

PJM TEAC Committee
FirstEnergy Supplemental Projects
APS/Penelec/Met-Ed

July 11, 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

APS/Penelec Transmission Zone M-3 Process

Need Number: PN-2019-026, PN-2019-034, and APS-2019-010

Process Stage: Need Meeting 7/11/2019

Project Driver:

Equipment Material Condition, Performance and Risk

Operational Flexibility and Efficiency

Specific Assumption Reference:

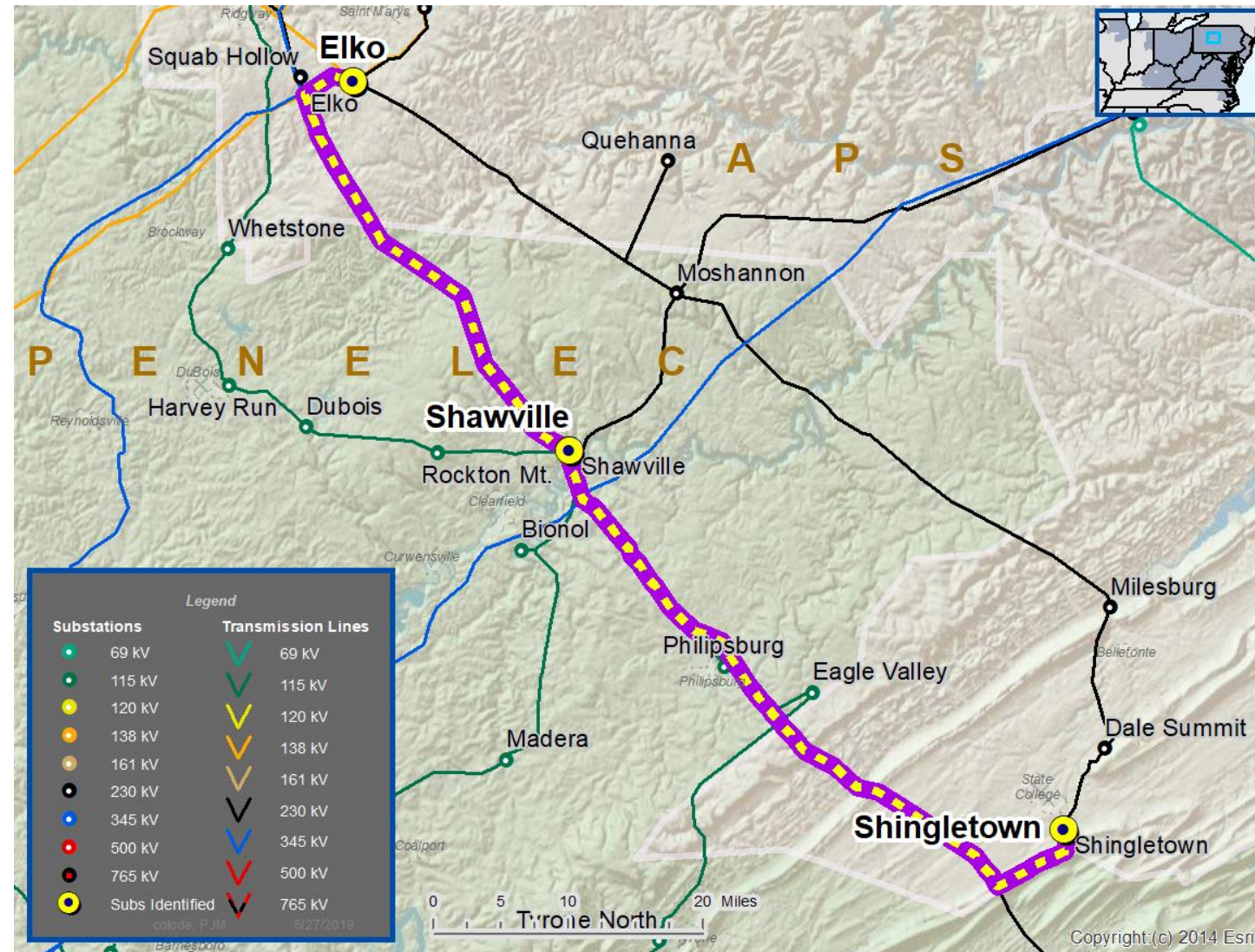
System Performance Projects Global Factors

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cases the protection equipment cannot be repaired due to a lack of replacement part and available expertise in the outdated technology.

Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
PN-2019-026	Shawville – Shingletown 230 kV Line	489/554	546/666	Line Relaying, Line Trap, Substation Conductor
PN-2019-034 APS-2019-010	Elko – Shawville 230 kV Line	489/554	546/666	Line Relaying, Line Trap, Substation Conductor

Penelec Transmission Zone M-3 Process

Need Number: PN-2019-032

Process Stage: Need Meeting 7/11/2019

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Substation Condition Rebuild/Replacement

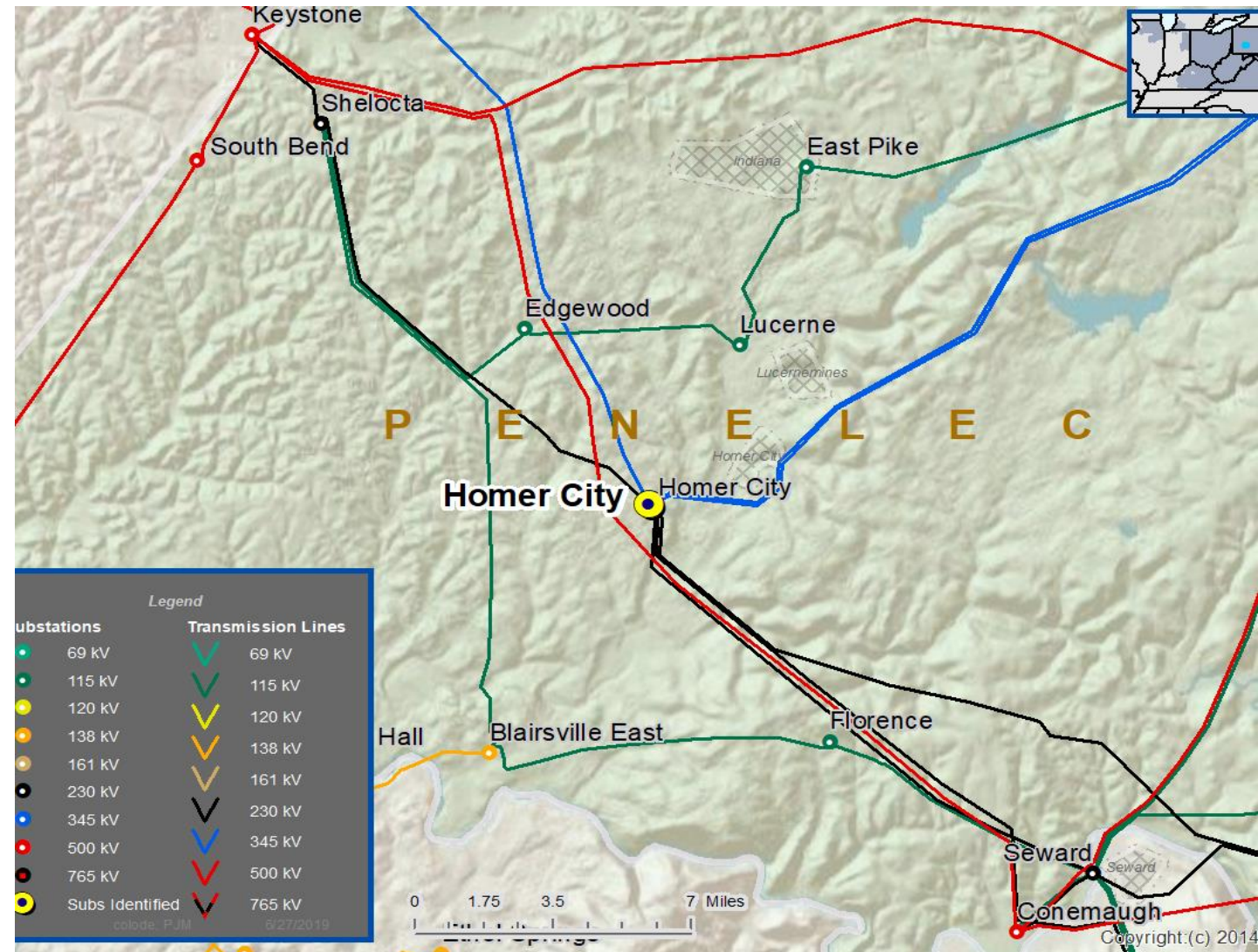
- Power transformers and load tap changers (LTCs)
- Station system protection and controls

Problem Statement:

Homer City North 345/230-23 kV Transformer

- Transformer has increased failure probability due to:
 - Type “U” bushings
 - High level heating gases and moisture
 - Deteriorated control cabinet components
 - Obsolete parts
 - Leaks
- Transformer is 51 years old.

Transformer circuit rating is the existing transformer rating of 653/697 MVA (SN/SE).



Penelec Transmission Zone M-3 Process

Need Number: PN-2019-033

Process State: Need Meeting 7/11/2019

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

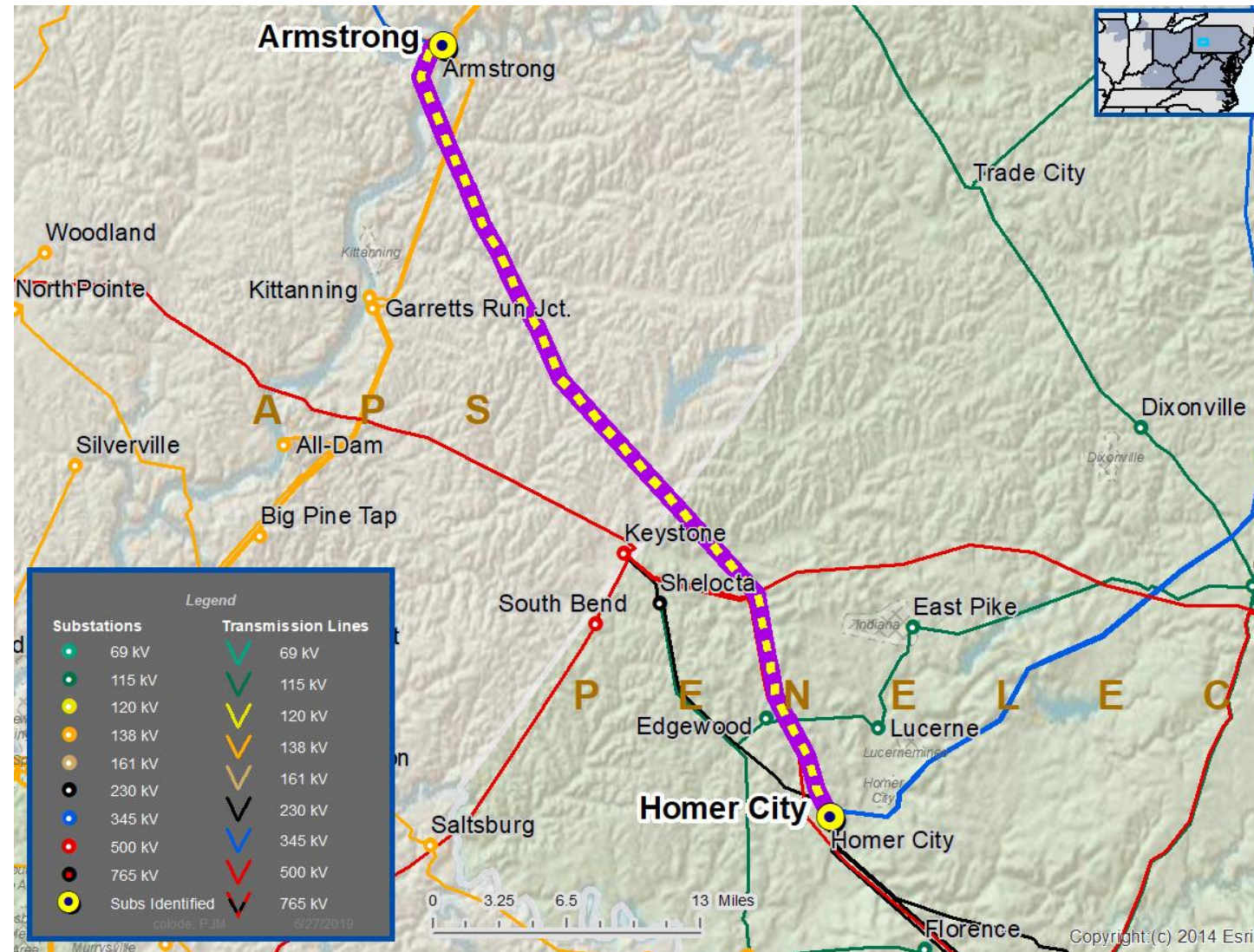
Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures

Problem Statement:

The Armstrong – Homer City 345 kV line is exhibiting deterioration resulting in increased maintenance. The structures are approaching end of life. The line was originally constructed in 1967.

- Total line distance is approximately 34.5 miles
- 167 out of 204 structures failed inspection (82% failure rate)
- Failure reasons include age, woodpecker damage, top rot, bayonet top, and weatherization.



Met-Ed Transmission Zone M-3 Process

Need Number: ME-2019-030

Process State: Need Meeting 7/11/2019

Project Driver:

Customer Service

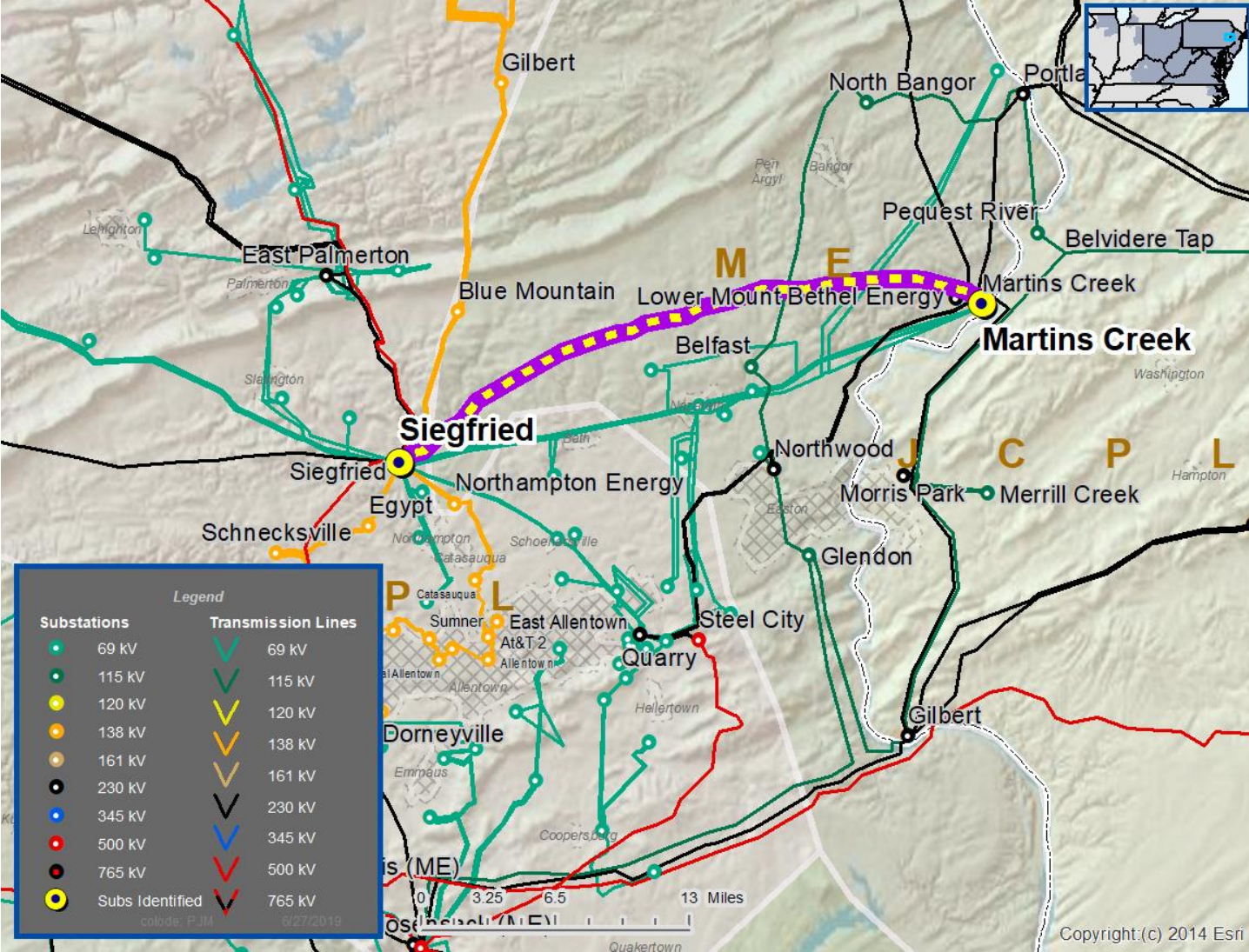
Specific Assumption Reference:

Customer request will be evaluated per FirstEnergy’s “Requirements for Transmission Connected Facilities” document and “Transmission Planning Criteria” document.

Problem Statement:

New Customer Connection – A customer requested 230 kV service; anticipated load of approximately 27 MVA; location is near the PPL Martins Creek – Siegfried #2 230 kV line.

Requested in-service date is 6/1/2021



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

07/01/2019 – V1 – Original version posted to pjm.com

07/11/2019 – V2 – Corrected Project Driver for ME-2019-030 (Slide #7)