# Transmission Expansion Advisory Committee – JCPL Supplemental Projects

May 9, 2023

# 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(s):** JCPL-2019-010,012,019

**Process Stage:** Solution Meeting 05/09/2023

**Previously Presented**: Need Meeting 01/11/2019

**Project Driver(s):**

*Equipment Material Condition, Performance and Risk*

*Operational Flexibility and Efficiency*

**Specific Assumption Reference(s)**

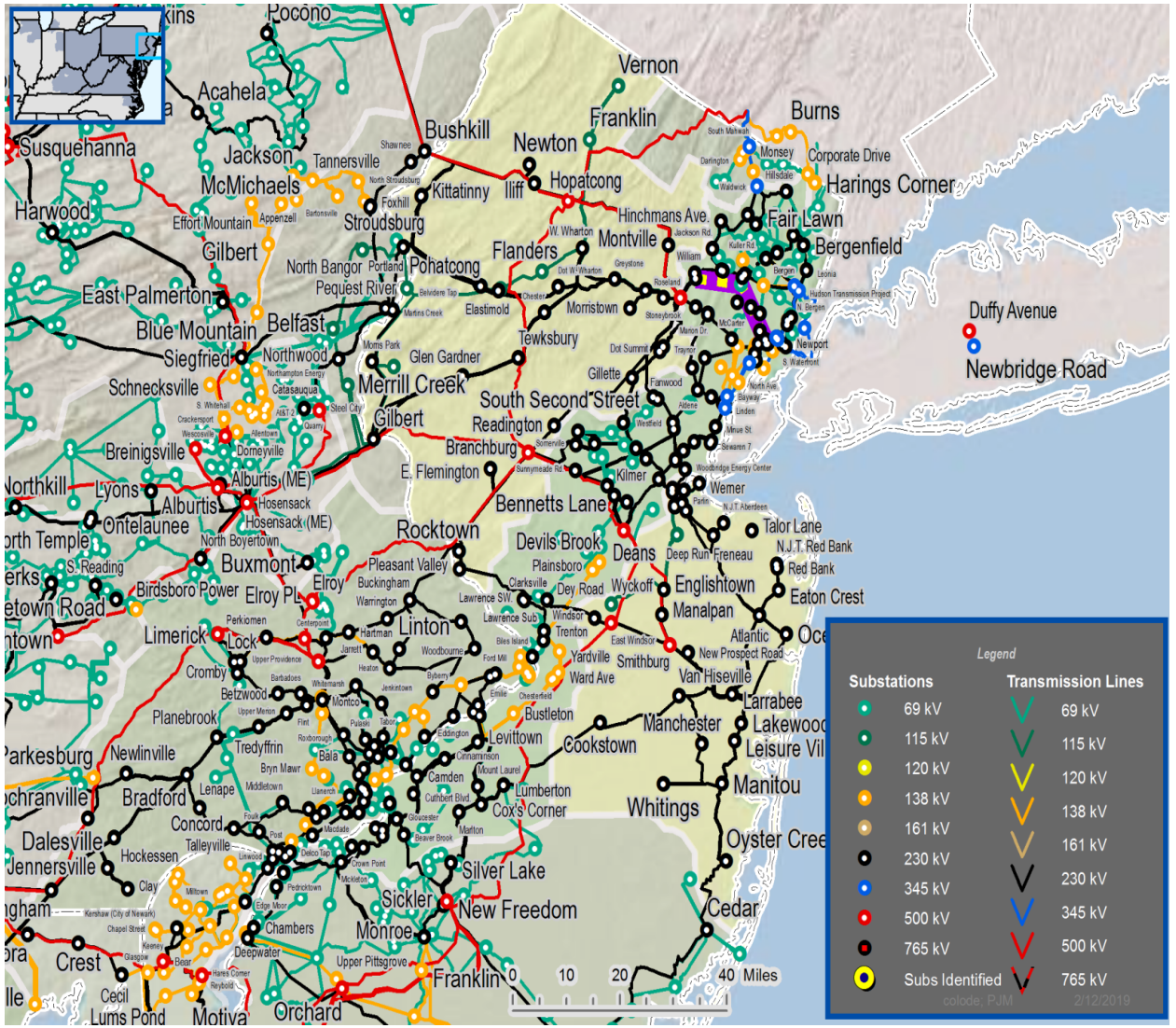
System Performance Projects Global Factors

- 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

**Continued on next slide…**



**Problem Statement**

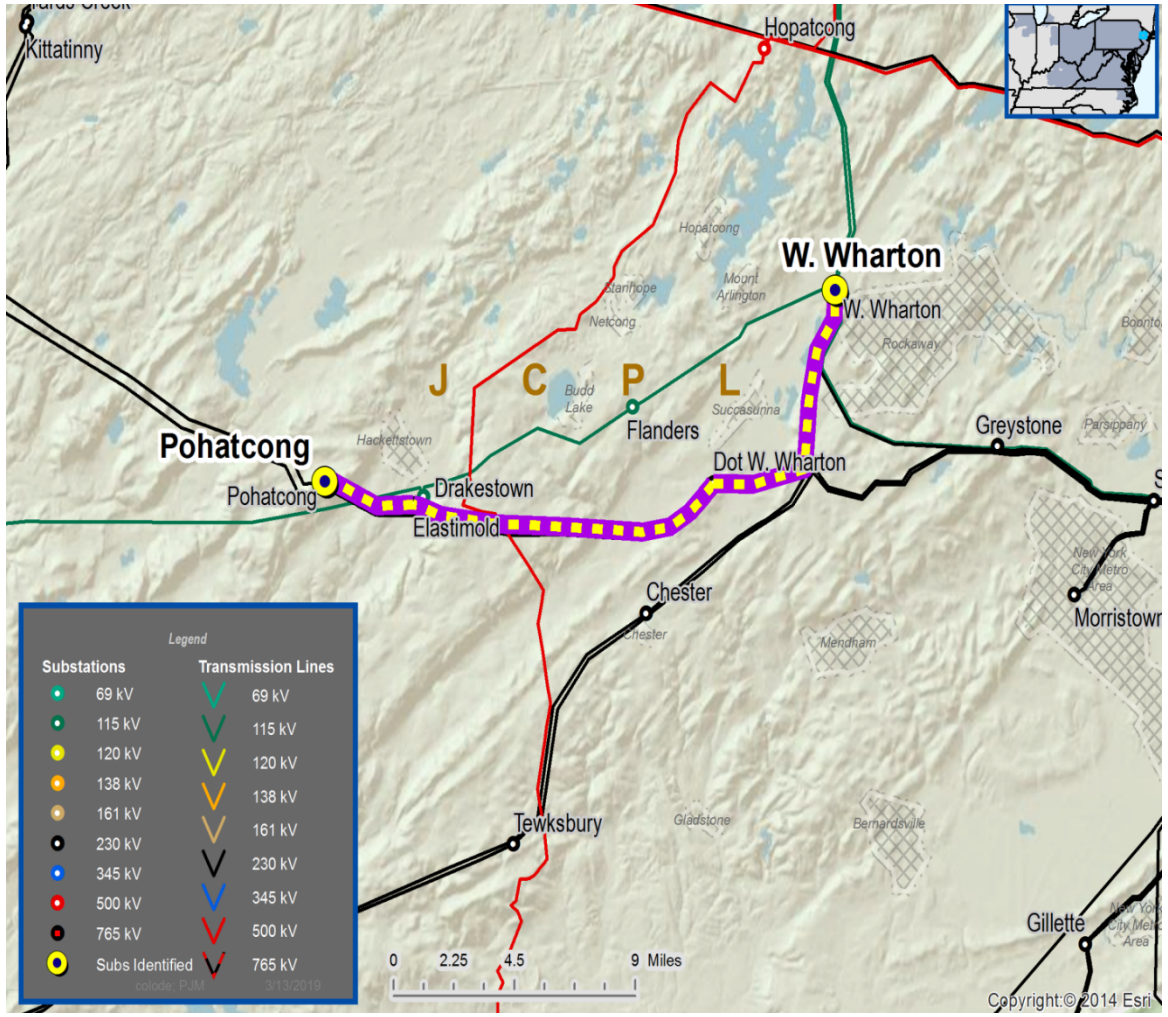
- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform adequately during a fault.
- In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.
- Transmission line ratings are limited by terminal equipment.

| JCPL-2019- | Transmission Line / Substation Locations | Existing Line Rating (SN / SE) | Existing Conductor Rating (SN / SE) | Limiting Terminal Equipment |
|---|---|---|---|---|
| 010 | Pohatcong – West Wharton 230 kV Line | 678 / 813 | 709 / 869 | Line Relaying, Circuit Breaker, Line Trap, Substation Conductor |
| | | | | |
| 012 | Greystone – West Wharton 230 kV Line | 678 / 813 | 709 / 869 | Substation Conductor, Current Transformer |
| 019 | Chester – Glen Gardner 230 kV Line | 650 / 817 | 709 / 869 | Substation Conductor |

**Need Number:** JCPL-2019-010

## Problem Statement

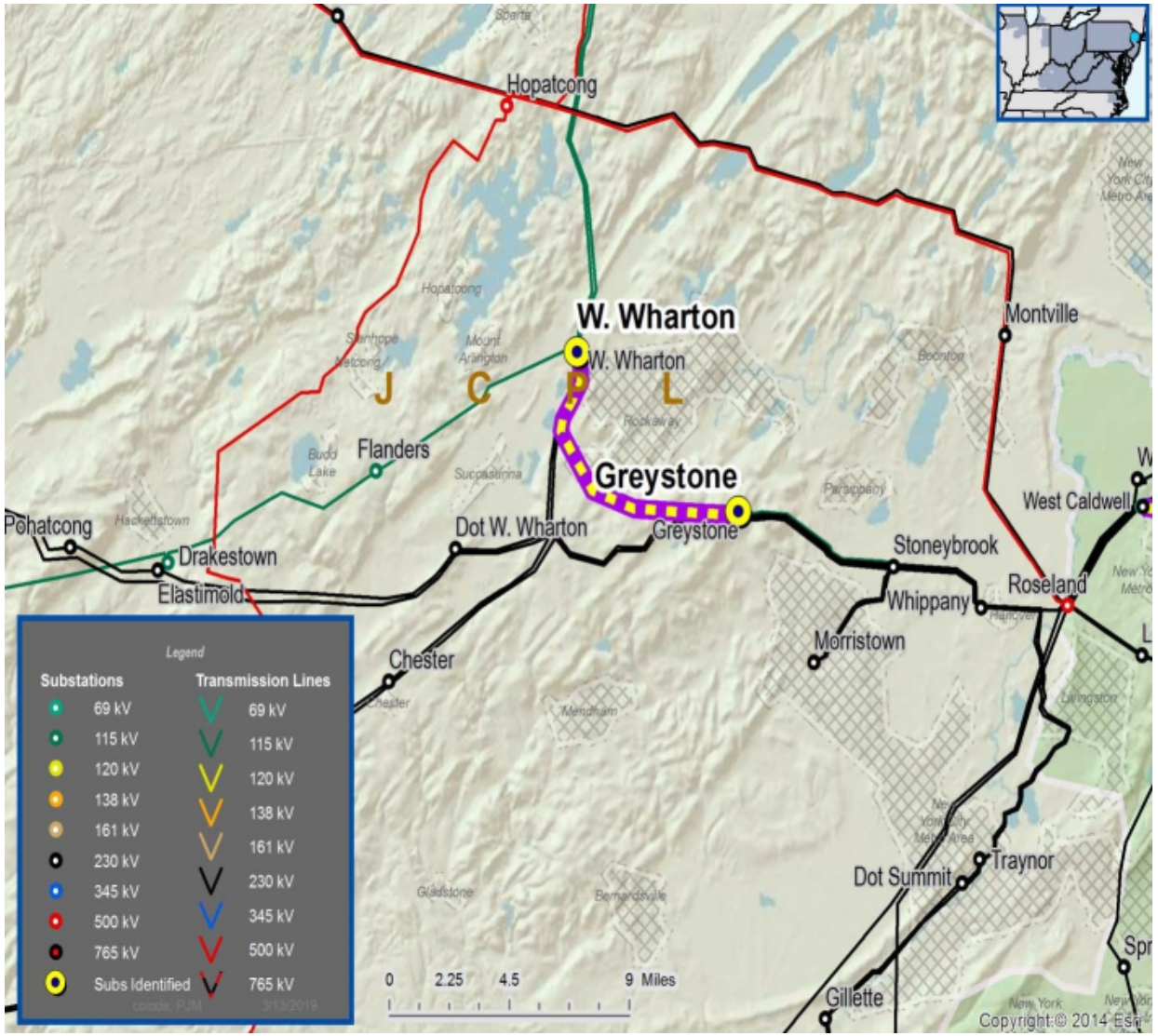
- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform adequately during a fault.
- In many cases the protection equipment 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:** JCPL-2019-012

**Problem Statement**

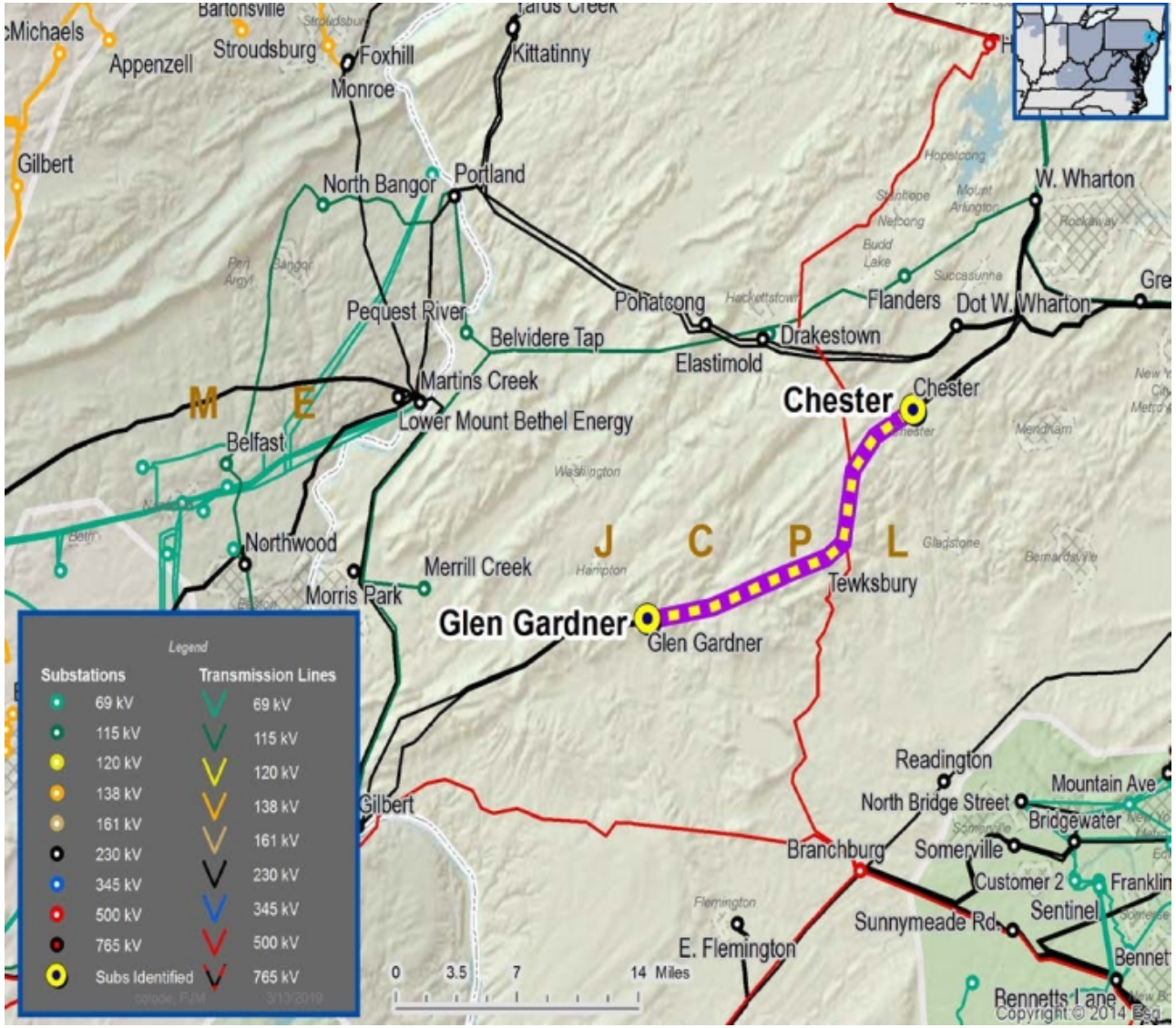
- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform adequately during a fault.
- In many cases the protection equipment 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:** JCPL-2019-019

**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 | New MVA Line Rating (SN / SE) | Scope of Work | Estimated Cost ($ M) | Target ISD |
|---|---|---|---|---|---|
| JCPL-2019-010 | Pohatcong – West Wharton 230 kV Line | 709 / 869 | • At Pohatcong Mountain and West Wharton Substations, replace relaying, circuit breaker, wave trap, and substation conductor | $2.11 M | 12/22/2023 |
| | | | | | |
| JCPL-2019-012 | Greystone – West Wharton 230 kV Line | 709 / 869 | • At Greystone and West Wharton Substations, replace substation conductor and current transformer | $2.36 M | In-Service |
| JCPL-2019-019 | Chester – Glen Gardner 230 kV Line | 709 / 869 | • At Chester and Glen Gardner Substations, replace substation conductor | $1.86 M | In-Service |

**Alternatives Considered:** Maintain existing condition

**Project Status:** In construction/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

4/28/2023 - V1 – Original version posted to pjm.com

5/3/2023 – V1 – Removed need # JCPL-2019-011