

Subregional RTEP Committee - Western APS Supplemental Projects

July 24, 2019

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-2019-009 and PN-2019-025

Process Stage: Need Meeting 07/24/2019

Previously Presented:

Need Meeting 06/28/2019 (PN-2019-025)

Project Driver:

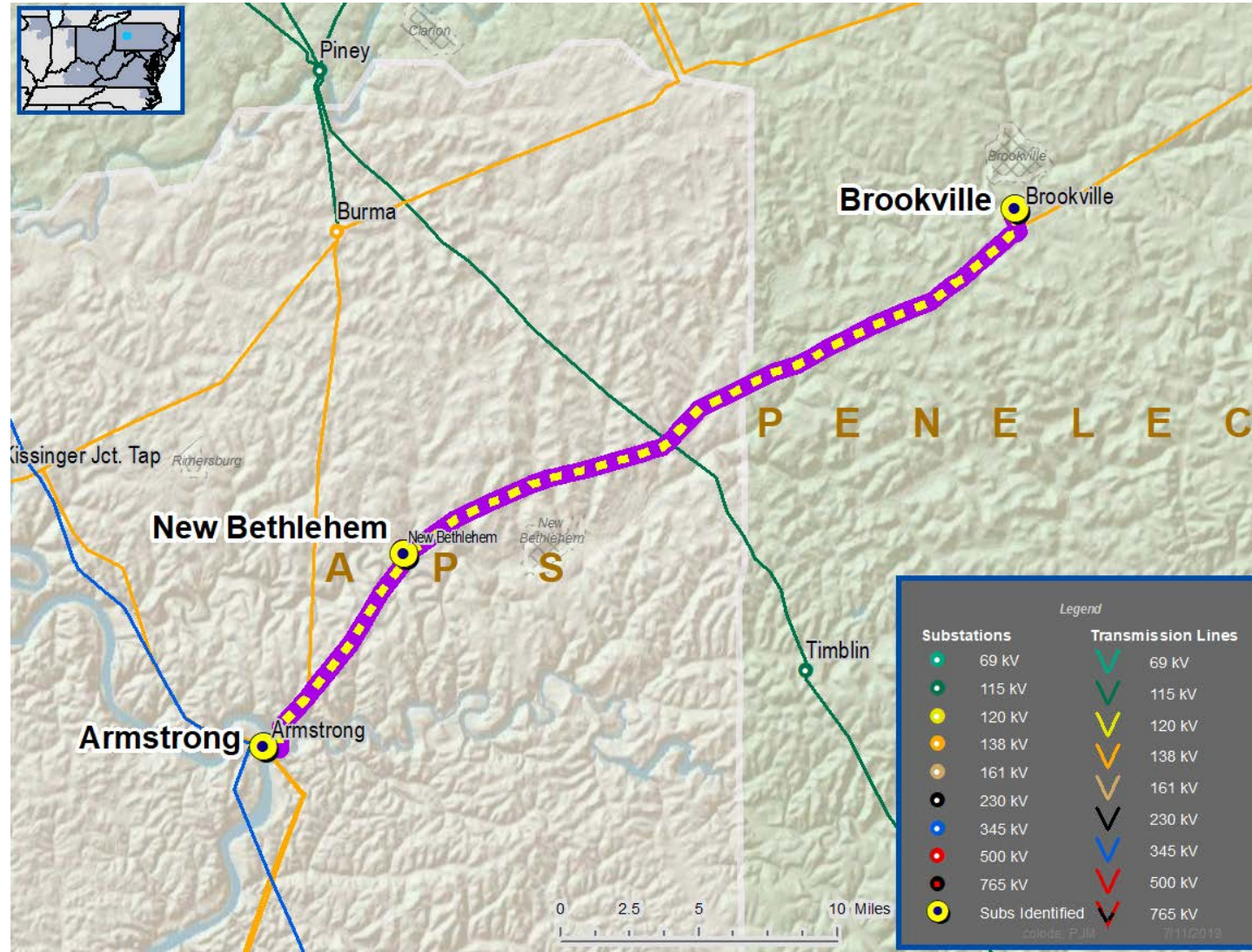
*Equipment Material Condition, Performance and Risk
Operational Flexibility and Efficiency*

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cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.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 Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2019-009 PN-2019-025	Armstrong – New Bethlehem 138 kV Line New Bethlehem – Brookville 138 kV Line	293 / 332 295 / 342	308 / 376 308 / 376	Line Trap, Substation Conductor Line Trap, Substation Conductor, Circuit Breaker

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-2019-003 to 004

Process Stage: Solutions Meeting 07/24/2019

Previously Presented:

Needs Meeting 03/25/2019

Project Driver:

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

Specific Assumption Reference:

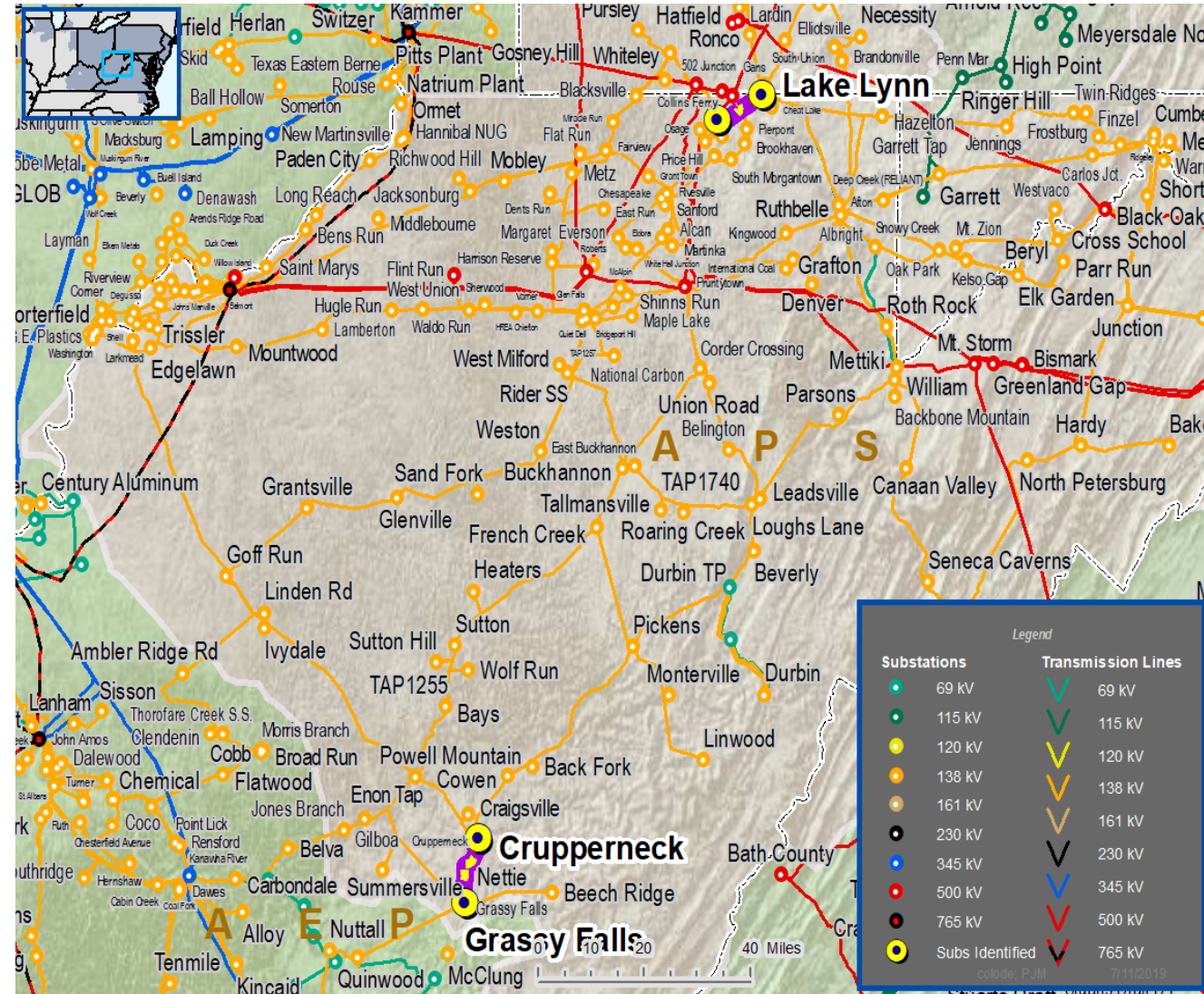
System Performance Projects Global Factors

- 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 Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2019-003	Crupperneck – Grassy Falls 138 kV Line	160 / 192 293 / 306	160 / 192 308 / 376	Line Relaying
APS-2019-004	Collins Ferry – Lake Lynn 138 kV Line	329 / 406 324 / 395	353 / 406 324 / 395	Substation Conductor

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Proposed Solution	Estimated Costs (\$ M)	Target ISD
APS-2019-003	Crupperneck – Grassy Falls 138 kV Line	160 / 192 308 / 376	<ul style="list-style-type: none"> Grassy Falls 138 kV Substation: Replace line relaying, breaker and wave trap. Crupperneck 138 kV Substation: Replace line relaying. 	\$0.7M	12/31/2019
APS-2019-004	Collins Ferry – Lake Lynn 138 kV Line	353 / 406 324 / 395	<ul style="list-style-type: none"> Collins Ferry 138 kV Substation: Replace line relaying and substation conductor. Lake Lynn 138 kV Substation: Replace line relaying. 	\$0.2M	12/31/2019

Alternatives Considered:

- Maintain existing condition and elevated risk of failure

No topology changes, no bubble diagram required.

All projects are in the Conceptual phase.

Model: 2018 Series 2023 Summer RTEP 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

7/17/2019 – V1 – Re-posted separately from the ATSI presentation

7/12/2019 – V1 – Original posting, combined with ATSI presentation