

# Subregional RTEP Committee - Western FirstEnergy Supplemental Projects

March 15, 2024

# 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 Numbers:** APS-2024-028, PN-2024-012

**Process Stage:** Need Meeting 03/14/2024

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

**Specific Assumption Reference:**

System Performance Global Factors

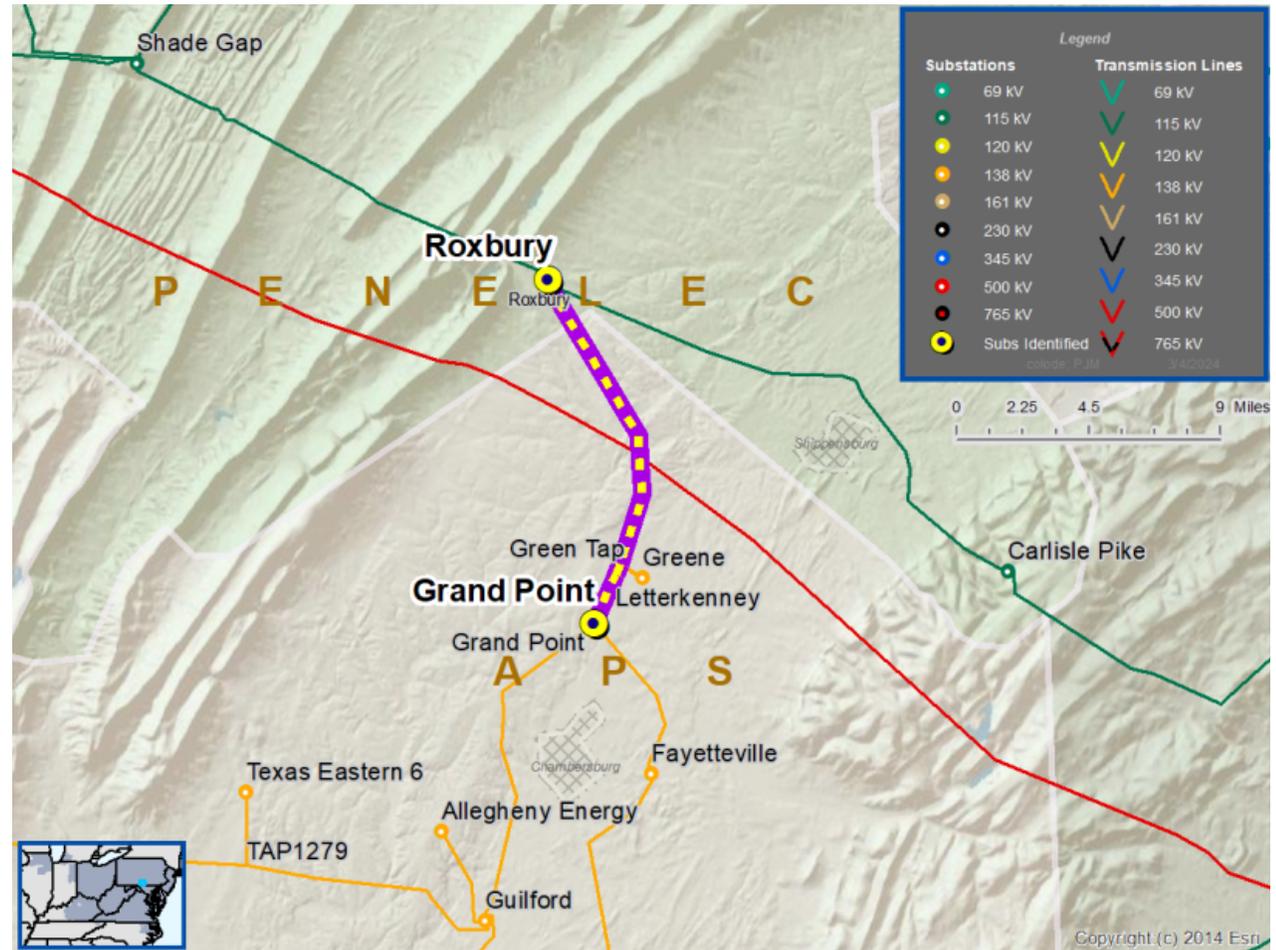
- Past system reliability/performance

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures

**Problem Statement:**

- The Grand Point – Roxbury 138 kV Line was constructed in 1960. The line is approximately 14 miles long with 109 wood pole structures.
- Recent inspections have indicated that 87 structures are exhibiting deterioration. Inspection findings include woodpecker damage, top rot, groundline decay and cracking.
- Since 2014, the line has had eight unscheduled outages.
- Existing Grand Point – Letterkenny 138 kV Line Rating:
  - 221 / 268 / 250 / 317 MVA (SN/SE/WN/WE)
- Existing Letterkenny – Greene Tap 138 kV Line Rating:
  - 221 / 268 / 250 / 317 MVA (SN/SE/WN/WE)
- Existing Greene Tap – Roxbury 138 kV Line Rating:
  - 221 / 268 / 250 / 317 MVA (SN/SE/WN/WE)



**Need Numbers:** APS-2024-029

**Process Stage:** Need Meeting 03/15/2024

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

**Specific Assumption Reference:**

System Performance Global Factors

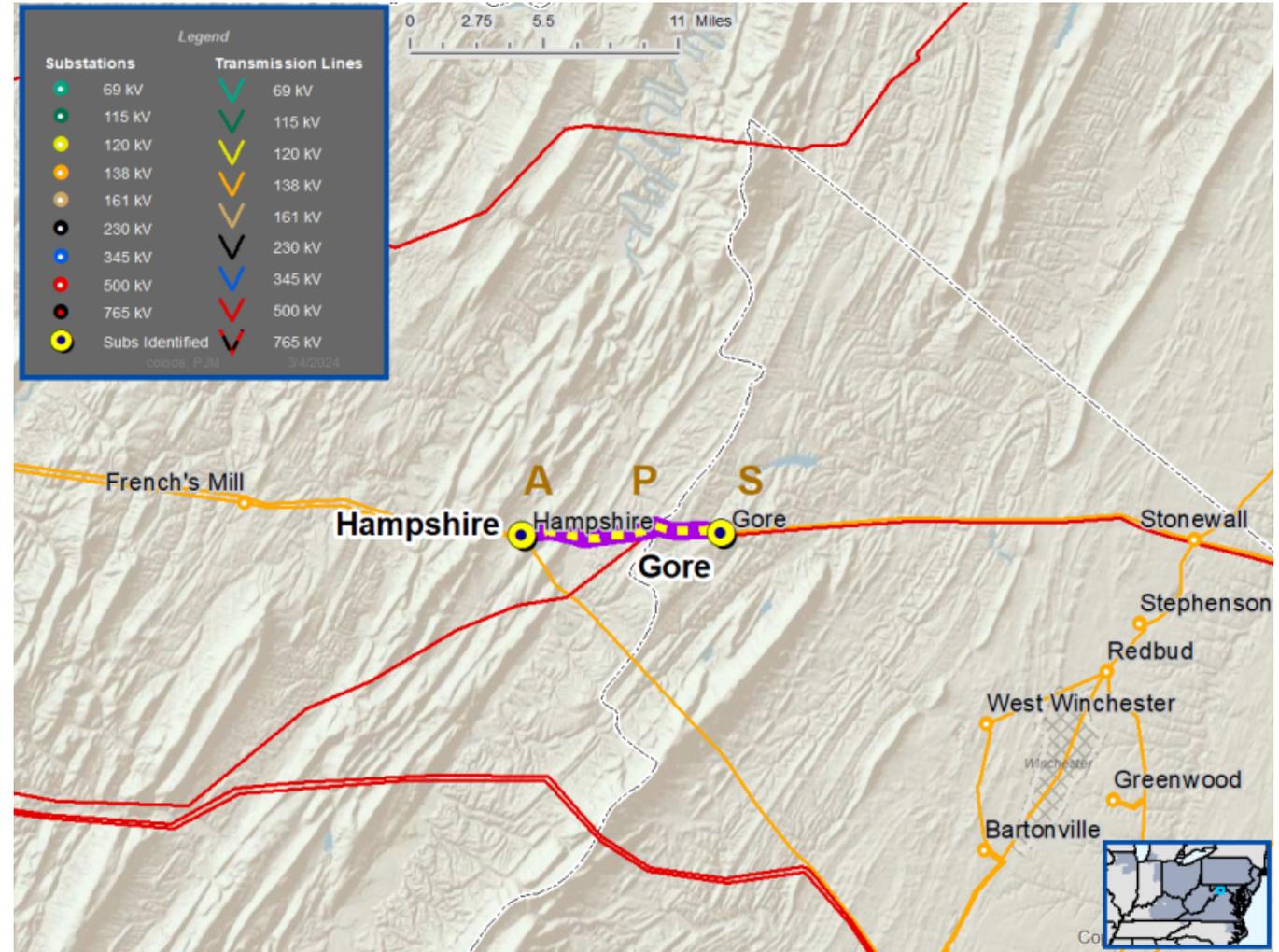
- Past system reliability/performance

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures

**Problem Statement:**

- The Gore – Hampshire 138 kV Line was constructed in 1956. The line is approximately 6.4 miles long with 51 wood pole structures.
- Recent inspections have indicated that the 49 (96% of total) structures are exhibiting deterioration. Inspection findings include decay, sound test failure, phase raisers and woodpecker damage.
- Since 2014, the line has had one unplanned outage.
- Existing Gore – Hampshire 138 kV Line:
  - 221 / 268 / 250 / 317 MVA (SN/SE/WN/WE)



**Need Numbers:** APS-2024-030

**Process Stage:** Need Meeting 03/15/2024

**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

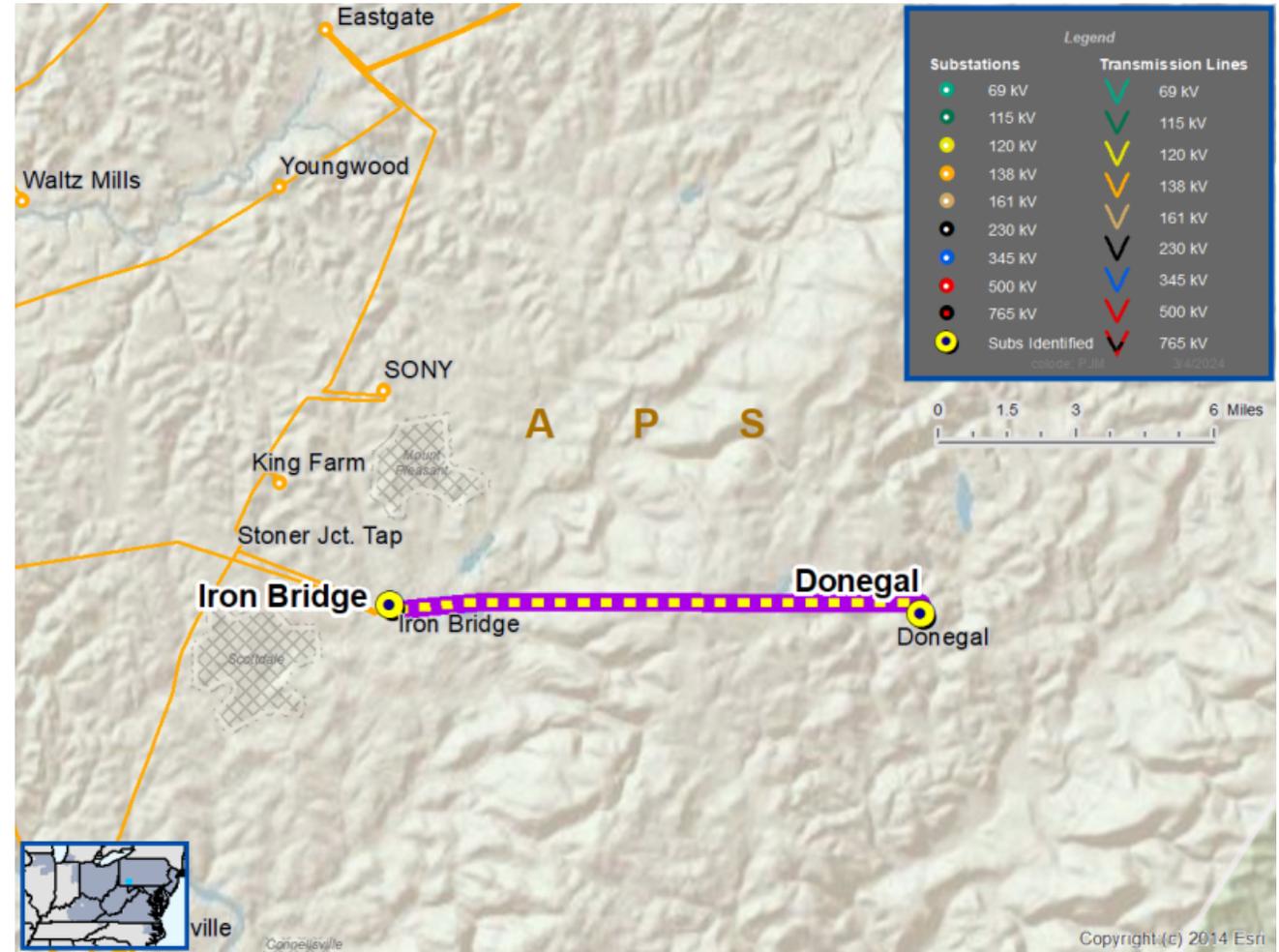
Upgrade Relay Schemes

- 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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# APS Transmission Zone M-3 Process Donegal – Iron Bridge 138 kV Line Misoperation Relays

Need #	Transmission Line / Substation Locations	Existing Line Rating (SN / SE / WN / WE)	Existing Conductor Rating (SN / SE / WN / WE)
APS-2024-030	Donegal – Iron Bridge 138 kV	229 / 229 / 229 / 229	308 / 376 / 349 / 445

# 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-2024-012, APS-2024-017

**Process Stage:** Solution Meeting 03/15/2024

**Previously Presented:** Need Meeting 01/19/2024

**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

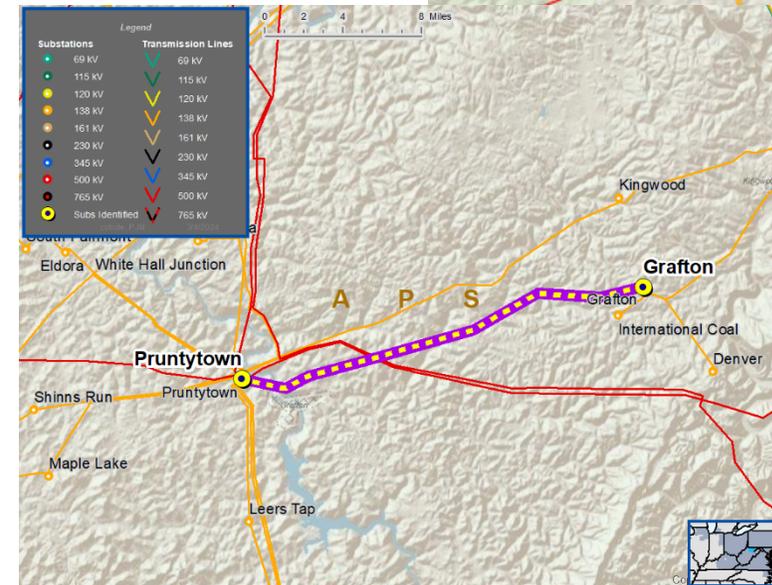
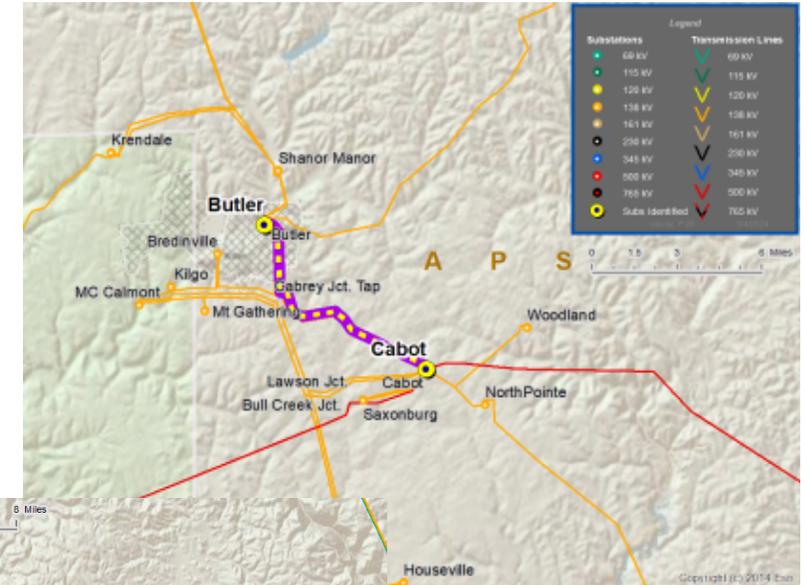
Upgrade Relay Schemes

- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
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**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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# APS Transmission Zone M-3 Process Misoperation Relay Projects

Need #	Transmission Line / Substation Locations	Existing Line Rating (SN / SE / WN / WE)	Existing Conductor Rating (SN / SE / WN / WE)
APS-2024-012	Butler – Cabot West 138 kV	224 / 293 / 323 / 343	297 / 365 / 345 / 441
APS-2024-017	Grafton – Pruntytown 138 kV	292 / 314 / 325 / 343	308 / 376 / 349 / 445

**Proposed Solution:**

Need #	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE / WN / WE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2024-012	Butler – Cabot West 138 kV	297 / 365 / 345 / 441	<ul style="list-style-type: none"> <li>At Butler Substation, replace circuit breaker, disconnect switches, line trap, substation conductor and relaying</li> <li>At Cabot Substation, replace circuit breaker, disconnect switches, line trap, substation conductor and relaying</li> </ul>	\$3.6 M	06/01/2026
APS-2024-017	Grafton – Pruntytown 138 kV	308 / 376 / 349 / 445	<ul style="list-style-type: none"> <li>At Grafton Substation, replace circuit breaker, disconnect switches, substation conductor and relaying</li> <li>At Pruntytown Substation, replace disconnect switches, line trap, substation conductor and relaying</li> </ul>	\$1.8 M	12/31/2026

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

**Project Status:** Conceptual

**Model:** 2023 RTEP model for 2028 Summer (50/50)

# 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

3/5/2024– V1 – Original version posted to pjm.com