

Subregional RTEP Committee - Western FirstEnergy Supplemental Projects

February 17, 2021

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: APS-2021-001

Process Stage: Need Meeting 2/17/2021

Project Driver:

Customer Service

Operational Flexibility and Efficiency

Specific Assumption Reference:

Global Factors

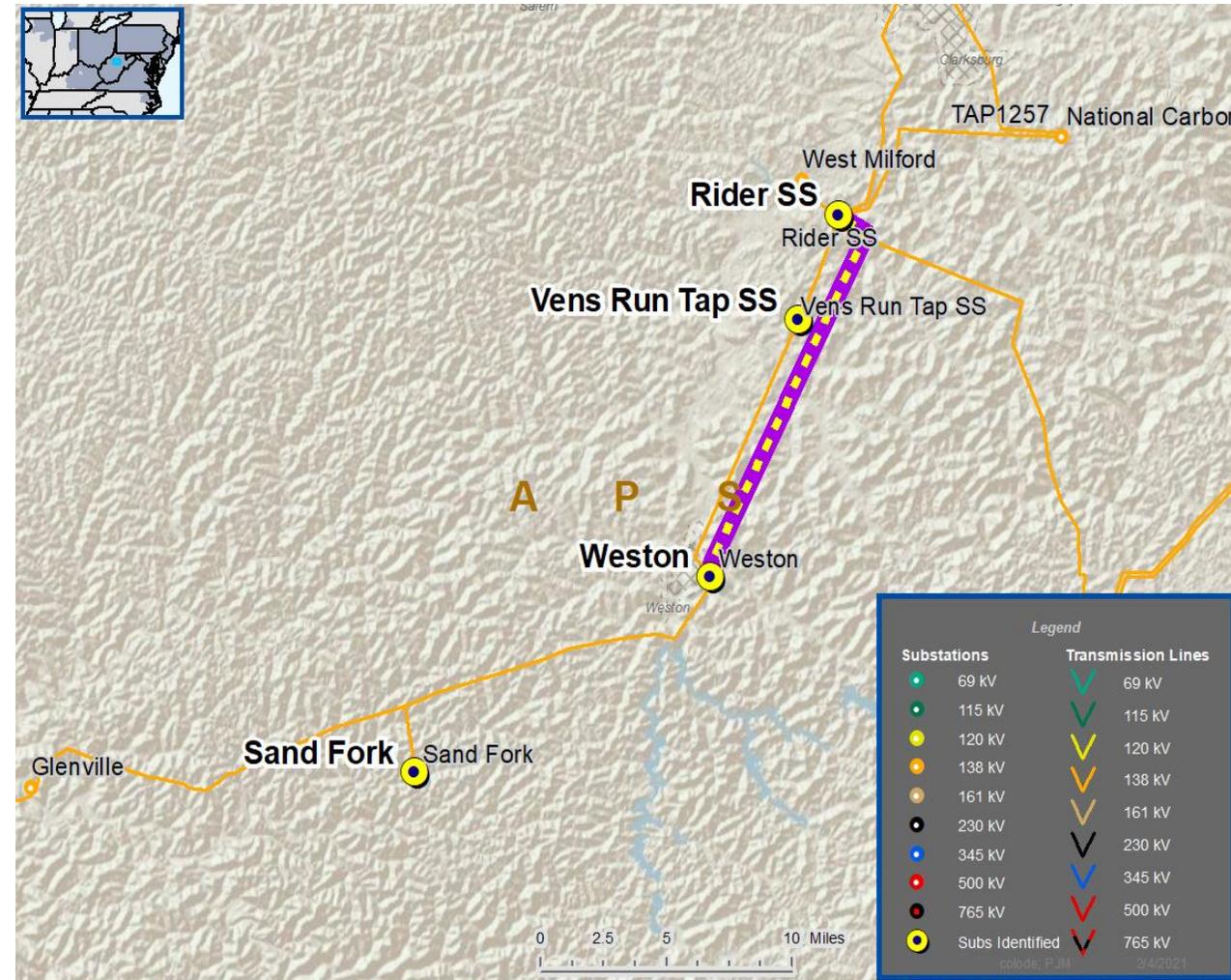
- System reliability and performance

Add/Expand Bus Configuration

- Capability to perform substation maintenance

Problem Statement:

Due to the load addition at Vens Run (s2293), subsequent analysis identified a low voltage condition at Weston, Vens Run, and Sand Fork 138 kV substations (0.89 p.u.) for a maintenance outage of the Rider to Vens Run 138 kV line followed by the loss of the Weston 138 kV capacitor.



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-2020-001

Process State: Solution Meeting 2/17/2021

Previously Presented: Need Meeting 4/12/2020

Project Driver:

Equipment Material Condition, Performance and Risk

Operational Flexibility and Efficiency

Specific Assumption Reference:

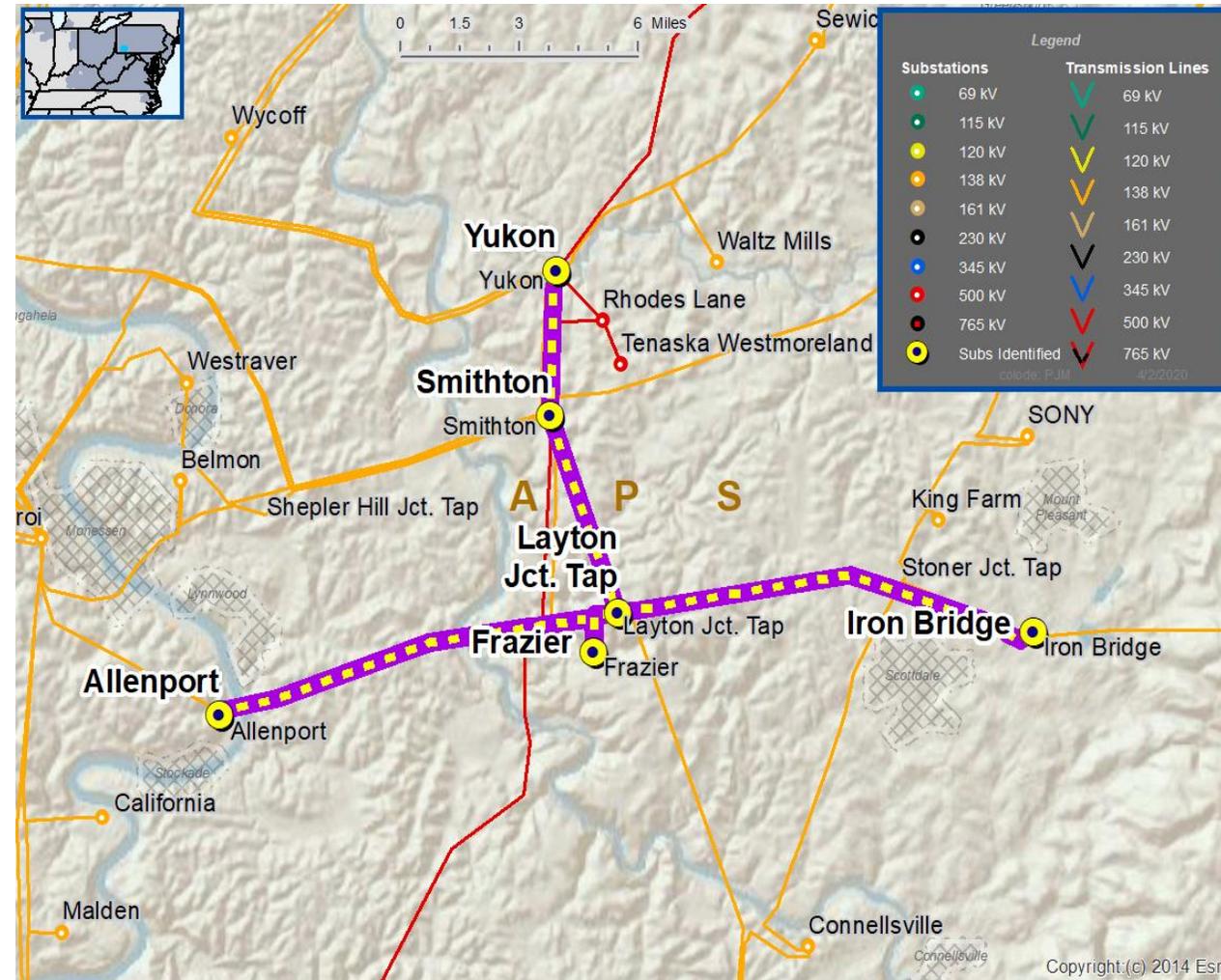
System Performance Projects Global Factors

- 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

Continued on next slide...



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.

Need #	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2020-001	Allenport – Frazier 138 kV Line	225/295	294/360	Substation Conductor, Line Trap
	Frazier – Layton Junction 138 kV Line	292/359	292/359	N/A
	Yukon – Smithton Tap 138 kV Line	285/287	285/351	Line Relaying, Line Trap
	Smithton Tap – Layton Junction 138 kV Line	236/299	236/299	N/A
	Iron Bridge – Layton Junction 138 kV Line	225/287	268/333	Line Relaying, Substation Conductor, Line Trap, CTs

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
APS-2020-001	Allenport – Frazier 138 kV Line	294/360	<ul style="list-style-type: none"> Allenport 138 kV Substation – Replace line disconnect switches, CCVT, line Trap, line tuner, coax, replace substation conductor, install AMETEK Smart-Gap in line tuner 	\$3.8 M	4/2/21
	Frazier – Layton Junction 138 kV Line	292/359	-		
	Yukon – Smithton Tap 138 kV Line	285/351	<ul style="list-style-type: none"> Yukon 138 kV Substation – Replace line disconnect switches, CCVT, line trap, line tuner, coaxial cable, install AMETEK Smart-Gap in line tuner 		
	Smithton Tap – Layton Junction 138 kV Line	236/299	-		
	Iron Bridge – Layton Junction 138 kV Line	268/333	<ul style="list-style-type: none"> Iron Bridge 138 kV Substation – Replace line disconnect switch, CCVT, line trap, line tuner, coaxial cable, substation conductor, install AMETEK Smart-Gap in line tuner 		

Alternatives Considered: Maintaining existing condition

Project Status: Engineering

Model: 2020 RTEP model for 2025 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

2/5/2021 – V1 – Original version posted to pjm.com