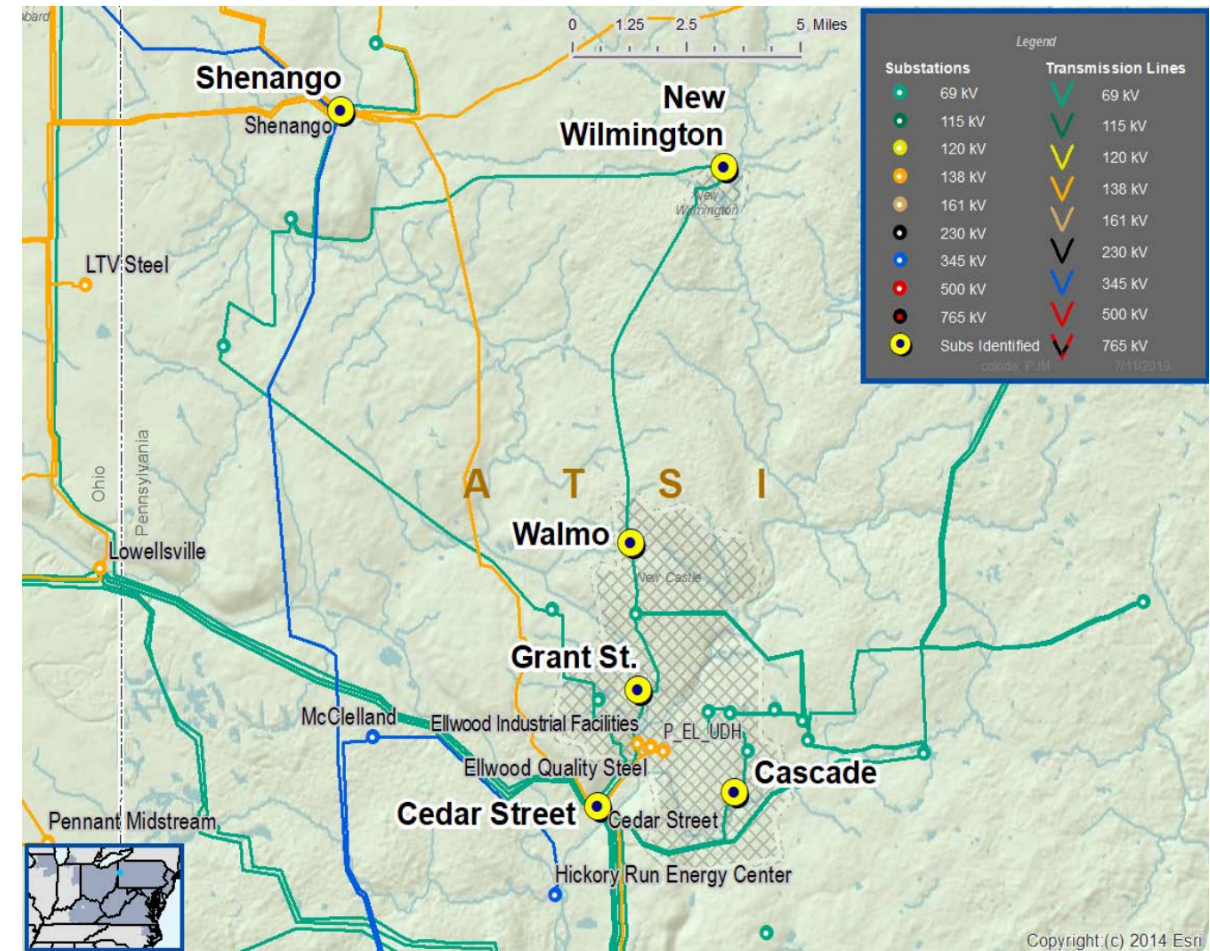
Add / Expand Bus Configuration

- Loss of substation bus adversely impacts transmission system performance
- Accommodate future transmission facilities

Automatic Sectionalizing Schemes

- Projects are developed under this methodology by evaluating load at risk and/or customers impacted

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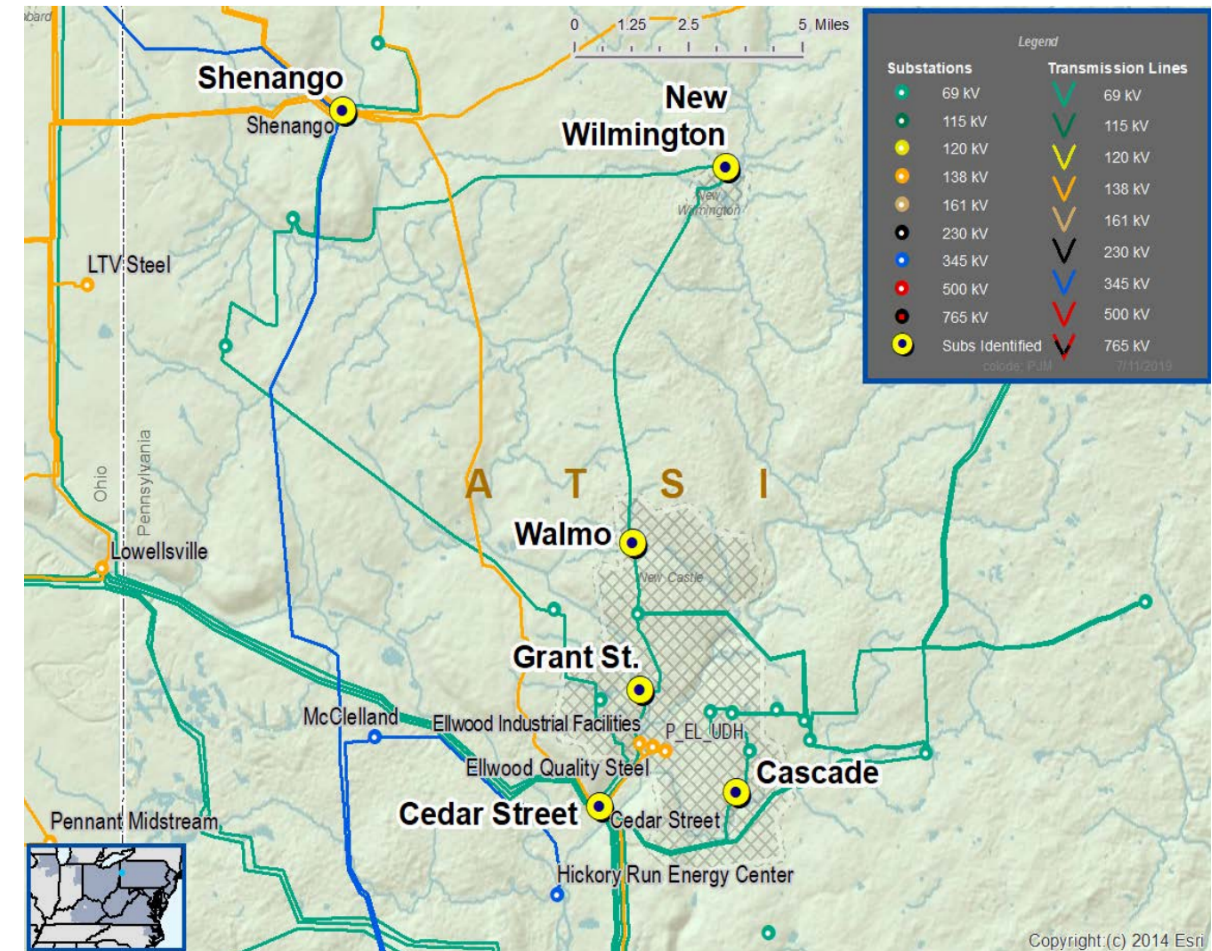
Need Number: ATSI-2019-070

Process Stage: Solution Meeting 10/16/2026

Problem Statement:

Walmo 69 kV Area

- The Cedar Street-Grant Street 69 kV line serves roughly 18.6 MW and 5,287 customers on a 5.8 mile radial with a normally open point near Walmo substation.
- The Cedar Street-Grant Street 69 kV Line has experienced 5 outages in the past 5 years (3 sustained)
- After the construction of the Shenango 69 kV switching station (s1712 / ISD 12/31/2021) the newly networked Cedar Street-Shenango #2 69 kV line (formally the Cedar Street-Cascade 69 kV and Cedar Street-New Wilmington 69 kV lines) will serve approximately 44.2 MW and 10,842 customers with total line exposure of 23 miles. Walmo substation is currently served from this transmission line.
- The Cedar Street-Shenango #2 69 kV Line is exhibiting an upward trend in both minor and major maintenance, with several recent ground-line rejects.
 - 58% Rejection Rate (191 / 327)
 - Overall condition, age, woodpecker holes, broken grounds and insulator bells.
 - 9 line switches on the circuit are aged and do not meet current established design standards
 - Experienced 8 outages in the past 5 years (all sustained)



Need Number: ATSI-2019-070

Process Stage: Solution Meeting 10/16/2026

Proposed Solution:

Walmo 69 kV Area

Construct new 69 kV circuit using new conductor from the new substation to structure 1101, bypassing the N.O. switch 211 (should be removed). Loop in the Shenango-Cedar Street 69 kV No. 2 Line into the new substation.

Bypass the Walmo Substation using new conductor. Construct new 69 kV circuit using new conductor from the new substation to the Walmo Substation.

Transmission Line Ratings:

Old Plank - Walmo 69 kV Line

Before Proposed Solution: 80 / 96 / 111 / 134 MVA (SN/SE/WN/WE)

After Proposed Solution: 90 / 114 / 125 / 159 MVA (SN/SE/WN/WE)

Alternatives Considered:

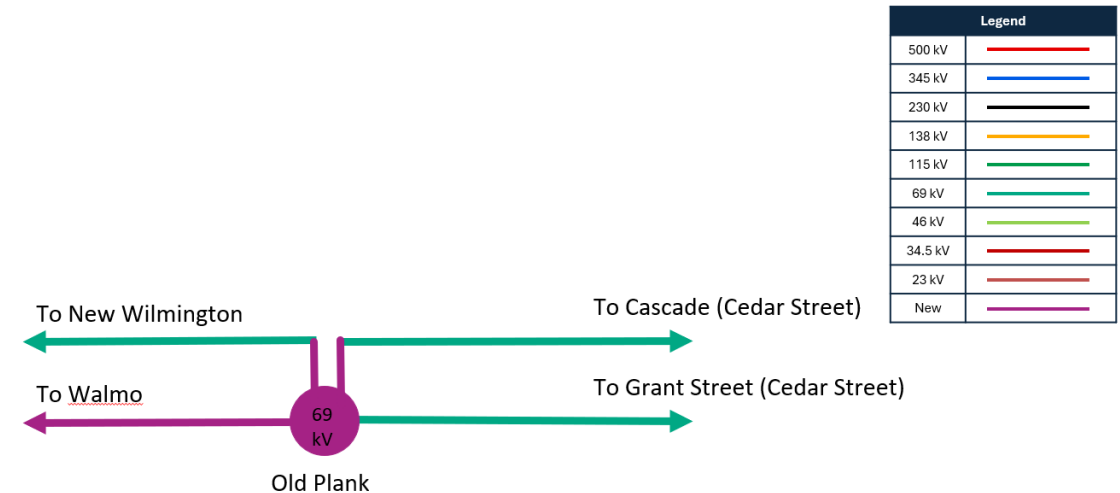
Maintain existing system configuration with SCADA controlled switches. Build a four-breaker ring bus at Walmo without removing 3 terminal line.

Transmission Cost Estimate: \$12.6 M

Projected In-Service: 12/29/2028

Project Status: Conceptual

Model: 2025 RTEP model for 2030 Summer (50/50)



Need Number: ATSI-2024-009

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 02/16/2024

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Projects Global Factors

- Substation/line equipment limits
- Substation Condition Rebuild/Replacement
- Circuit breakers and other fault interrupting devices

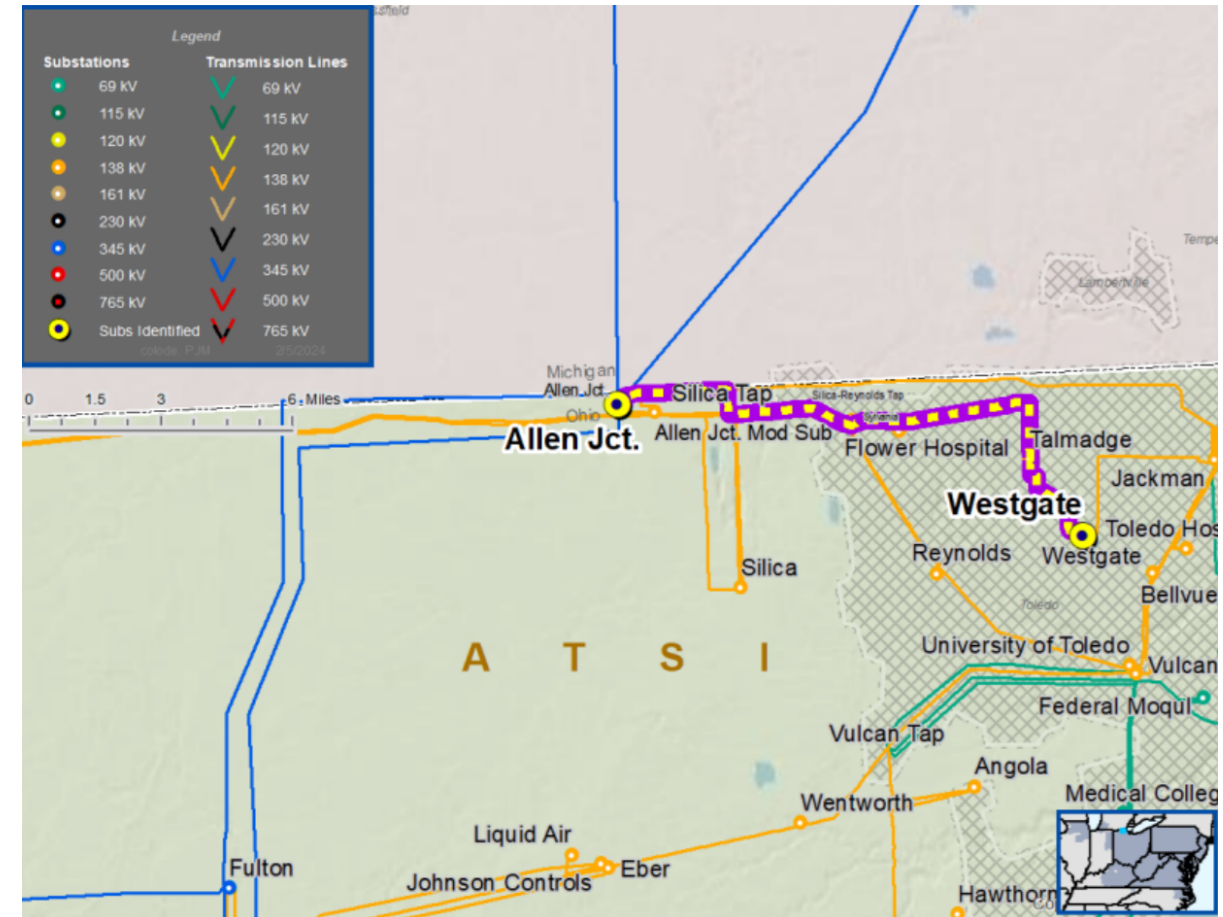
Problem Statement:

Circuit Breakers B-13374 at Allen Junction Substation and B-13316 at Westgate Substation, associated disconnect switches and protective relaying are approximately 51 years old and have increasing maintenance concerns.

Transmission lines are limited by terminal equipment.

Talmdage – Westgate 138 kV Line section

- Existing line rating: 278 / 287 / 287 / 287 MVA (SN/SE/WN/WE)
- Existing conductor rating: 278/ 343 / 327 / 420 MVA (SN/SE/WN/WE)



Need Number: ATSI-2024-009
Process Stage: Solution Meeting 10/16/2026

Proposed Solution:
 Replace one circuit breaker and two disconnect switches at Westgate Station.

Transmission Line Ratings:
 Westgate-Talmadge 138 kV Line:
 Before Proposed Solution: 278 / 343 / 327 / 396 MVA (SN/SE/WN/WE)
 After Proposed Solution: 278 / 343 / 327 / 420 MVA (SN/SE/WN/WE)

Alternatives Considered:
 Maintain Station in existing condition.

Transmission Cost Estimate: \$3.8 M
Projected In-Service: 05/26/2028
Project Status: Conceptual
Model: 2025 RTEP model for 2030 Summer (50/50)



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

Need Number: ATSI-2026-059

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 09/18/2026

Project Driver: Customer Service

Specific Assumption References:

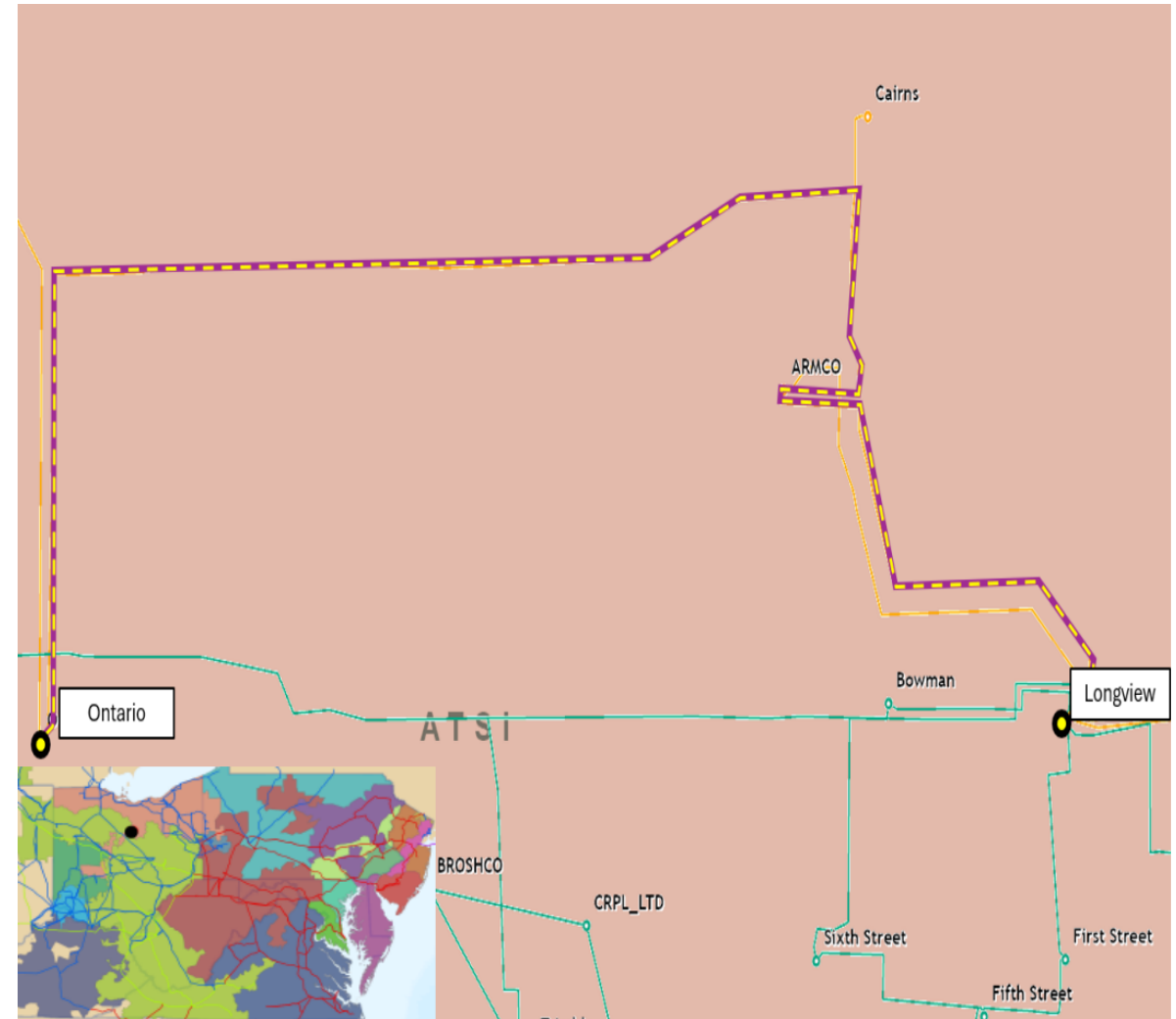
New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A new customer requested 138 kV service for load of approximately 10 MW near the Longview - Ontario 138 kV Line. The request is approximately 5.5 miles from Ontario Substation.

Requested in-service date is 11/19/2027.

ATSI Transmission Zone M-3 Process New Customer Connection



Need Number: ATSI-2026-059

Process Stage: Solution Meeting 10/16/2026

Proposed Solution:

Install three 138 kV MOAB switches with SCADA control on the Longview - Ontario 138 kV Line approximately 5.5 miles from Ontario Substation and 2.6 miles from Longview Substation and build 0.6 miles to point of interconnection with the Customer.
Install 138 kV metering in customer's facilities.
Protection/ terminal end relay settings review required at Longview and Ontario substations.

Existing Transmission Line Ratings:

1.Longview - Ontario 138 kV Line: 317 / 365 / 316 / 384 MVA (SN/SSTE/WN/WSTE)

New Transmission Line Ratings:

1.Longview - New Customer 138 kV Line: 317 / 365 / 316 / 384 MVA (SN/SSTE/WN/WSTE)

2.New Customer - Ontario 138 kV Line: 317 / 365 / 316 / 384 MVA (SN/SSTE/WN/WSTE)

Alternatives Considered:

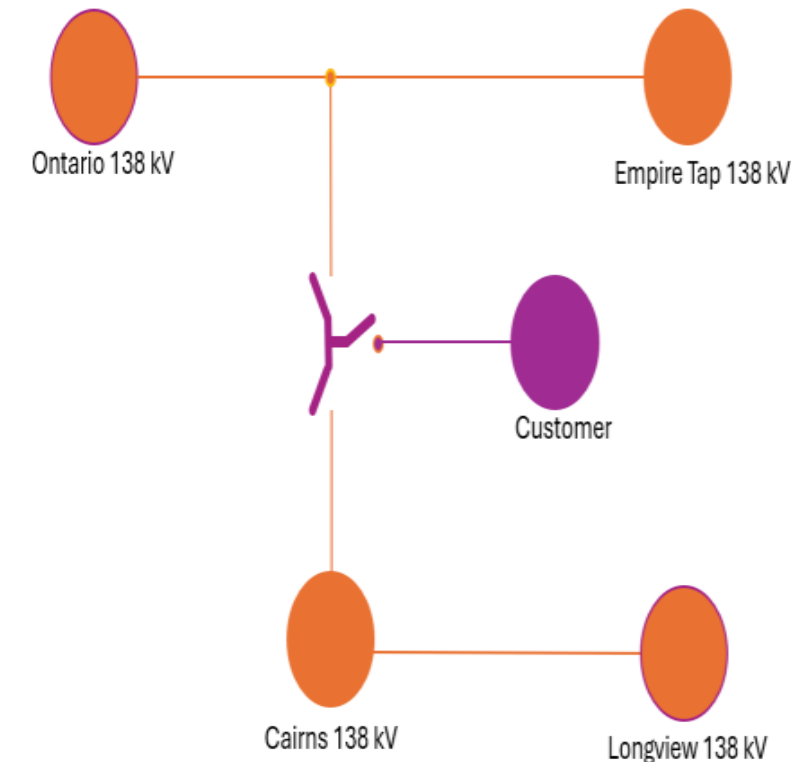
No reasonable alternatives due to the customer's proximity to the Longview - Ontario 138 kV Line.

Transmission Cost Estimate: \$1.57 M

Projected In-Service: 06/26/2028

Project Status: Conceptual

Model: 2025 RTEP for 2030 Summer (50/50)



Bubble Diagram

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

Need Number: ATSI-2026-061

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 09/18/2026

Project Driver: Customer Service

Specific Assumption References:

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 new customer requested 138 kV service for load of approximately 60 MW near the Fowles - Fox 138 kV Line. The request is approximately 1 mile from Ford Brookpark Substation.

Requested in-service date is 1/2/2029.

ATSI Transmission Zone M-3 Process New Customer Connection



Need Number: ATSI-2026-061

Process Stage: Solution Meeting 10/16/2026

Proposed Solution:

Build a new three breaker 138 kV station called "Dawg Pound" in a ring bus configuration with room for expansion to six breakers. The future positions will be operated normally open. The Customer will build a new Station called "Jim Brown".

Re-energize the Fowles - NASA 138 kV Q-17 and Q-18 lines that are currently not in-service. Cut the Fowles - NASA 138 kV Q-17 and Q-18 lines near Str. 3445. Construct 0.8-miles of 138 kV overhead extension line tapped from the Fowles - NASA 138 kV Q-17 and Q-18 lines at/near Str. 3445 on new transmission Right of Way (ROW) and terminate into Dawg Pound Station.

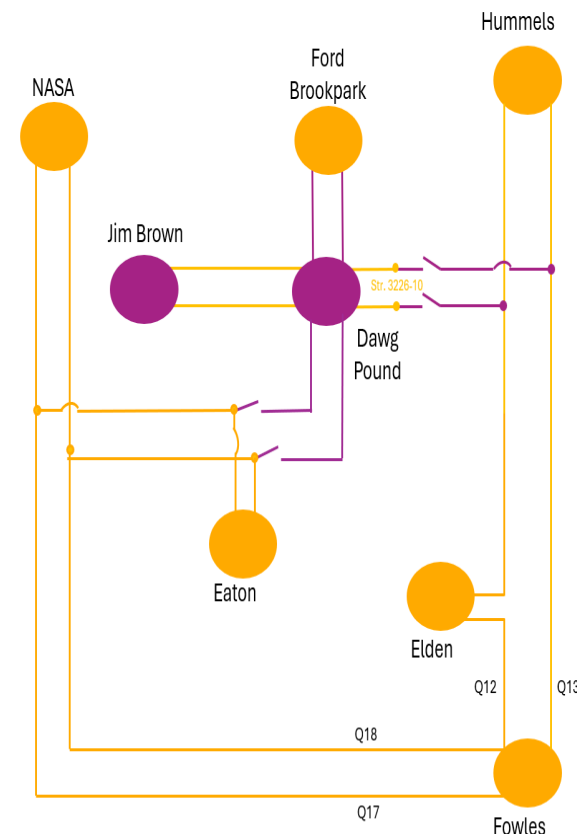
Cut the Fowles - Fox 138 kV Q-12 and Q-13 lines at/near Str. 3226-10. Construct approximately 0.4-miles of 138 kV underground extension line and 0.4-miles of 138 kV overhead extension line tapped from Fowles - Fox 138 kV Q-12 and Q-13 at/near Str. 3226-10 on new transmission Right of Way (ROW) and terminate into Dawg Pound Station

Construct 0.1-miles of 138 kV overhead extension line from Dawg Pound Station to Jim Brown Station. Also construct 0.1-miles of 138 kV underground extension line from Dawg Pound Station to Ford Brookpark Station.

Install four radial line switches total, two at the Fowles - NASA 138 kV Q-17 and Q-18 tap point (Str. 3424), and two at the Fowles - Fox 138 kV Q-12 and Q-13 tap point (Str. 3226).

Upgrade relays settings at Fox, Fowles, NASA, Pleasant Valley, Grovewood, GM Cleveland (Parma), Ford Brookpark, and Avon stations

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Bubble Diagram

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

Need Number: ATSI-2026-061

Process Stage: Solution Meeting 10/16/2026

Proposed Solution(CONT'):

Transmission Line Ratings:

Ford Brookpark Tap-Ford Brookpark 138 kV Q-12 Line:

Before Proposed Solution: 103 / 133 / 147 / 164 MVA (SN/SE/WN/WE)

Ford Brookpark Tap-Ford Brookpark 138 kV Q-13 Line:

Before Proposed Solution: 103 / 133 / 147 / 164 MVA (SN/SE/WN/WE)

Eaton-Dawg Pound 138 kV Q-17 Line:

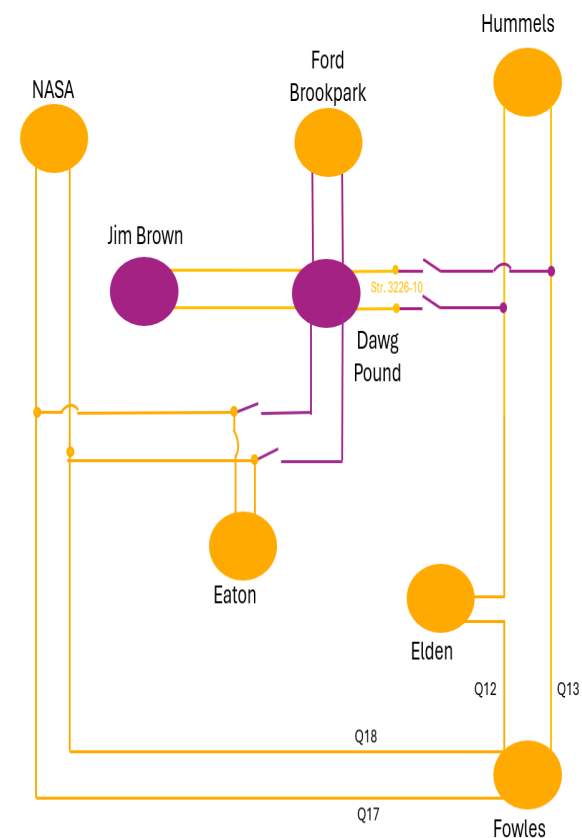
After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Eaton-Dawg Pound 138 kV Q-18 Line:

After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Dawg Pound-Ford Brookpark 138 kV Q-17 Line:

After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)



Bubble Diagram

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

Need Number: ATSI-2026-061

Process Stage: Solution Meeting 10/16/2026

Proposed Solution(CONT'):

Dawg Pound-Ford Brookpark 138 kV Q-18 Line:

After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Ford Brookpark Tap-Dawg Pound 138 kV Q-12 Line:

After Proposed Solution: 148 / 152 / 167 / 167 MVA (SN/SE/WN/WE)

Ford Brookpark Tap-Dawg Pound 138 kV Q-13 Line:

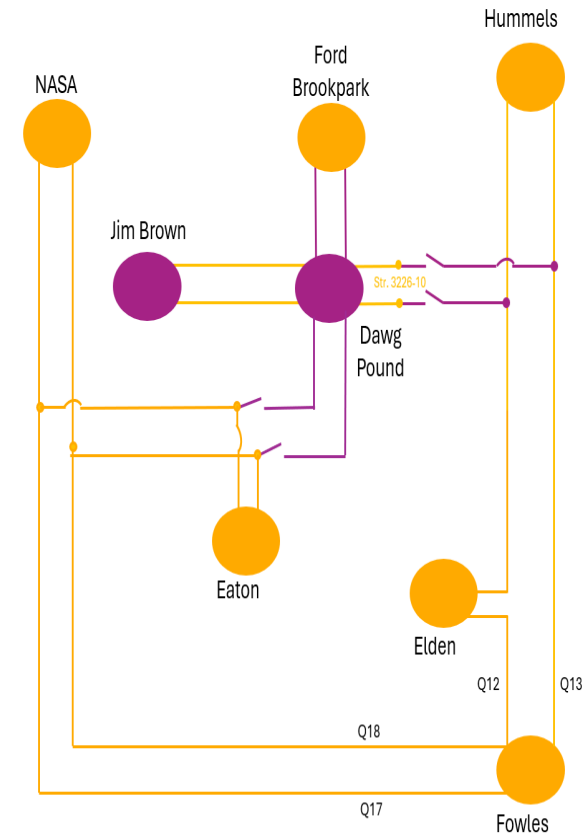
After Proposed Solution: 148 / 152 / 167 / 167 MVA (SN/SE/WN/WE)

Dawg Pound-Jim Brown 138 kV Q-12 Line:

After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Dawg Pound-Jim Brown 138 kV Q-13 Line:

After Proposed Solution: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)



Bubble Diagram

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

Need Number: ATSI-2026-061

Process Stage: Solution Meeting 10/16/2026

Alternatives Considered:

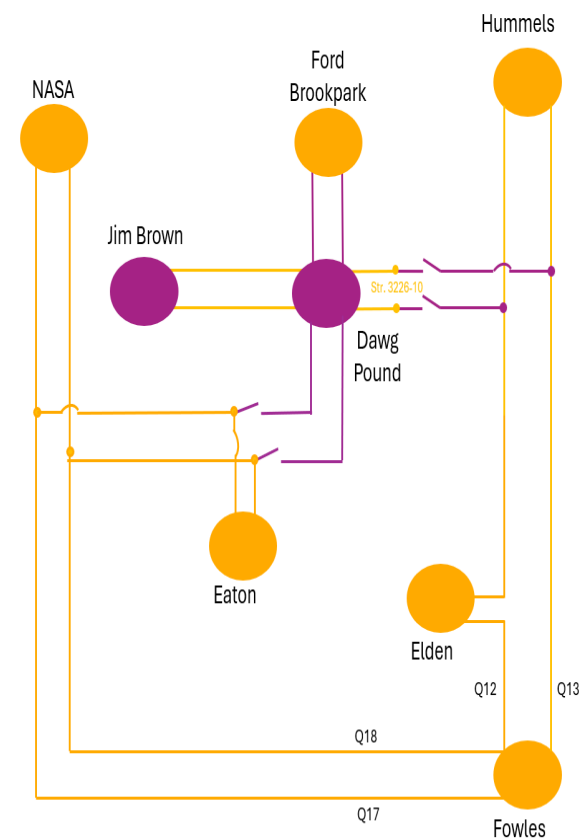
Re-energize the Fowles-NASA 138 kV Q-17 and Q-18 lines that are currently not in-service and re-terminate them to connect to Ford Brookpark Station. Re-terminate the Fowles - Fox 138 kV Q-12 and Q-13 lines to connect to the new customer station.

Transmission Cost Estimate: \$13.78 M

Projected In-Service: 11/29/2029

Project Status: Conceptual

Model: 2025 RTEP model for 2030 Summer (50/50)



Bubble Diagram

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

10/xx/2026– V1 – Original version posted to pjm.com