

Transmission Expansion Advisory Committee –FirstEnergy (JCP&L) Supplemental Projects

November 30, 2021

Solution

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-2019-013, JCPL-2019-014, JCPL-2019-017 JCPL-2019-020

Process Stage: Solution Meeting 11/30/2021

Previously Presented:

Need Meeting 4/11/2019

Project Driver:

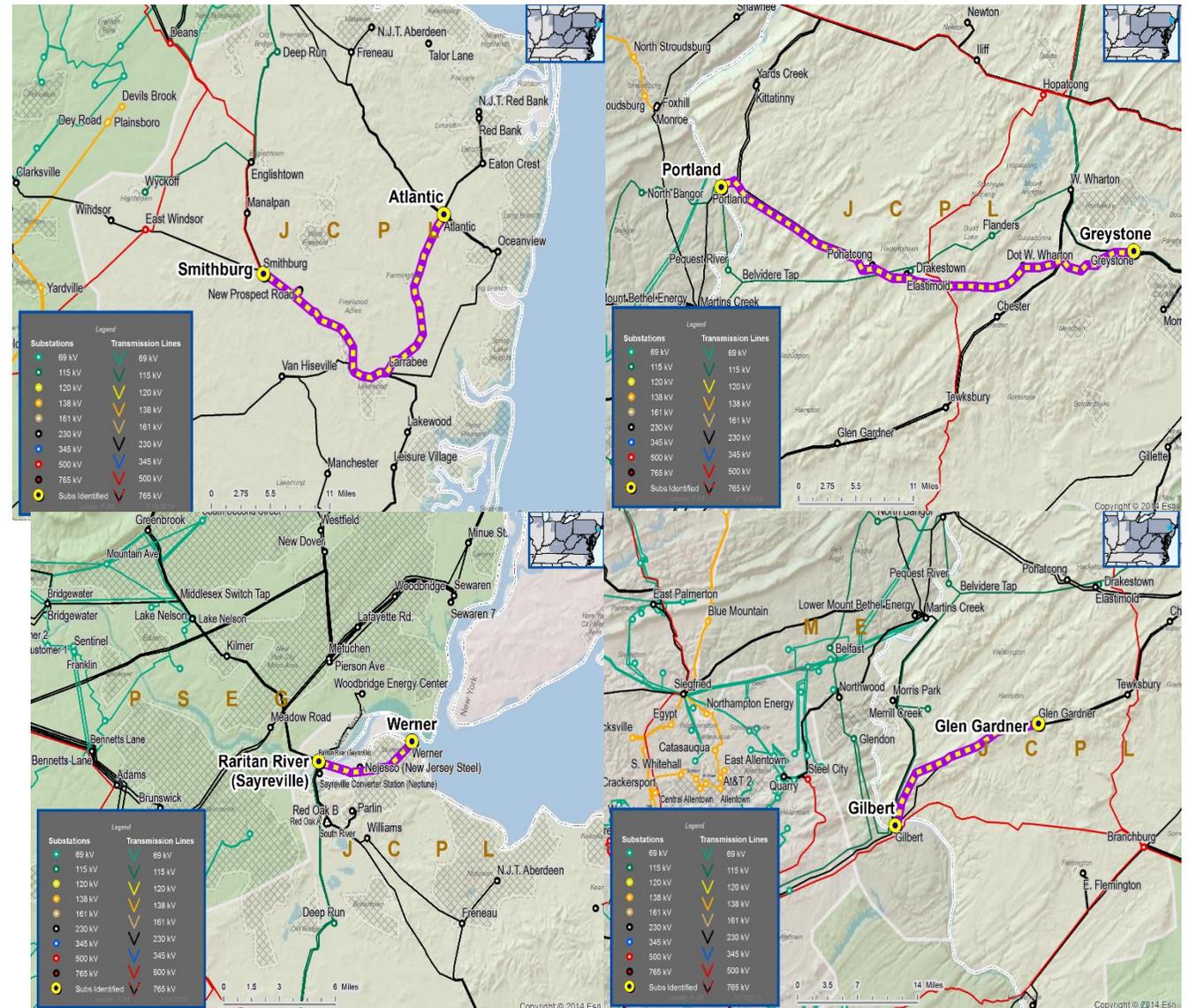
*Equipment Material Condition, Performance and Risk
Operational Flexibility and Efficiency*

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

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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many cases the protection equipment cannot be repaired due to a lack of replacement part and available expertise in the outdated technology.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
JCPL-2019-020	Gilbert-Glen Gardner 230 kV Line	815 / 923	1136 / 1311	Wave Trap, Line Relaying, Current Transformer, Breaker and Terminal Switches, Line Metering
Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
JCPL-2019-017	Atlantic-Smithburg 230 kV Line	678 / 813	709 / 869	Substation Conductor
Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
JCPL-2019-014	Greystone-Portland 230 kV Line	830 / 1000	910 / 1077	Substation Conductor, Current Transformer
Need Number	Transmission Line / Substation Locations	Existing Line Rating (SN / SE)	Existing Conductor Rating (SN / SE)	Limiting Terminal Equipment
JCPL-2019-013	Raritan River-Werner 230 kV Line	652 / 739	709 / 869	Circuit Breaker, Substation Conductor, Line Relaying, Current Transformer

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
JCPL-2019-020	Gilbert-Glen Gardner 230 kV Line	1136 / 1311	<ul style="list-style-type: none"> Gilbert 230 kV Substation – Replace line relaying, disconnect switch, CT, line metering, circuit breakers, wave trap, and substation conductor Glen Gardner 230 kV Substation – Replace line relaying, wave trap, line metering, disconnect switch, CT, and substation conductor 	\$1.9M	12/17/2021

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
JCPL-2019-017	Atlantic-Smithburg 230 kV Line	709 / 869	<ul style="list-style-type: none"> Atlantic 230 kV Substation – Replace line relaying, CT, and substation conductor New Prospect Road 230 kV Substation – Replace PLC, and substation conductor Smithburg 230 kV Substation – Replace line relaying and substation conductor 	\$3.5M	12/30/2021

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
JCPL-2019-014	Greystone-Portland 230 kV Line	910 / 1077	<ul style="list-style-type: none"> Greystone 230 kV Substation– Replace circuit breaker, disconnect switch and wave trap Portland 230 kV Substation– Replace circuit breaker, disconnect switch and wave trap 	\$1.4M	03/22/2022

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JCP&L Transmission Zone M-3 Process Misoperation Relay Projects

Proposed Solution:

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
JCPL-2019-013	Raritan River-Werner 230 kV Line	709 / 869	<ul style="list-style-type: none">Raritan River 230 kV Substation – Replace line relaying, disconnect switch, wave trap, and substation conductorEH Werner 230 kV Substation – Replace line relaying, line metering, wave trap, and substation conductor	\$1.9M	4/30/2022

Alternatives Considered: Maintain existing condition

Project Status: Conceptual

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

11/19/2021 – V1 – Original version posted to pjm.com