

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

May 18, 2023

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: JCPL-2023-005

Process State: Need Meeting 05/18/2023

Project Driver:

Performance and Risk, Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects Global Factors

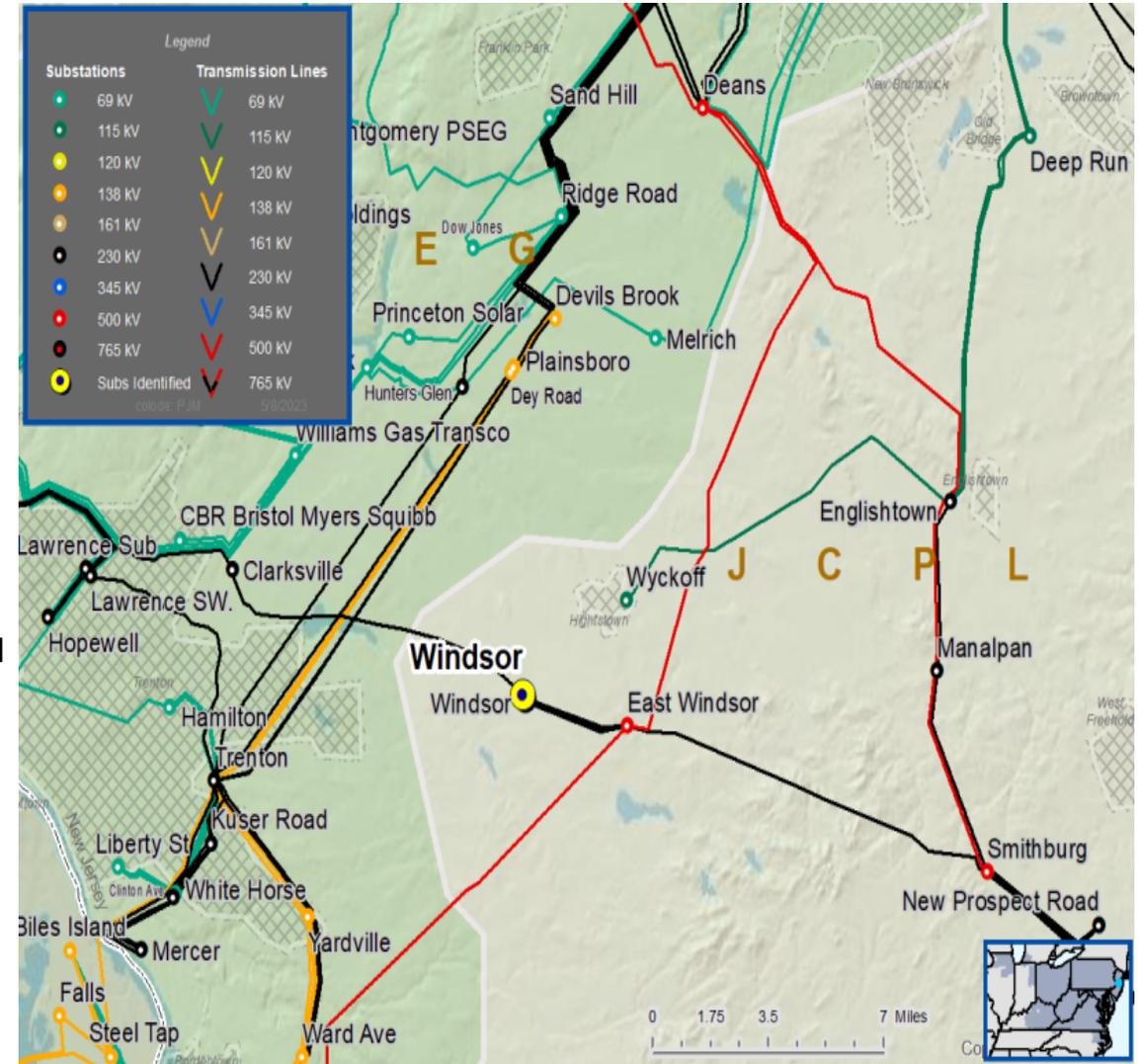
- System reliability and performance
- Reliability of Non-Bulk Electric System (Non-BES) Facilities

Add/Replace Transformers

Past System Reliability/Performance

Problem Statement:

- The 230 – 34.5 kV No. 1 Transformer at Windsor was manufactured in 1973 and is approaching end of life.
- Combustible hot metal gasses have developed and continue to fluctuate.
 - Outages have cost \$33k O&M in last 5 years.
 - Transformer has a high risk of failure.
- Existing TR Ratings:
 - 140 / 140 MVA (SN / SE)



Need Number: JCPL-2023-006

Process State: Need Meeting 5/18/2023

Project Driver:

Performance and Risk, Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects Global Factors

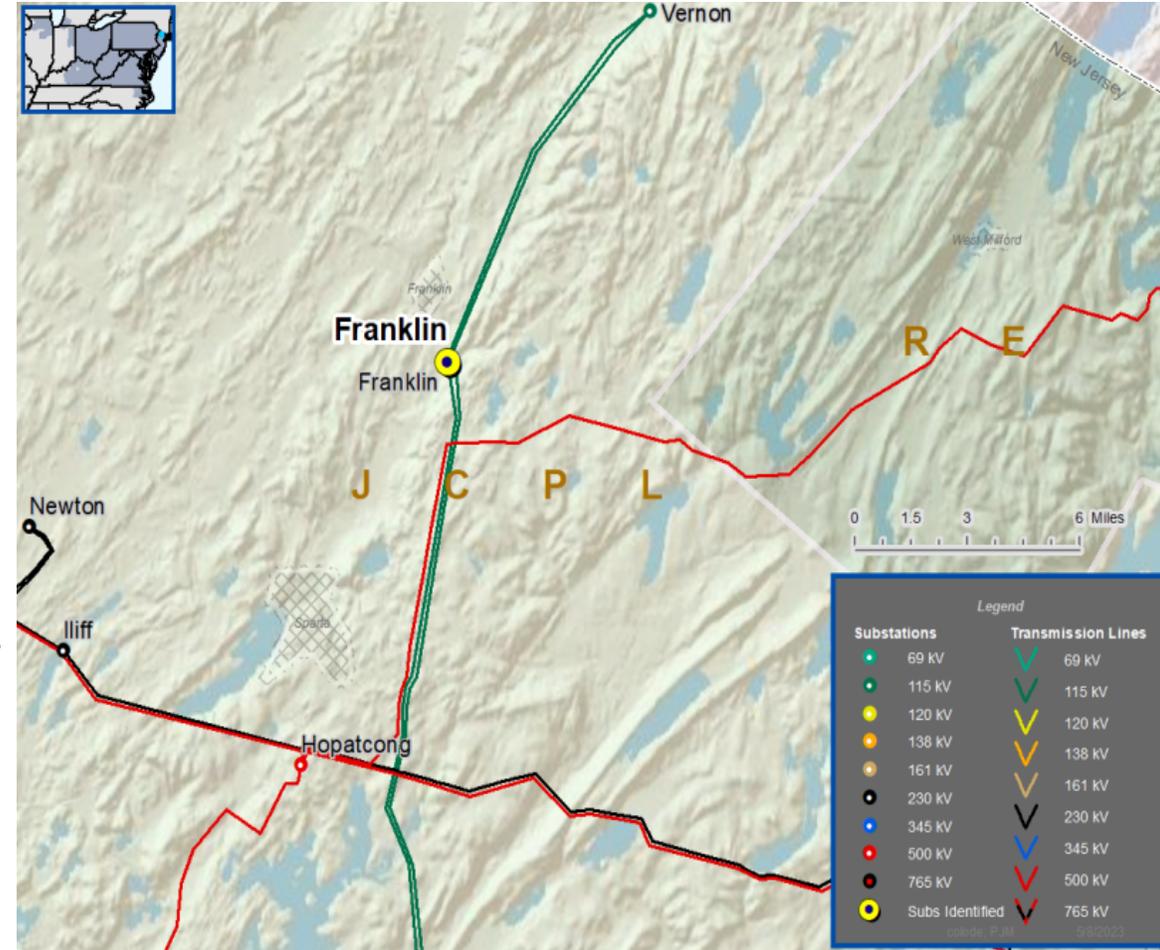
- System reliability and performance
- Reliability of Non-Bulk Electric System (Non-BES) Facilities

Add/Replace Transformers

Past System Reliability/Performance

Problem Statement:

- The 115 – 34.5 kV No. 2 Transformer at Franklin was installed 70 years ago and is approaching end of life.
- Ethane and Hydrogen gases have been exhibited as elevated compared to IEEE standards.
- Existing TR Ratings:
 - 61 / 66 MVA (SN / SLTE)



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: JCPL-2019-016

Process Stage: Solutions Meeting 5/18/2023

Previously Presented: Needs Meeting 03/25/2019

Project Driver(s):

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

Specific Assumption Reference(s)

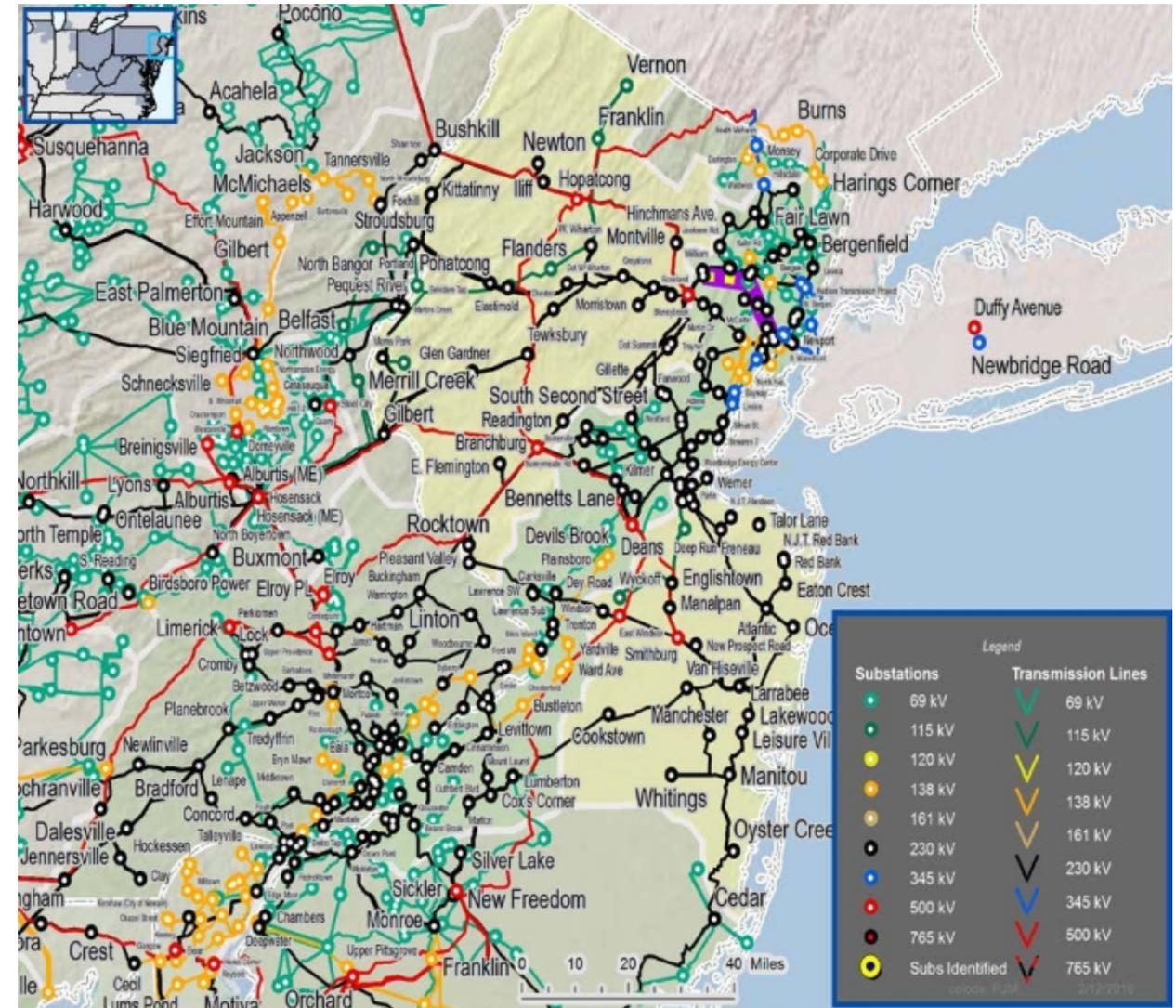
System Performance Projects Global Factors

- 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.

JCPL-2019-	Transmission Line / Substation Locations	Existing MVA Line Rating (SN / SE)	Existing MVA Conductor Rating (SN / SE)	Limiting Terminal Equipment
016	Vernon – West Wharton 115 kV Line	141 / 148	147 / 176	Substation Conductor

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
JCPL-2019-016	Vernon – West Wharton 115 kV Line	147 / 179	<ul style="list-style-type: none"> At Vernon and West Wharton Substations, replace substation conductor 	\$1.14 M	In-Service

Alternatives Considered: Maintain existing condition

Project Status: In-Service

Model: 2019 RTEP model for 2024 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

5/8/2023 – V1 – Original version posted to pjm.com