

# Submission of Supplemental Projects for Inclusion in the Local Plan

**Need Number:** PN-2022-004

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

**Previously Presented:** Need Meeting: 12/14/2022

Solution Meeting: 04/20/2023

**Project Driver:**

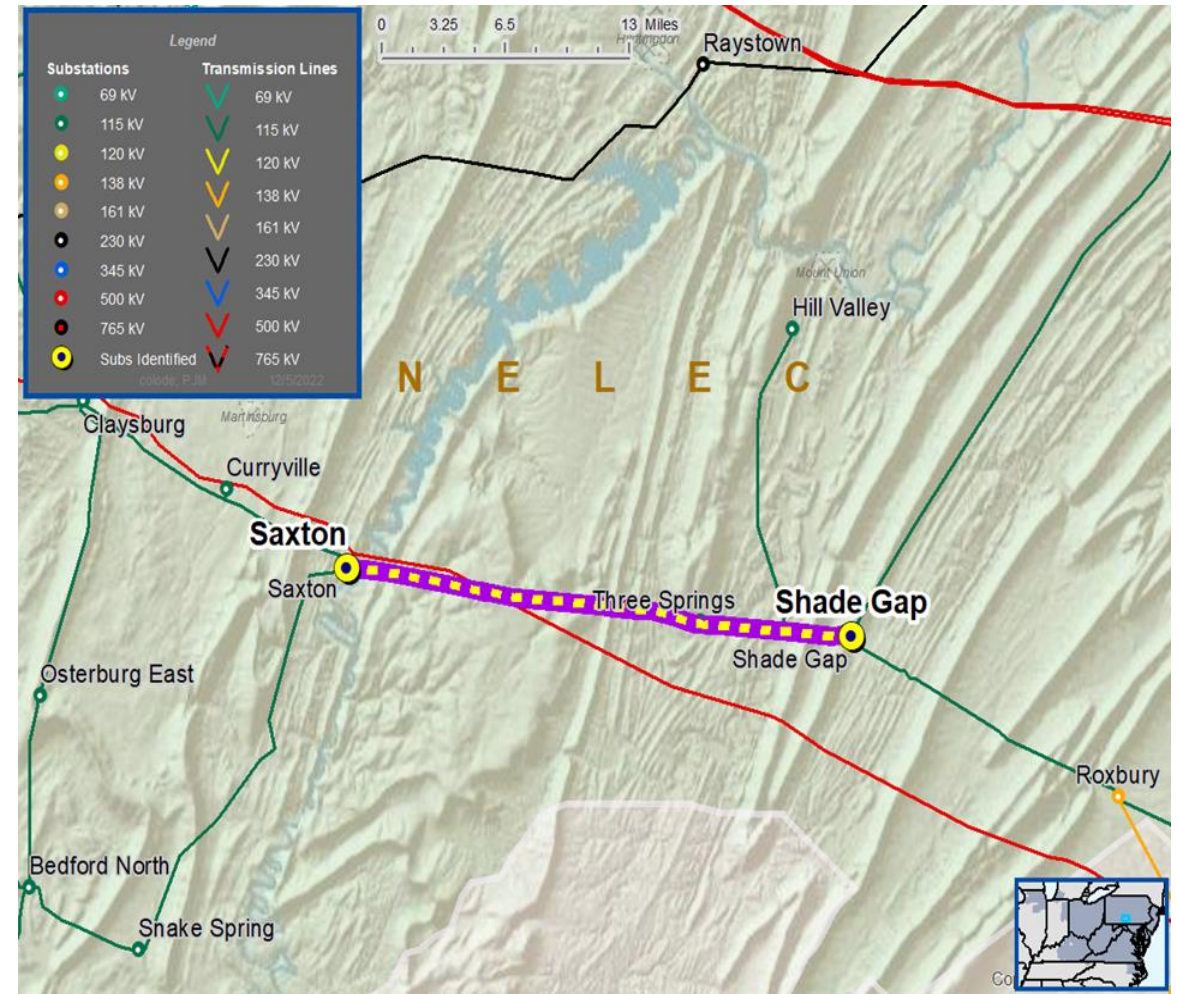
*Customer Service*

**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 customer requested 115 kV service for load of approximately 20 MW near the Saxton – Shade Gap 115 kV line. Requested in-service date is 09/01/2024.



**Need Number:** PN-2022-004

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

**Selected Solution:**

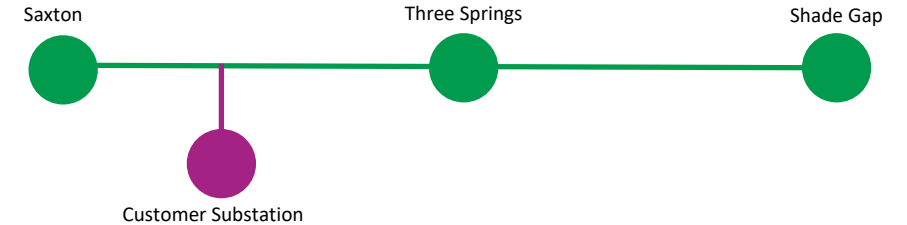
Provide 115 kV Service:

- Tap the Saxton – Shade Gap 115 kV Line (Saxton – Three Springs 115 kV Line segment)
- Construct ~8.64 miles of 115 kV line towards the customer
- Install one 115 kV revenue metering package
- Install three 1200 A SCADA controlled disconnect switches

**Estimated Project Cost:** \$23.96M

**Projected In-Service:** 04/01/2025

**Supplemental Project ID:** s2949



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

**Need Number:** APS-2023-002, PN-2023-001

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

**Previously Presented:** Need Meeting: 03/07/2023

Solution Meeting: 06/06/2023

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

**Specific Assumption Reference:**

*Global Factors*

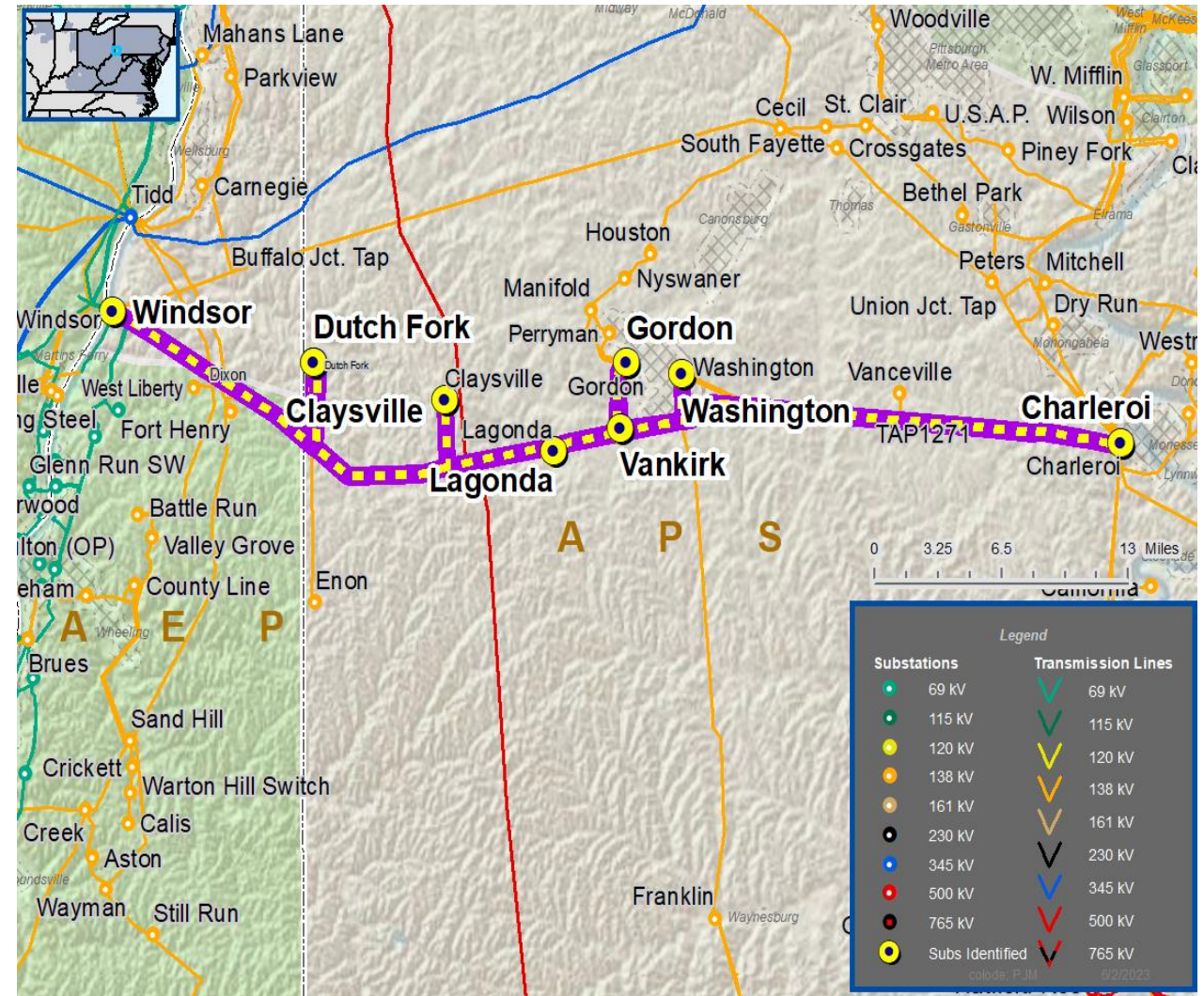
- System reliability and performance
- Substation and line equipment limits
- Upgrade Relay Schemes
  - Relay schemes that have a history of misoperation
  - Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
  - Communication technology upgrades
  - Bus protection schemes

**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 properly together during a fault
- The identified protection equipment cannot be effectively repaired for reasons such as lack of replacement parts and available expertise in the outdated technology.
- Newer equipment provides better monitoring, enhances capability of system event analysis, and performs more reliably
- Transmission line ratings are limited by terminal equipment

**Shawville – Moshannon 230 kV Line**

- Existing line rating: 445 / 587 MVA (SN / SE)
- Existing Transmission Conductor Rating: 546 / 666 MVA (SN / SE)



**Need Number:** APS-2023-002, PN-2023-001

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

**Selected Solution:**

- Replace circuit breaker, wave trap, and relaying at Shawville
- Replace limiting substation conductor and relaying at Moshannon

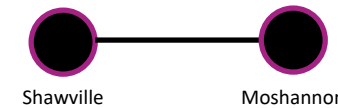
**Transmission Line Ratings:**

- Moshannon – Shawville 230 kV Line
  - Before Proposed Solution: 445 / 587 MVA (SN / SE)
  - After Proposed Solution: 546 / 666 MVA (SN / SE)

**Estimated Project Cost:** \$ 1.6 M

**Projected In-Service:** 12/8/2023

**Supplemental Project ID:** s2964



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

**Need Number:** PN-2023-002

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

**Previously Presented:** Need Meeting: 03/16/2023

Solution Meeting: 04/20/2023

**Project Driver:**

*Customer Service*

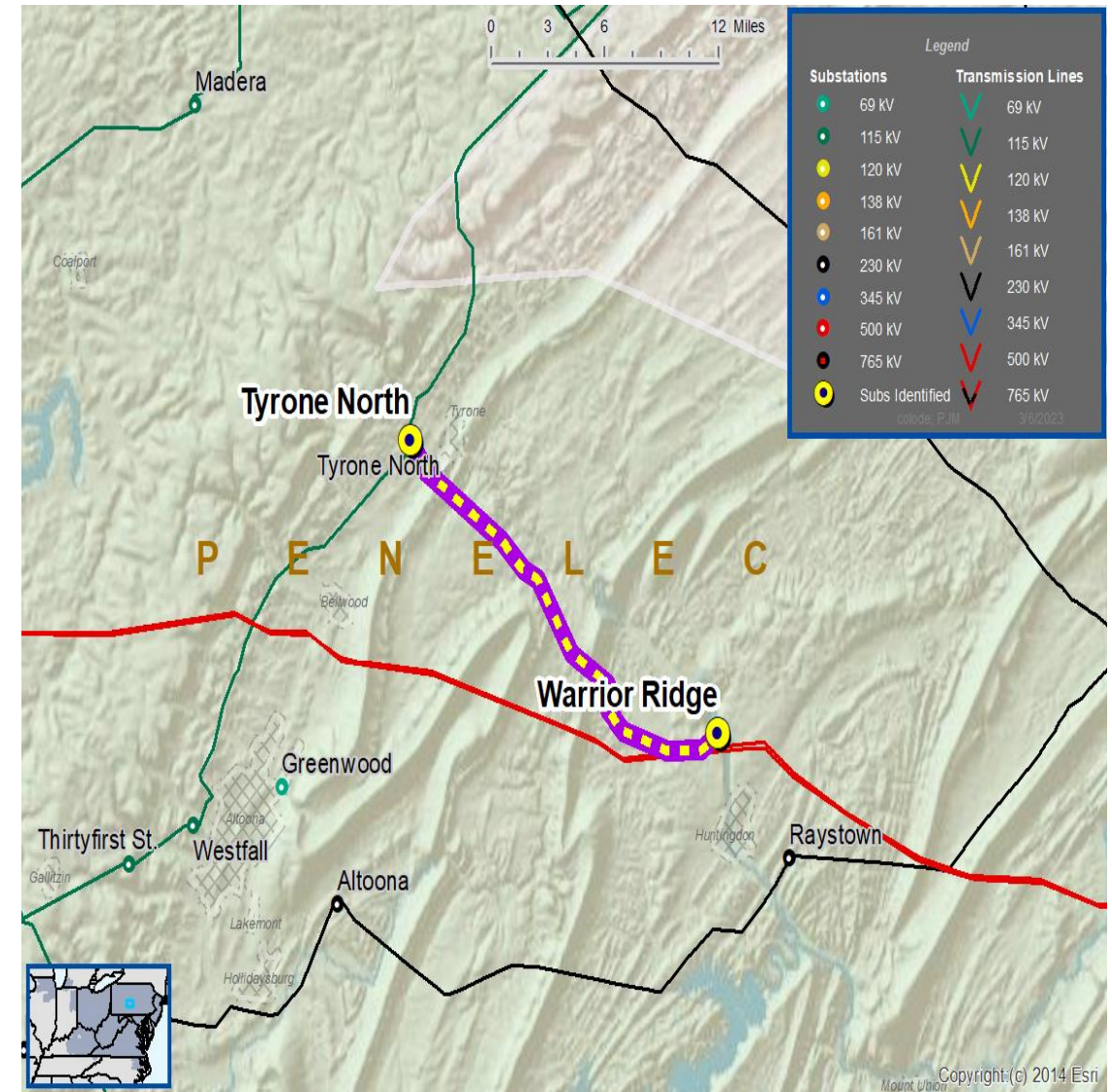
**Specific Assumption Reference:**

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 customer requested 46 kV service for load of approximately 1.1 MW on the Tyrone North – Warrior Ridge 46 kV line.

Requested in-service date is 04/28/2023.



**Need Number:** PN-2023-002

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan 9/27/2023

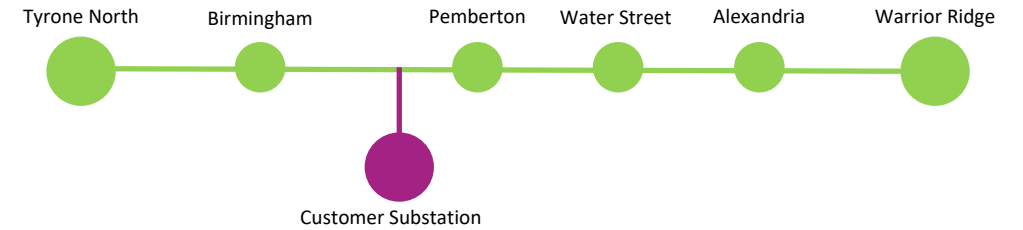
**Selected Solution:**

- Tap the Tyrone North – Warrior Ridge 46 kV Line
- Construct 0.1 miles of 336 26/7 ACSR to the customer
- Install three 1200 A SCADA controlled disconnect switches
- Install one 46 kV revenue metering package

**Estimate Project Cost:** \$1.15M

**Projected In-Service:** 05/12/2023

**Supplemental Project ID:** s2950



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

**Need Number:** PN-2019-032

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan

**Previously Presented:**

Re-Present Solutions Meeting 10/31/2023  
Solutions Meeting 08/08/2019

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

**Specific Assumption Reference:**

Substation Condition Rebuild/Replacement

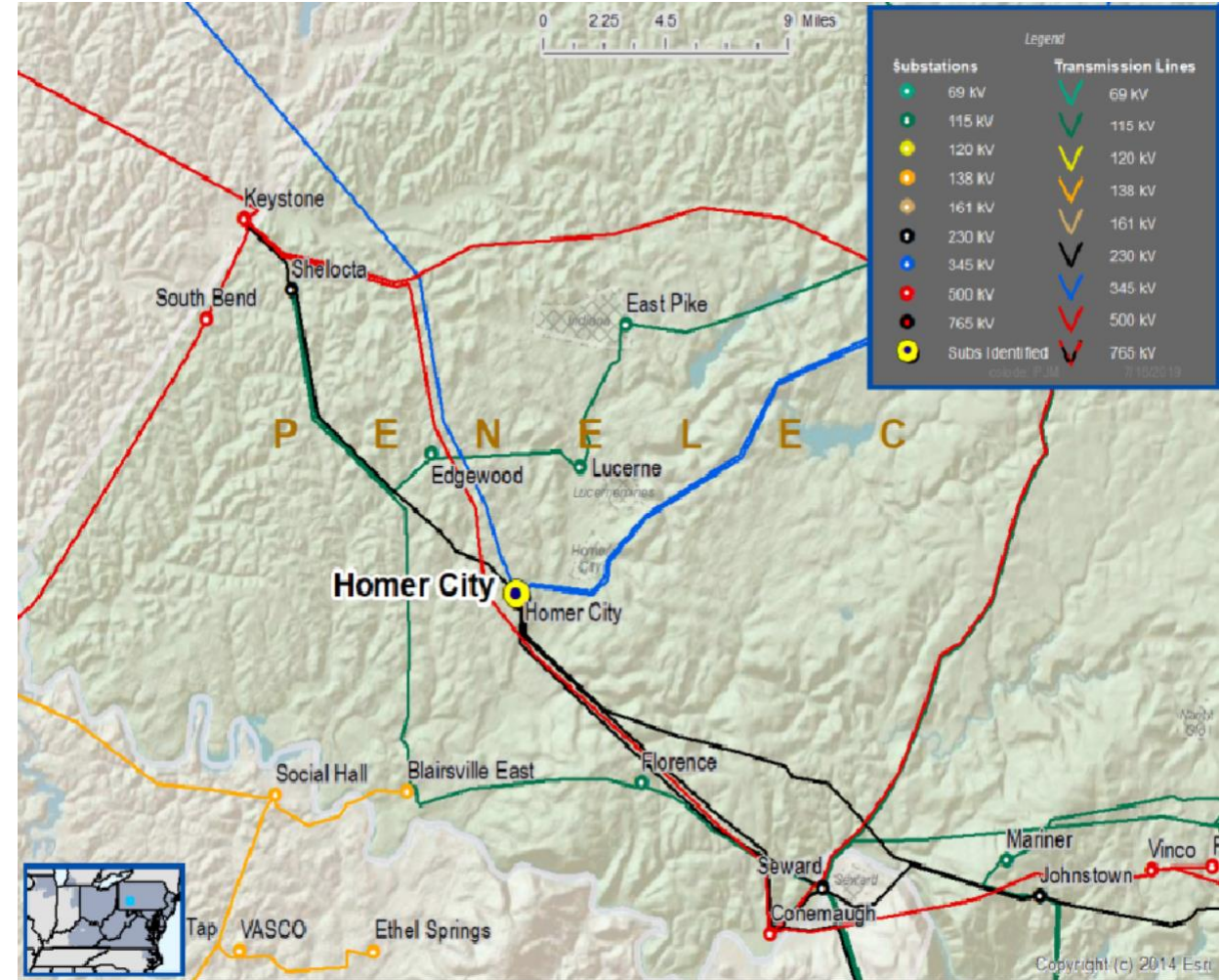
- Power transformers and load tap changers (LTCs)
- Station system protection and controls

**Problem Statement:**

Homer City North 345/230-23 kV Transformer

- Transformer has increased failure probability due to:
  - Type “U” bushings
  - High level heating gases and moisture
  - Deteriorated control cabinet components
  - Obsolete parts
  - Leaks
- Transformer is 51 years old.

Transformer circuit rating is the existing transformer rating of 653/697 MVA (SN/SE).





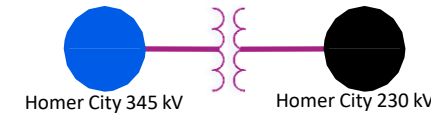
**Need Number:** PN-2019-032

**Process Stage:** Submission of Supplemental Projects for Inclusion in the Local Plan

**Selected Solution:**

*Replace Homer City North 345/230-23 kV Transformer*

- Replace the North 345/230-23 kV transformer and associated equipment with:
  - One (1) 345-230 kV transformer rated 450/600/750 MVA SN/SE/SLD using three (3) single-phase 150/200/250 MVA units



**Rating:**

Homer City North 345-230 kV Transformer

- Before Proposed Solution: 653/817 MVA (SN/SE)
- After Proposed Solution: 913/1147 MVA (SN/SE)

**Estimated Cost:** \$17.70M

**Projected In-Service:** 12/15/2023

**Supplemental Project ID:** s2053

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

Questions?



# 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

9/27/2023 – V1 – s2949,s2950,s2964

4/11/2024 – V2 – s2053