

Subregional RTEP Committee – Mid-Atlantic FirstEnergy (Penelec) Supplemental Projects

April 16, 2020

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: PN-2020-004 and APS-2020-003

Process State: Need Meeting 04/16/2020

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

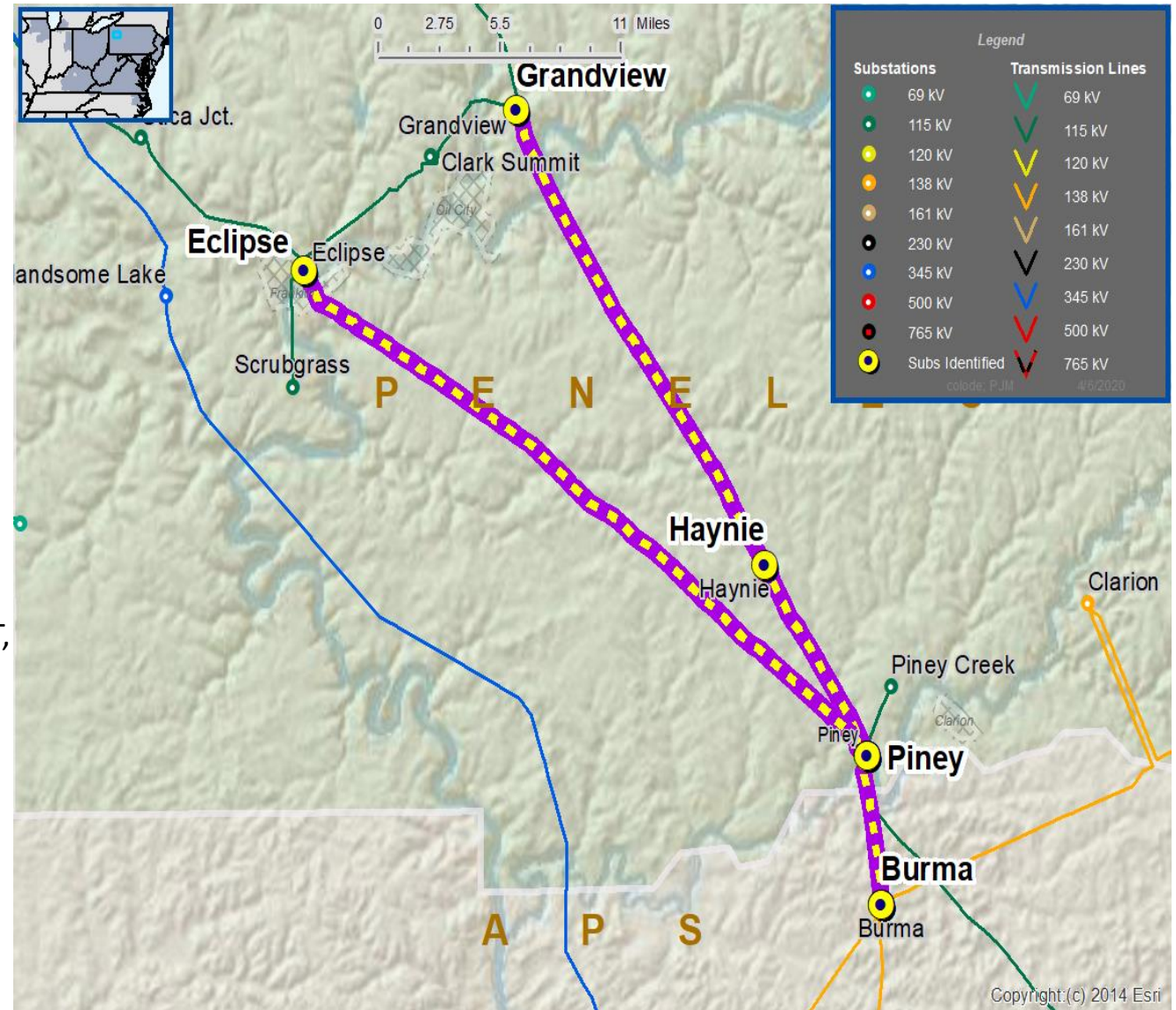
System Condition Projects

- Substation Condition Rebuild/Replacement

Upgrade Relay Schemes

- Relay schemes that have a history of misoperation
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades

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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cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.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 Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
PN-2020-004	Grandview – Haynie 115 kV Line Haynie – Piney 115 kV Line	147/190 147/190	202/245 202/245	Line Relaying, Line Trap, Substation Conductor Line Relaying, Line Trap, Substation Conductor, Current Transformers
PN-2020-004 APS-2020-003	Burma – Piney 115 kV Line	244/277	257/313	Line Trap, Substation Conductor, Circuit Breaker
PN-2020-004	Eclipse – Piney 115 kV Line	164/190	232/282	Line Relaying, Line Trap, Substation Conductor

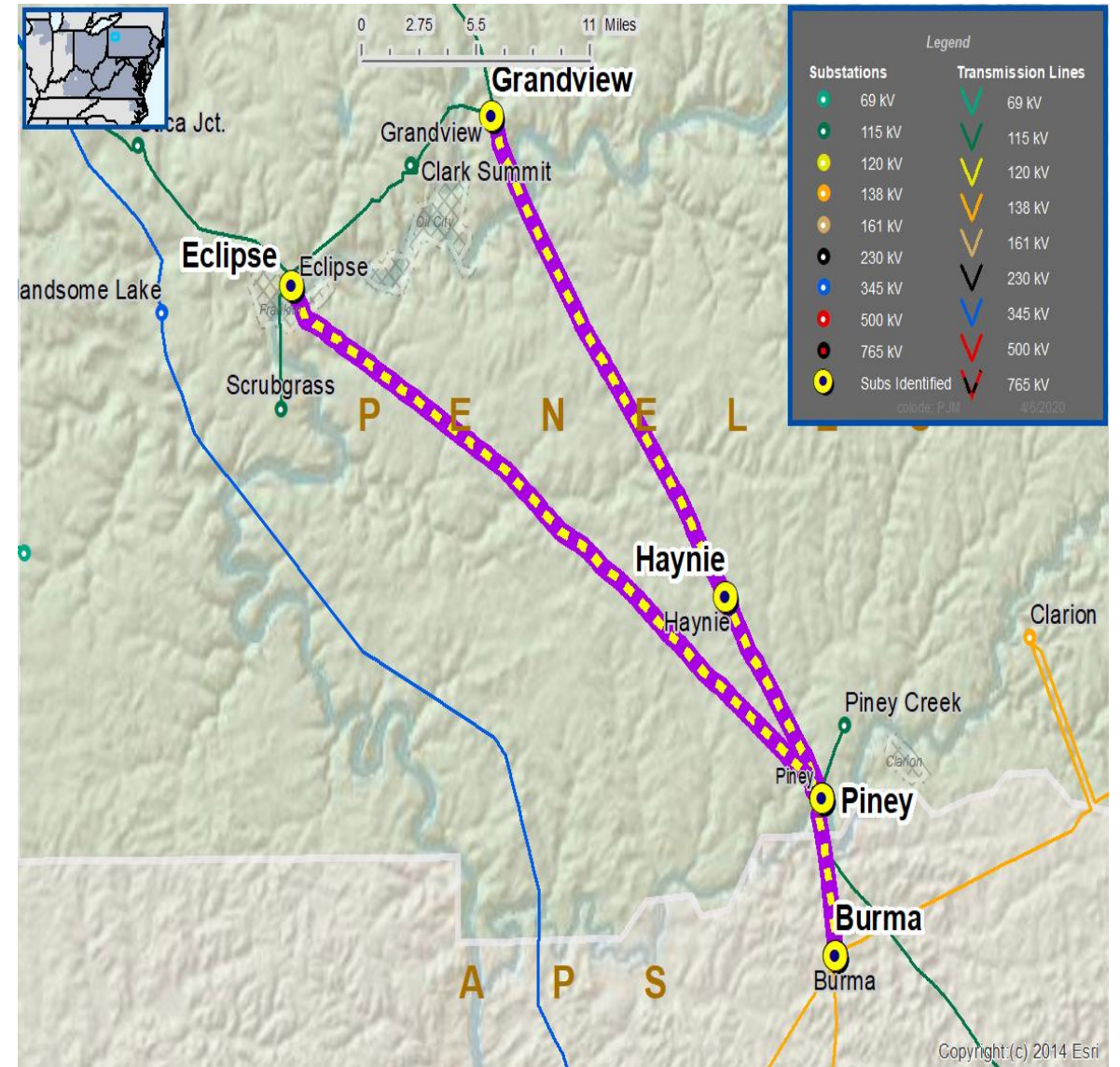
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Problem Statement (Continued):

Piney 115 kV Substation (Multiple System Condition Issues Identified)

- Burma 115 kV Terminal:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn
- Grandview 115 kV Terminal:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn
- Timblin 115 kV Terminal:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn
 - The existing line rating is the existing conductor rating of 178/214 MVA (SN/SE)
- Eclipse 115 kV Terminal:
 - Infrared inspection revealed hot spots on switches
- 115 kV bus tie breaker:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn

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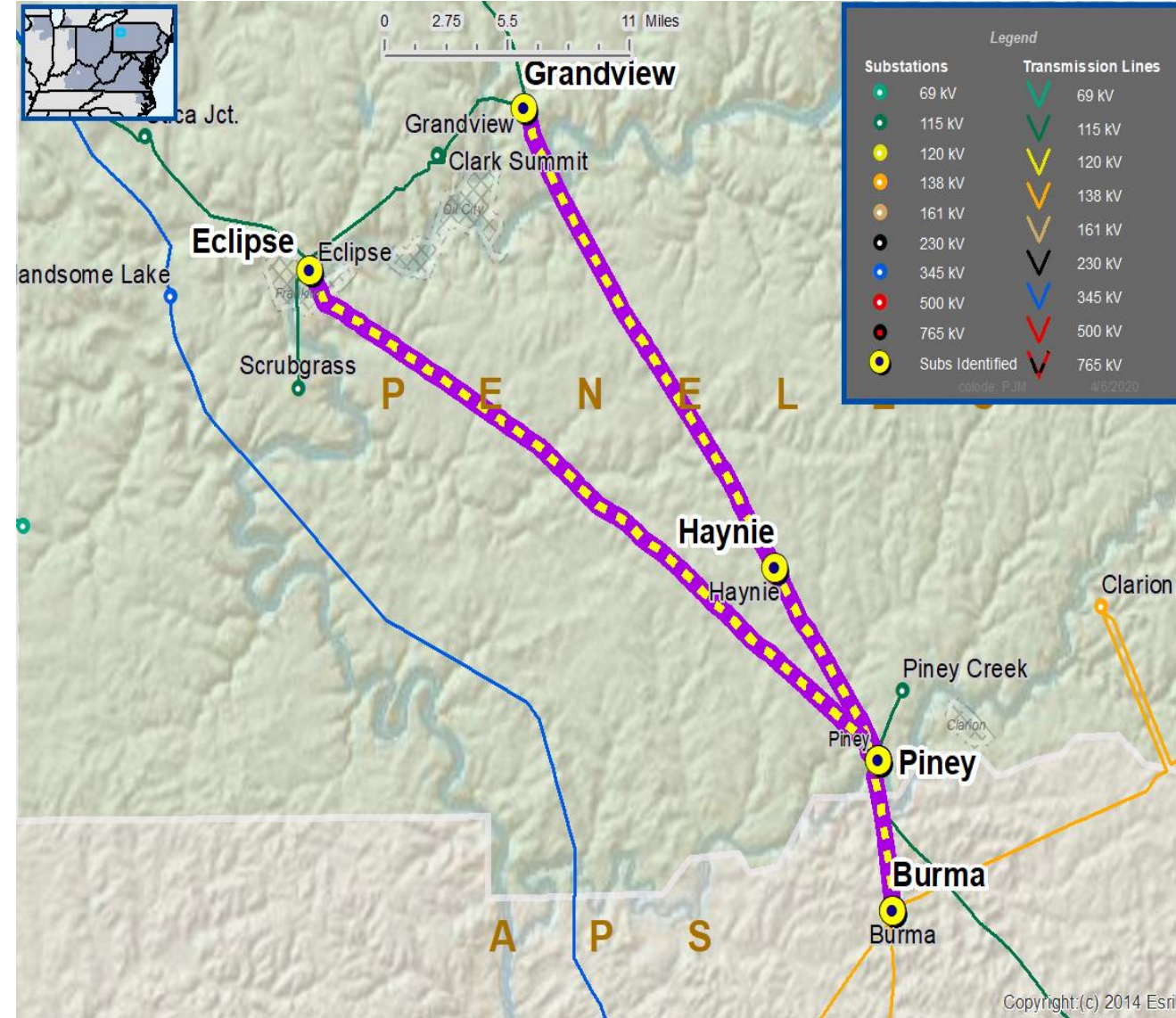
Problem Statement (Continued):

Piney 115 kV Substation Continued...

- No. 3 Transformer 115 kV Terminal:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn
- No. 4 Transformer 115 kV Terminal:
 - Breaker is experiencing oil leaks, foundation needs to be repaired, and oil containment needs replaced
 - Breaker disconnect switches are heavily worn

Grandview 115 kV Substation

- Piney 115 kV Terminal:
 - Breaker is experiencing SF6 gas leaks, replacement parts have been discontinued and AC alarm is failed
 - Breaker disconnect switches are heavily worn



Questions?



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

4/6/2020 – V1 – Original version posted to pjm.com