Subregional RTEP Committee - Western FirstEnergy Supplemental Projects

June 13, 2025

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 Numbers: APS-2024-098 to APS-2024-100, APS-2025-015

Process Stage: Solution Meeting 6/13/2025

Previously Presented: Need Meeting 12/13/2024, 4/11/2025

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

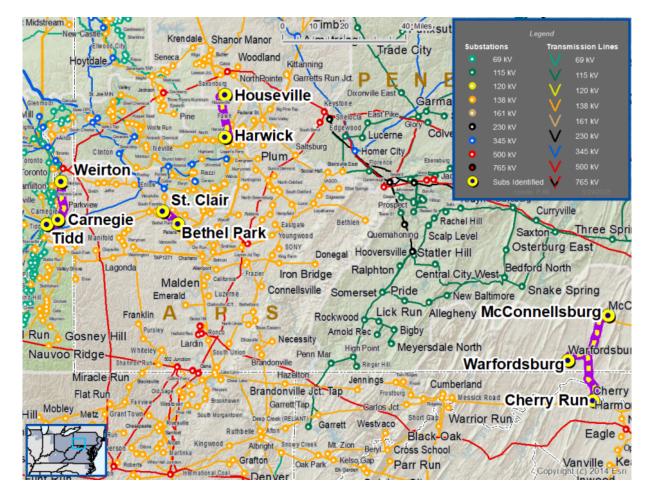
Upgrade Relay Schemes

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cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.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

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Need #	Transmission Line / Substation Locations	Existing Line Rating (SN / SE / WN / WE)	Existing Conductor Rating (SN / SE / WN / WE)
APS-2024-098	Bethel Park – St Clair 138 kV Line	292 / 306 / 306 / 306	308 / 376 / 349 / 445
ADS 2024 000	Cherry Run – Warfordsburg 138 kV Line	299 / 360 / 349 / 422	308 / 376 / 349 / 445
APS-2024-099	Warfordsburg – McConnellsburg 138 kV Line	299 / 358 / 349 / 410	308 / 376 / 349 / 445
APS-2024-100	Harwick – Houseville 138 kV Line	284 / 287 / 287 / 287	284 / 351 / 336 / 432
	Tidd - Carnegie 138 kV Line	187 / 240 / 247 / 270	221 / 268 / 250 / 317
APS-2025-015	Carnegie - Weirton 138 kV Line	221 / 268 / 250 / 306	221 / 268 / 250 / 317



Proposed Solution:

Need #	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE / WN / WE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2024- 098	Bethel Park – St Clair 138 kV Line	308 / 376 / 349 / 445	 At Bethel Park Substation, replace circuit breaker, disconnect switches, line turner and coax, CCVT, substation conductor, metering, line trap and relaying At St Clair Substation, replace circuit breaker, disconnect switches, line turner and coax, CCVT, substation and bus conductors, line trap and relaying 	\$4.5	7/27/2029
	Cherry Run – Warfordsburg 138 kV Line	308 / 376 / 349 / 445	• At Cherry Run Substation, replace circuit breaker, disconnect switches, line turner and coax, CVT, substation conductor and relaying		
APS-2024- 099	Warfordsburg – McConnellsburg 138 kV Line	308 / 376 / 349 / 445	 At Warfordsburg Substation, replace disconnect switches, and relaying At McConnellsburg Substation, replace circuit breaker, disconnect switches, line turner, CCVT, substation conductor and relaying 	\$2.5	7/13/2029



Proposed Solution:

Need #	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE / WN / WE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2024-100	Harwick – Houseville 138 kV Line	284 / 351 / 336 / 432	 At Harwick Substation, replace circuit breaker, disconnect switches, line trap, line turner and coax, substation and bus conductors and relaying At Houseville Substation, replace disconnect switches, line trap, line turner and coax, CVT, substation conductor and relaying 	\$3.4	12/31/2027
APS-2025-015	Tidd - Carnegie 138 kV Line*	221 / 268 / 250 / 317	 At Carnegie Substation, replace disconnect switches, CVTs and relaying 	\$1.9	12/31/2029
	Carnegie - Weirton 138 kV Line	221 / 268 / 250 / 317	 At Weirton Substation, replace wave trap, substation conductor, line turner and coax, CVT and relaying 	ΥΤ.9	

*This is a tie line with AEP. The ratings shown are reflective of FirstEnergy ratings only.

Alternatives Considered: Maintain equipment in existing condition with elevated risk of equipment misoperation.

Project Status: Conceptual

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

Appendix

High Level M-3 Meeting Schedule

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Solutions

Submission of Supplemental Projects & Local Plan

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

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

06/03/2025–V1 – Original version posted to pjm.com