

Subregional RTEP Committee – Western FirstEnergy Supplemental Projects

November 19, 2021

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: APS-2021-006, APS-2021-010

Process Stage: Solution Meeting 11/19/2021

Previously Presented:

Need Meeting 06/15/2021 (APS-2021-006) & Need meeting 08/16/2021 (APS-2021-010)

Project Driver:

*Equipment Material Condition, Performance and Risk
Operational Flexibility and Efficiency*

Specific Assumption Reference:

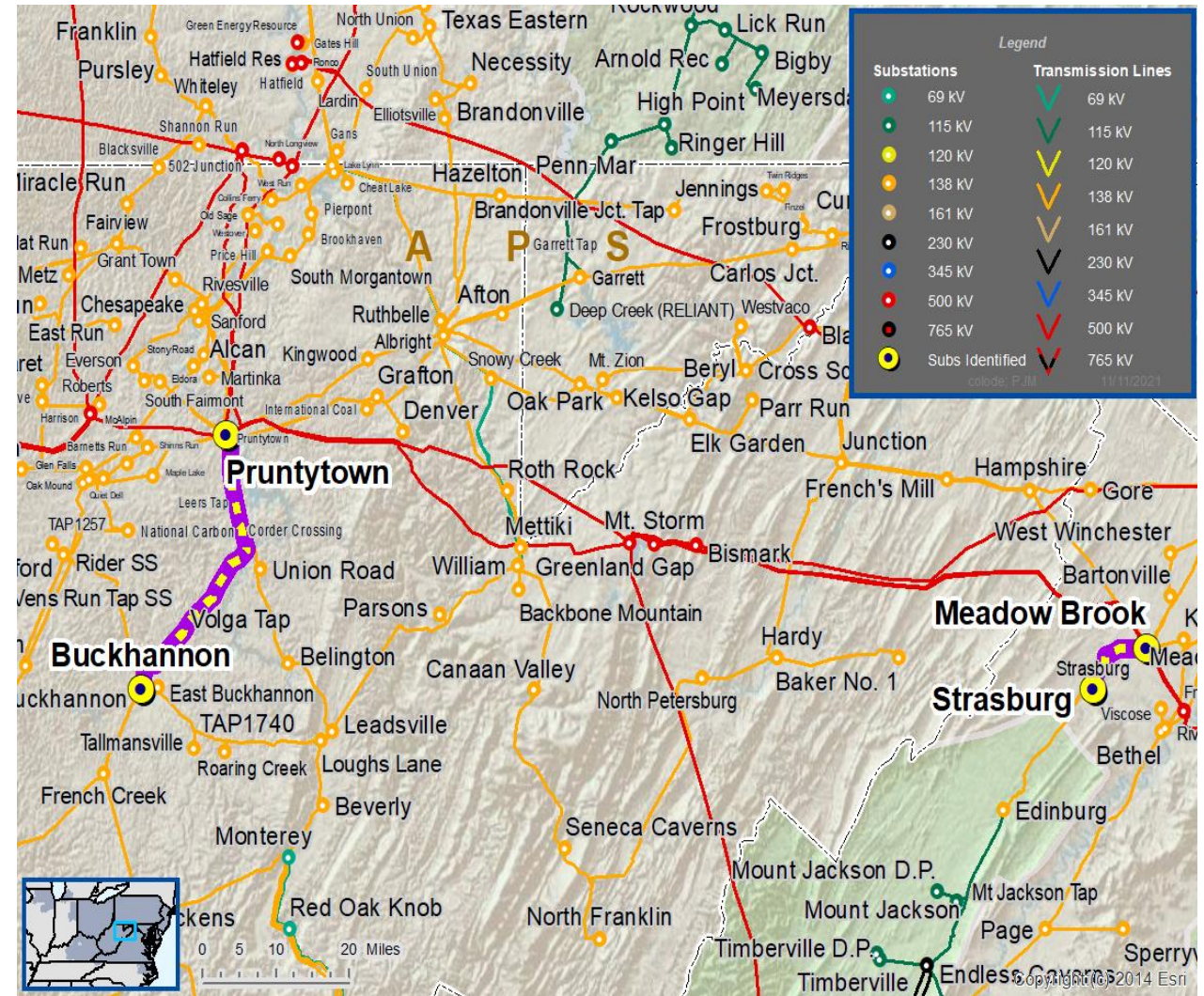
System Performance Projects Global Factors

- System reliability and performance
- Substation/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

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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many cases the protection equipment cannot be repaired due to a lack of replacement part and available expertise in the outdated technology.
- Transmission line ratings are limited by terminal equipment.

Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2021-006	Meadow Brook – Strasburg 138 kV Line	229 / 229	275 / 333	Relay Thermals, CT, and Wave Trap

Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2021-010	Buckhannon – Volga Tap 138 kV Line	164 / 206	221 / 268	Disconnect Switch, Substation Conductor, Wave Trap
	Volga Tap – Corder Crossing 138 kV Line	221 / 268	221 / 268	N/A
	Corder Crossing – Leer South 138 kV Line	221 / 268	221 / 268	N/A
	Leer South – Pruntytown 138 kV Line	250 / 287 WN/WE	250 / 317 WN/WE	Meter



APS Transmission Zone M-3 Process Misoperation Relay Projects

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2021-006	Meadow Brook – Strasburg 138 kV Line	275 / 333	<ul style="list-style-type: none"> Meadow Brook 138 kV Substation – Replace wave trap Strasburg 138 kV Substation – Replace line relaying, CT, and wave trap 	\$1.1M	03/31/2022
Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2021-010	Buckhannon – Volga Tap 138 kV Line	221 / 268	<ul style="list-style-type: none"> Pruntytown 138 kV Substation – Replace disconnect switch, substation conductor, and wave trap 	\$1.6M	11/23/2022
	Leer South – Pruntytown 138 kV Line	221 / 268	<ul style="list-style-type: none"> Pruntytown 138 kV Substation – Meter 		

Alternatives Considered: Maintain existing condition

Project Status: Conceptual

Model: 2020 RTEP model for 2025 Summer (50/50)

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

11/08/2021 – V1 – Original version posted to pjm.com

11/11/2021 – V2 – Updated map on slide 3

11/19/2021 – V3 – Remove 'APS-2021-005' text from need number on slide 3