

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

May 21, 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

Penelec Transmission Zone M-3 Process

Somerset – Ralphton - Hooversville - Tower 51 115 kV Line

Need Number: PN-2020-009, PN-2020-010

Process Stage: Needs Meeting 5/21/2020

Project Driver:

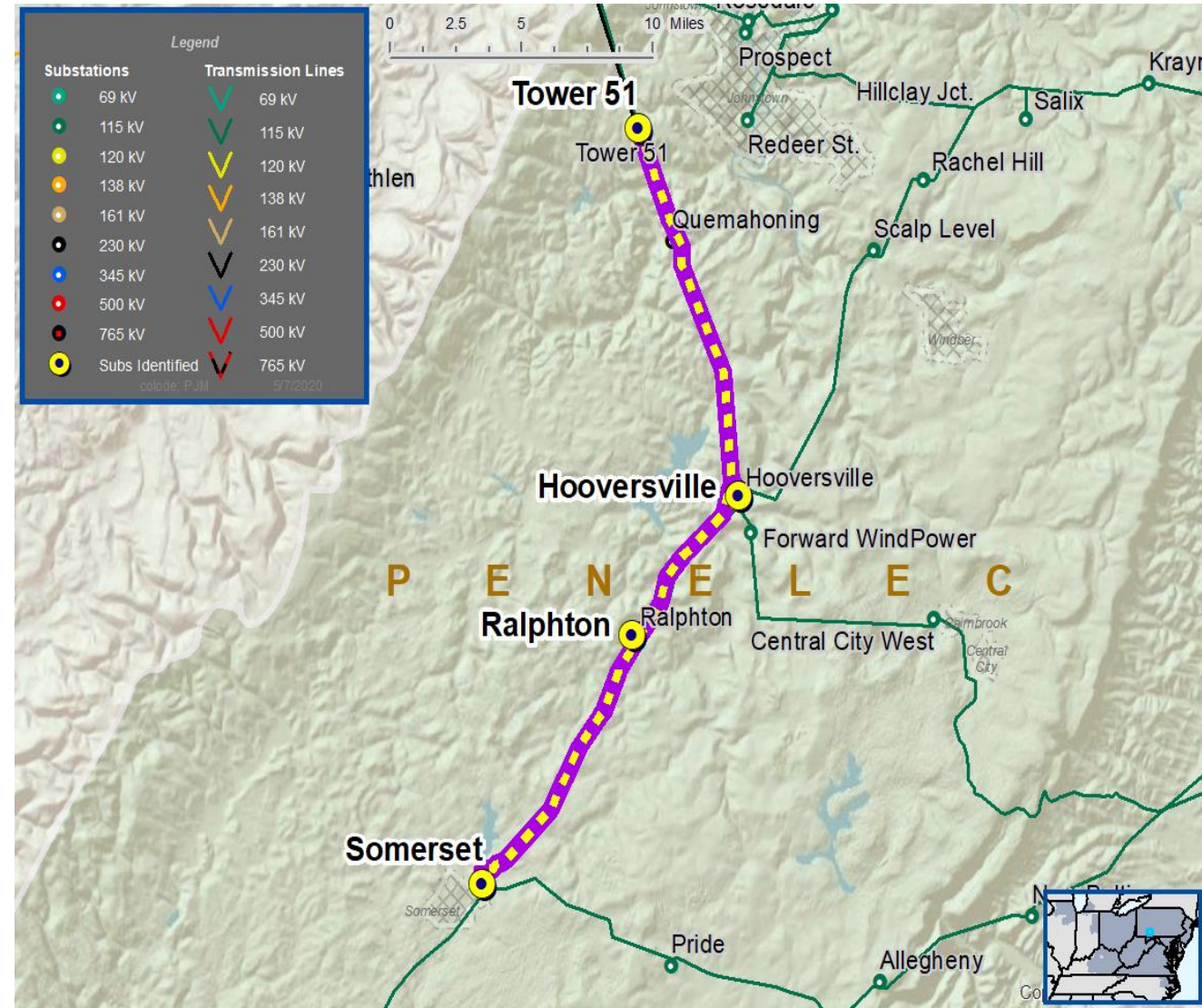
*Equipment Material Condition, Performance and Risk
Operational Flexibility and Efficiency*

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

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Need Number PN-2020-011

Process Stage: Needs Meeting 5/21/2020

Project Driver:

Equipment Material Condition, Performance and Risk

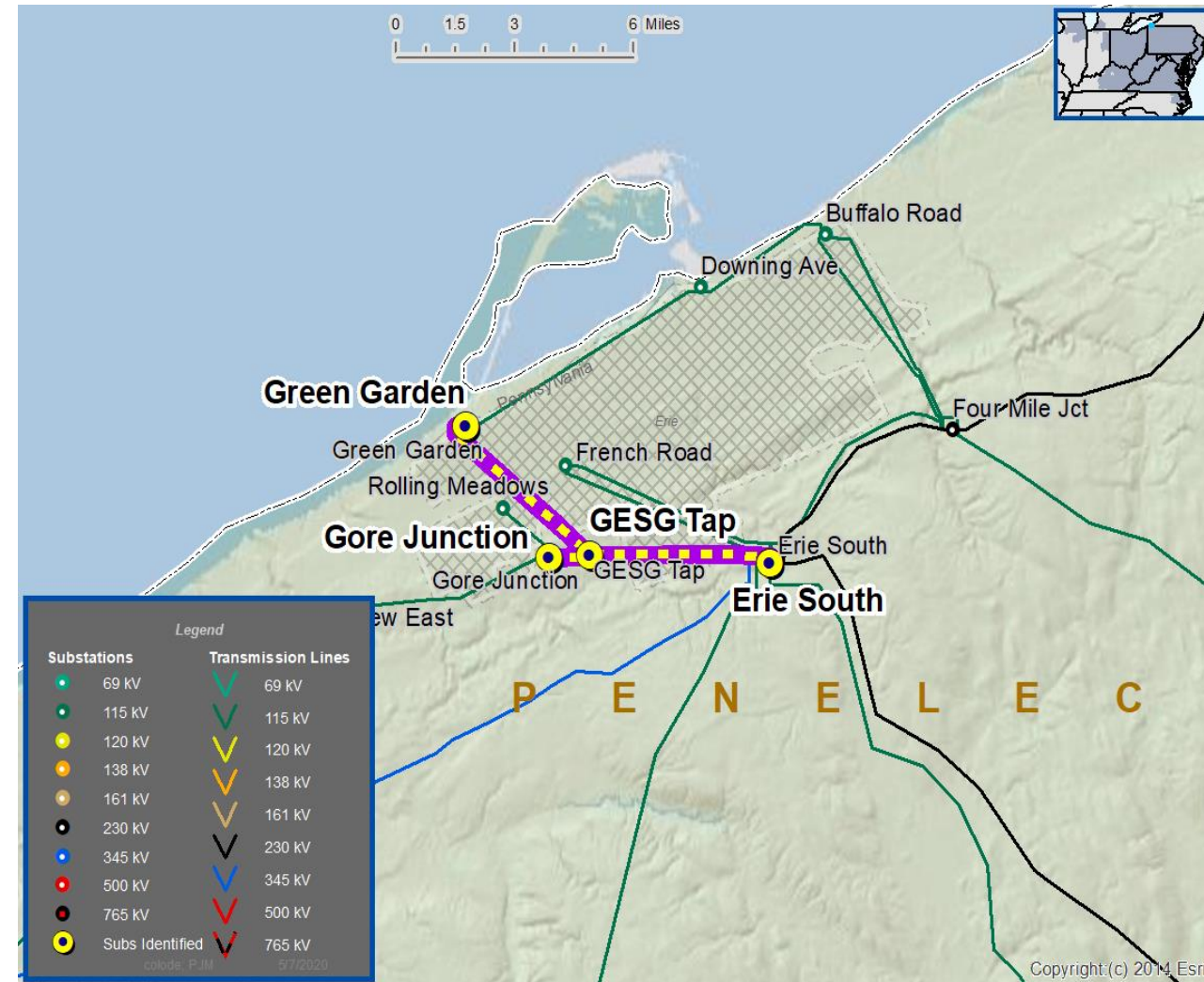
Operational Flexibility and Efficiency

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

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Need Number: PN-2020-012

Process Stage: Needs Meeting 5/21/2020

Project Driver:

Equipment Material Condition, Performance and Risk

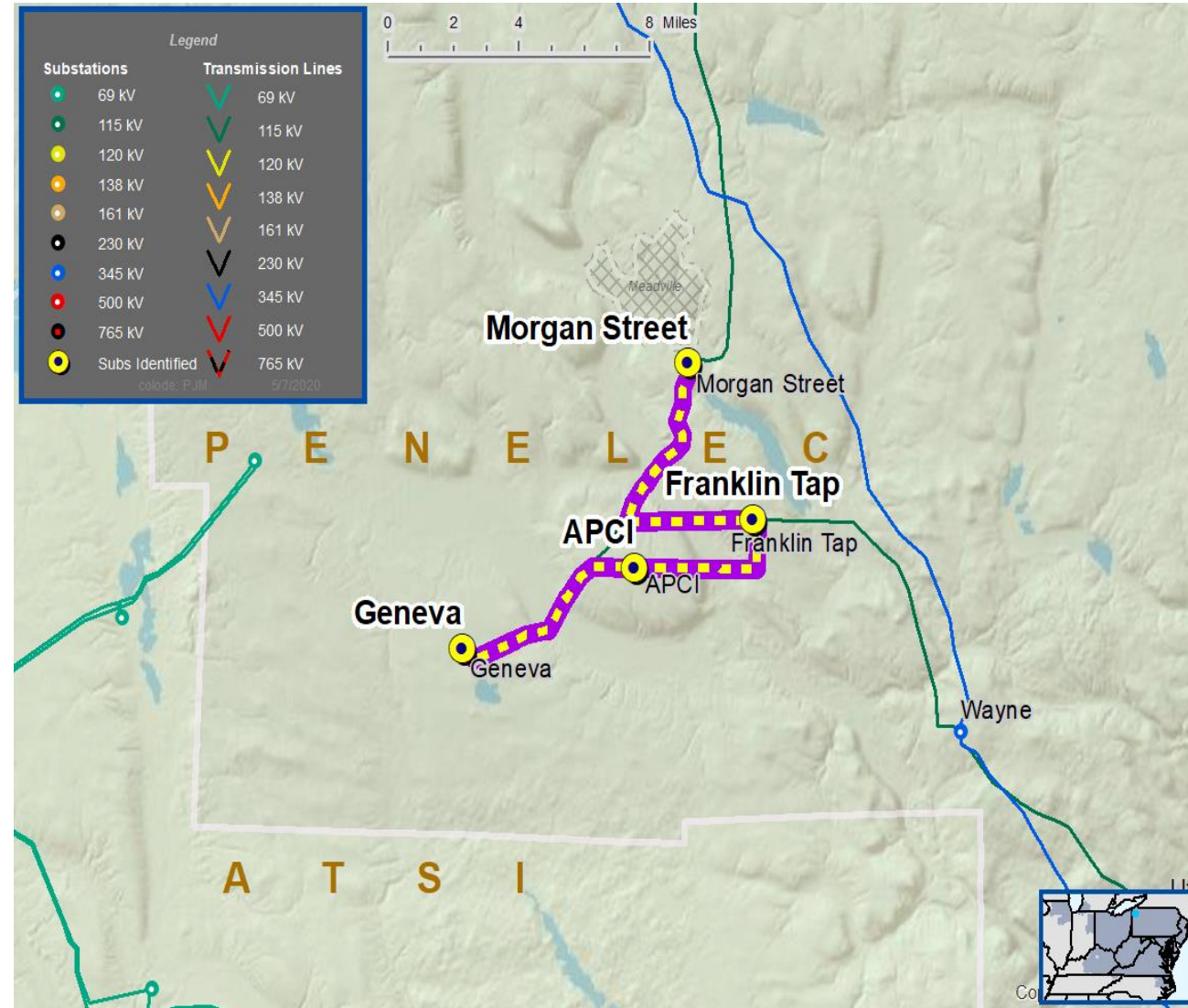
Operational Flexibility and Efficiency

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

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Need Number: PN-2020-015, and APS-2020-008

Process Stage: Needs Meeting 5/21/2020

Project Driver:

Equipment Material Condition, Performance and Risk

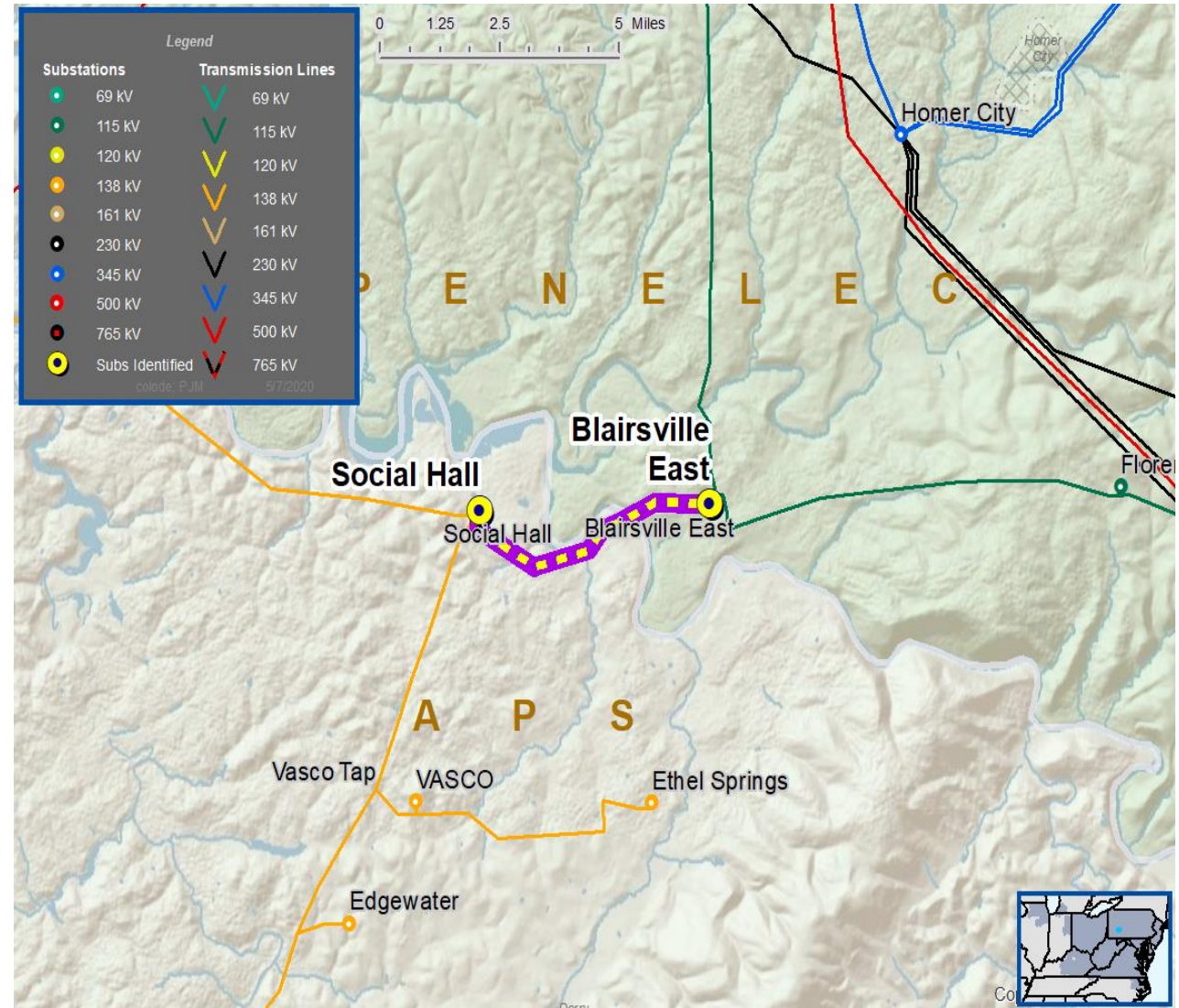
Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits
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 - 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 part 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-2020-009	Somerset – Ralphton 115 kV Line	163 / 185	202 / 245	Line Trap, Line Relaying, Substation Conductor
	Ralphton – Hooversville 115 kV Line	221 / 255	232 / 282	Line Trap, Line Relaying, Substation Conductor
PN-2020-010	Hooversville – Tower 51 115 kV Line	137 / 172	178 / 214	Disconnect Switches, CTs, Substation Conductor, Line Trap, Line Relaying
PN-2020-011	Erie South – GESG Tap 115 kV Line	202 / 245	202 / 245	N/A
	GESG Tap – Gore Junction 115 kV Line	274 / 344	354 / 406	Disconnect Switch
	GESG Tap – Green Garden 115 kV Line	232 / 282	232 / 282	N/A
PN-2020-012	Morgan Street – Franklin Tap 115 kV Line	221 / 239	232 / 282	Substation Conductor, Line Relaying, Line Trap
	Franklin Tap – Air Products 115 kV Line	202 / 245	202 / 245	N/A
	Air Products – Geneva 115 kV Line	202 / 239	202 / 245	Line Relaying
PN-2020-015 APS-2020-008	Blairsville East – Social Hall 138 kV Line	225 / 287	243 / 294	Substation Conductor, CTs, Line Relaying, Line Trap

Penelec Transmission Zone M-3 Process

Raystown – McConnellstown 46 kV

Need Number: PN-2020-014

Process State: Need Meeting 05/22/2020

Project Driver:

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

Specific Assumption Reference:

System Condition Projects

- Line Condition Rebuild/Replacement
 - Transmission Line Switches

System Performance Projects

- Substation/line equipment limits
- Load at risk in planning and operational scenarios

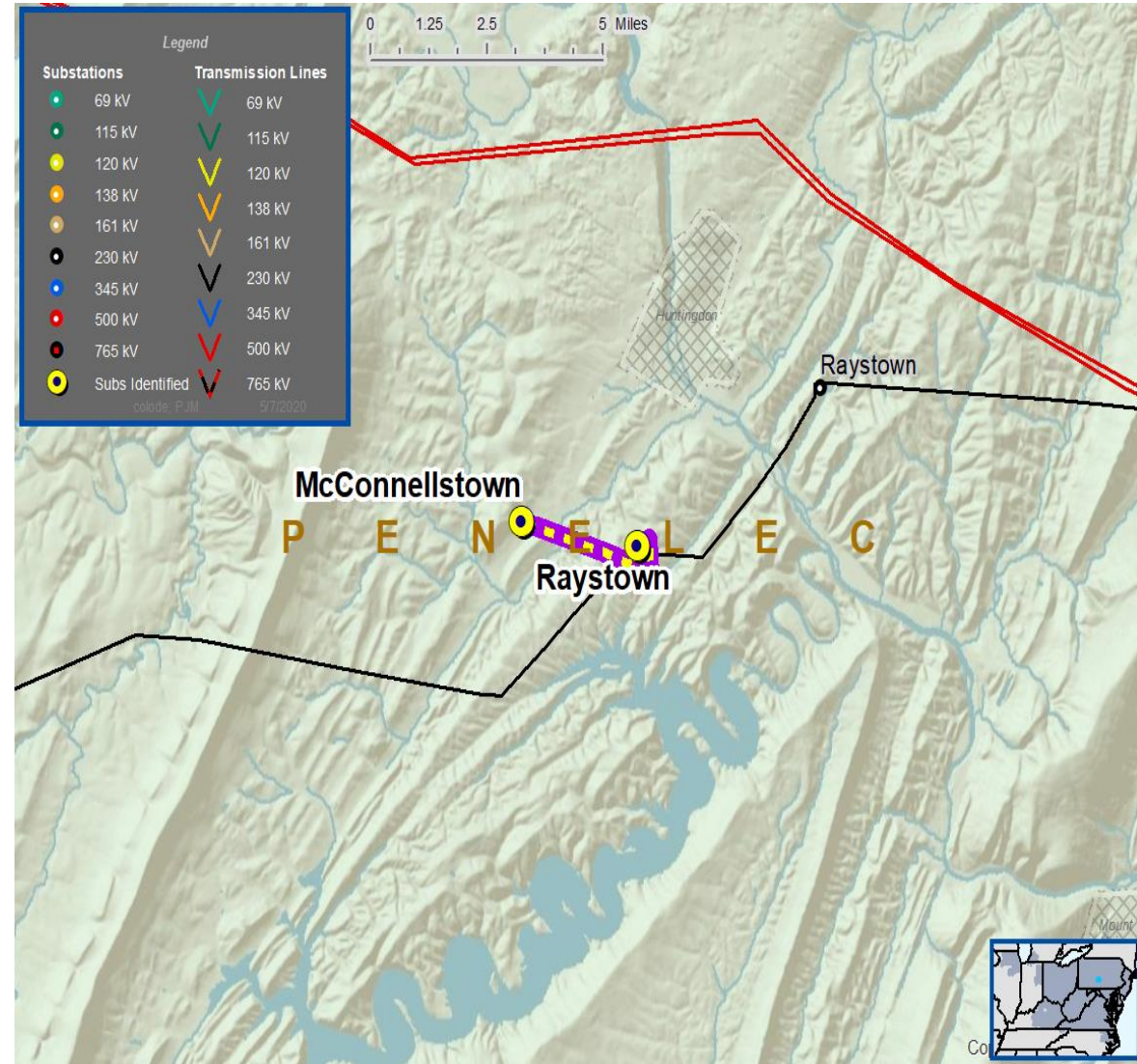
Problem Statement:

The Raystown – McConnellstown 46 kV line has three in-line switches (A-136, A-137, and A-139) that are in degraded condition and have limited availability of spare parts. The existing switches have operational limitations. The motor control units are no longer supported by the manufacturer. Inability to sectionalize this line results in loss of approximately 9 MW of load and approximately 1,136 customers, including a REA.

Transmission line ratings are limited by terminal equipment.

- Allegheny Hydro Tap – Allegheny Hydro 46 kV line rating is limited by the transmission line conductor 52 / 62 MVA (SN/SE).
- Allegheny Hydro Tap – RAM Junction 46 kV line rating is 55 / 69 MVA (SN/SE) and the transmission line conductor rating is 59 / 71 MVA (SN/SE). (disconnect switch)
- RAM Junction – Piney Ridge 46 kV line rating is 55 / 69 MVA (SN/SE) and the transmission line conductor rating is 59 / 71 MVA (SN/SE). (disconnect switch)

Model: 2020 RTEP model for 2025 Summer (50/50)



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

5/11/2020 – V1 – Original version posted to pjm.com