

Subregional RTEP Committee - Western First Energy Supplemental Projects

December 18, 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-2019-014 and APS-2019-015

Process State: Need Meeting 11/22/2019

Project Driver:

Equipment Material Condition, Performance and Risk

Operational Flexibility and Efficiency

Specific Assumption Reference:

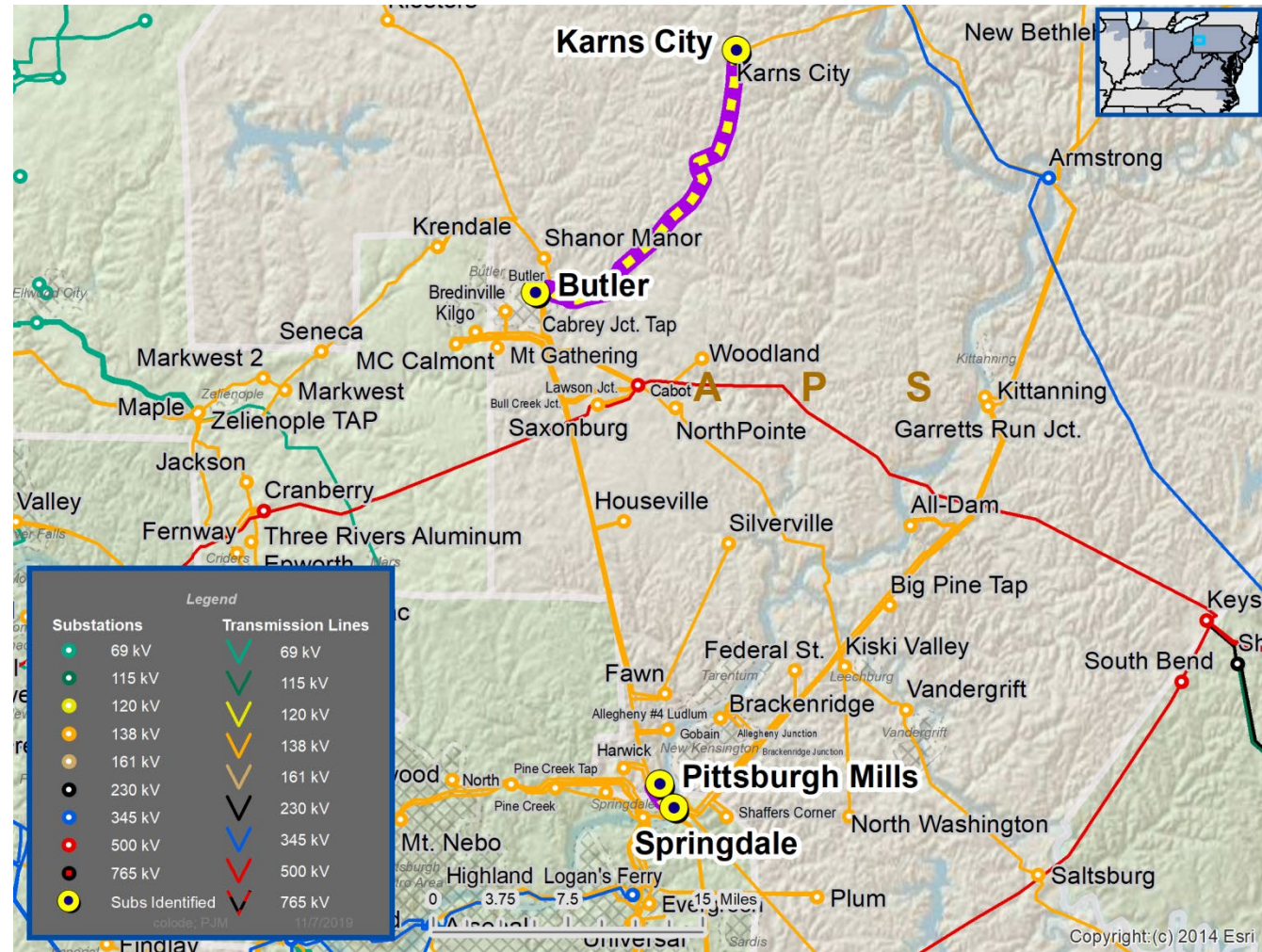
System Performance Projects Global Factors

- 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

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cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.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

Need #	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
APS-2019-014	Pittsburgh Mills – Springdale 138 kV Line	293/302	296/332	Line Trap
APS-2019-015	Karns City – Butler 138 kV Line	141/179	160/192	Substation Conductor

Solutions

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Need Number: APS-2019-009
Process Stage: Solutions Meeting 8/29/2019
Previously Presented:
 Need Meeting 6/28/2019 (PN-2019-025)
 Solutions Meeting 7/31/2019 (PN-2019-025)
 Need Meeting 7/24/2019 (APS-2019-009)

Project Driver:

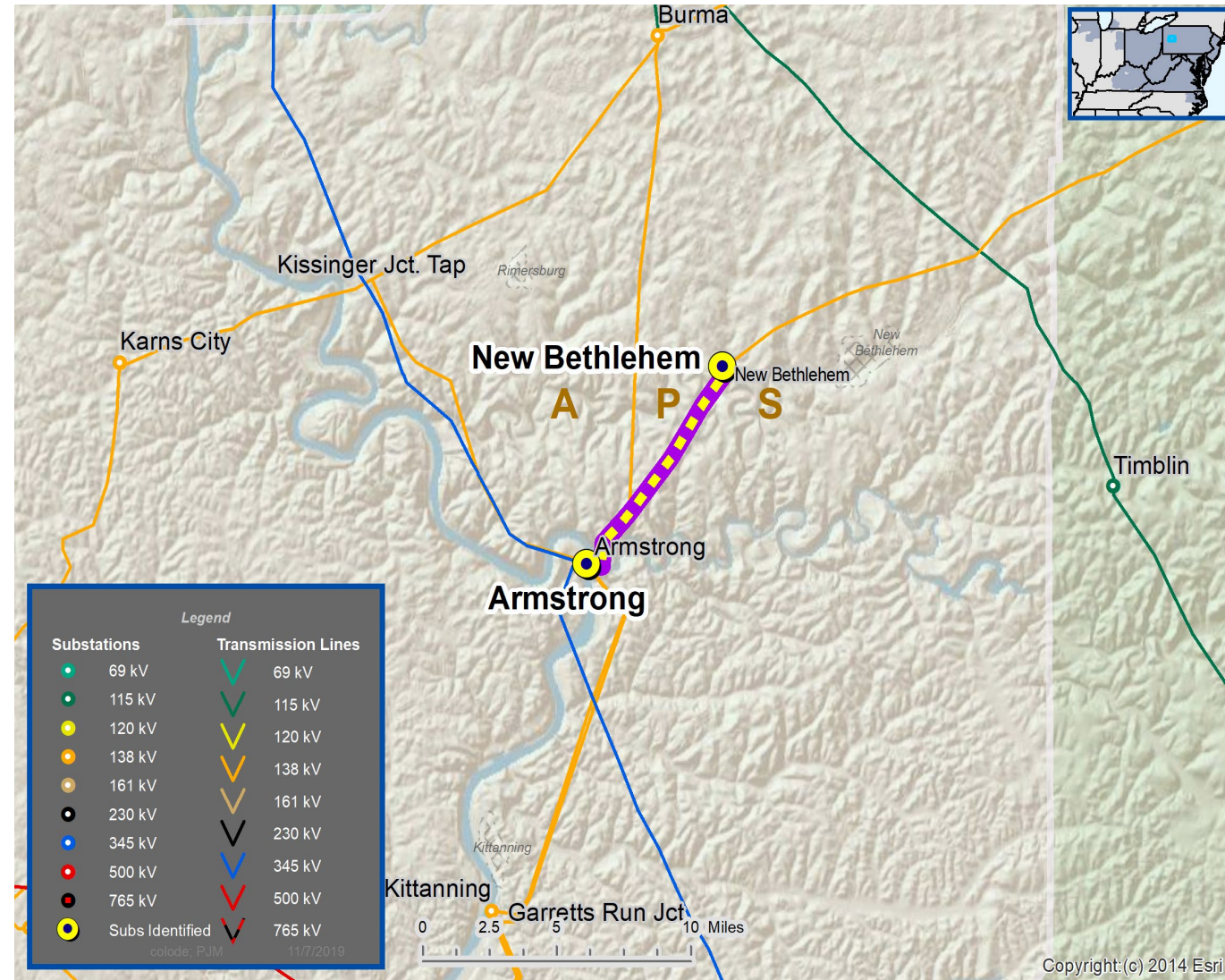
*Equipment Material Condition, Performance and Risk
 Operational Flexibility and Efficiency*

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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

Proposed Solution:

Need #	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Costs (\$ M)	Target ISD
APS-2019-009 PN-2019-025	Armstrong – New Bethlehem 138 kV Line New Bethlehem – Brookville 138 kV Line	308/376 308/376	<ul style="list-style-type: none"> Armstrong 138 kV Substation – Replace line trap and substation conductor 	\$0.4M	4/1/2020

Alternatives Considered:

- Maintain existing condition with elevated risk of failure

No topology changes, no bubble diagram required.

Project Status: Conceptual

Model: 2019 RTEP model for 2024 Summer (50/50)