

Subregional RTEP Committee – Mid-Atlantic FirstEnergy Supplemental Projects

JCPL Transmission Zone

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-2026-048

Process Stage: Need Meeting – SRRTEP-MA – 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Substation Condition Rebuild/Replacement

- Age/condition of substation equipment
- Circuit breakers and other fault interrupting devices

Problem Statement:

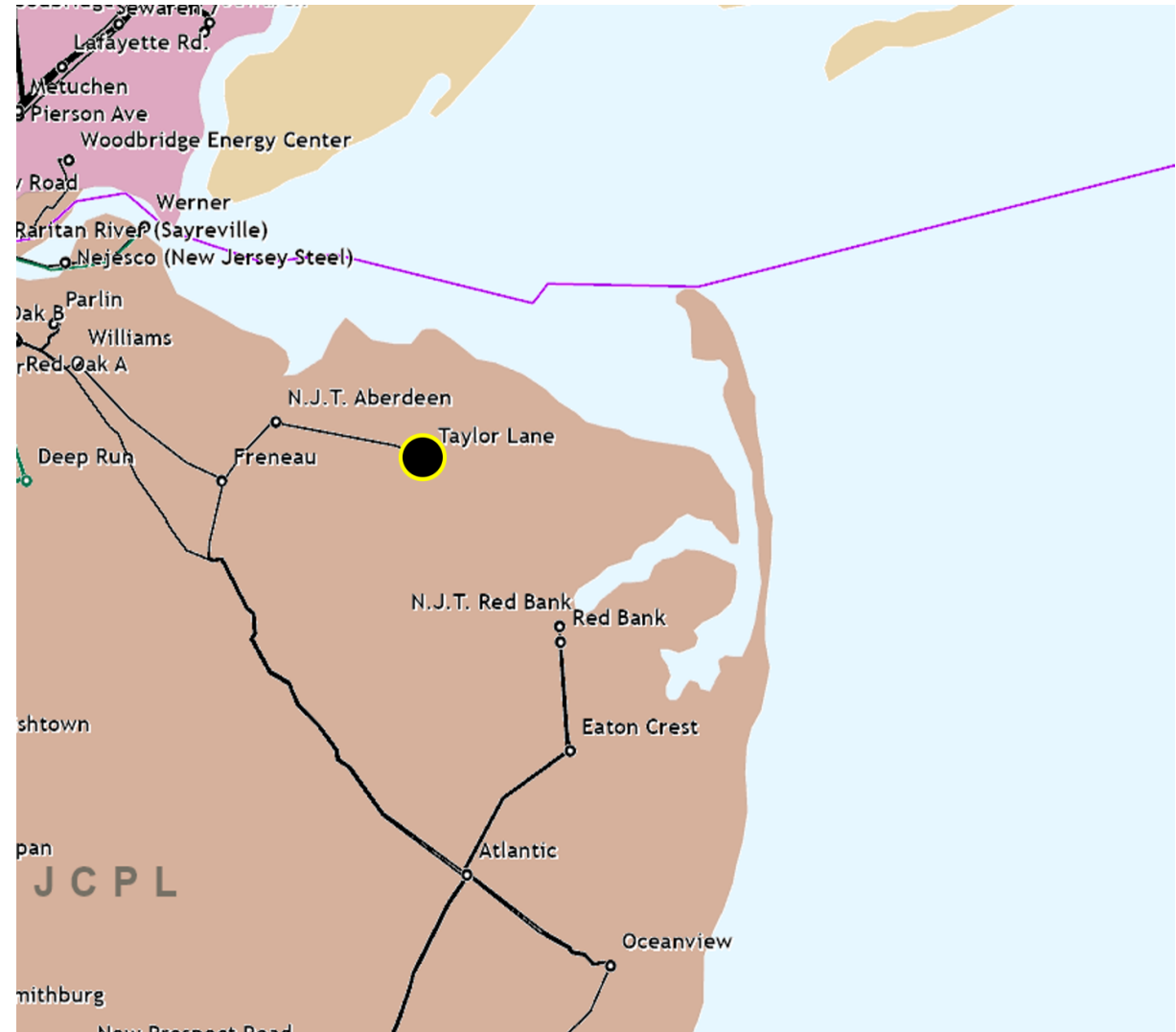
The V776, S45, K37, F58, E57, B-210, BK1, BK2, BK15 34.5 kV oil circuit breakers at Taylor Lane Substation are more than 30 years old and are approaching end of life. Replacement components are difficult to source which can lead to non-standard repairs.

The lines are currently limited by terminal equipment.

Existing Transmission Line Ratings:

- Laurel Avenue - Taylor Lane No 2 34.5 kV V776 Line:
 - Existing Line and Conductor Rating: 29 / 36 / 29 / 36 MVA (SN/SE/WN/WE)
- Freneau - Taylor Lane 34.5 kV S45 Line:
 - Existing Line Rating: 41 / 49 / 48 / 56 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

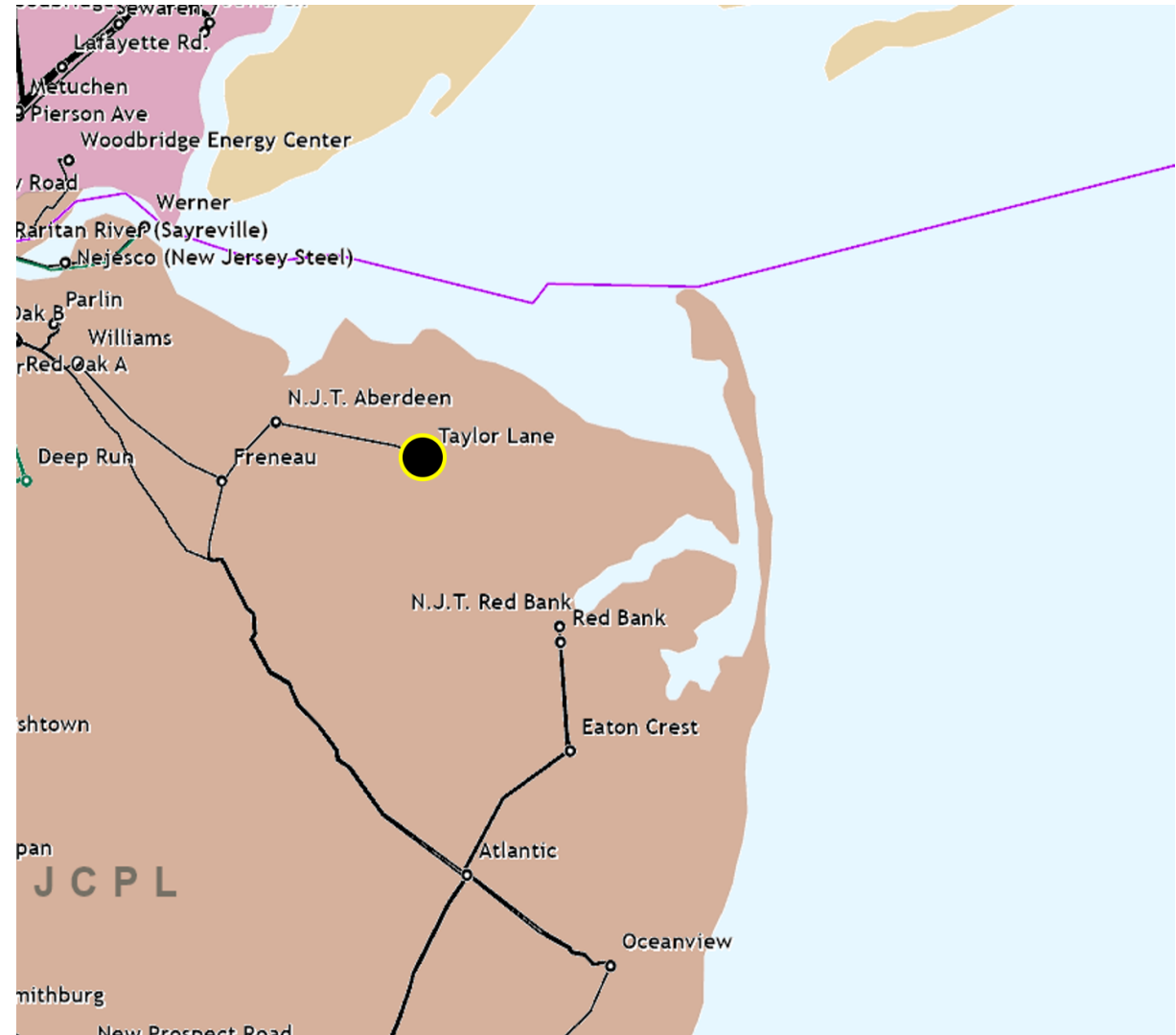
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Need Number: JCPL-2026-048

Problem Statement: *Continued from previous slide...*

- Roberts Road - Taylor Lane 34.5 kV K37 Line:
 - Existing Line Rating: 48 / 48 / 48 / 48 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 55 / 67 / 63 / 79 MVA (SN/SE/WN/WE)
- Keyport - Taylor Lane 34.5 kV F58 Line:
 - Existing Line and Conductor Rating: 37 / 38 / 42 / 42 MVA (SN/SE/WN/WE)
- Red Bank - Taylor Lane 34.5 kV E57 Line:
 - Existing Line Rating: 44 / 57 / 63 / 71 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 55 / 67 / 63 / 79 MVA (SN/SE/WN/WE)
- Laurel Avenue - Taylor Lane No 1 34.5 kV B210 Line:
 - Existing Line Rating: 30 / 37 / 30 / 37 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 44 / 53 / 50 / 63 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-050

Process Stage: Need Meeting – SRRTEP-MA – 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Substation Condition Rebuild/Replacement

- Age/condition of substation equipment
- Circuit breakers and other fault interrupting devices

Problem Statement:

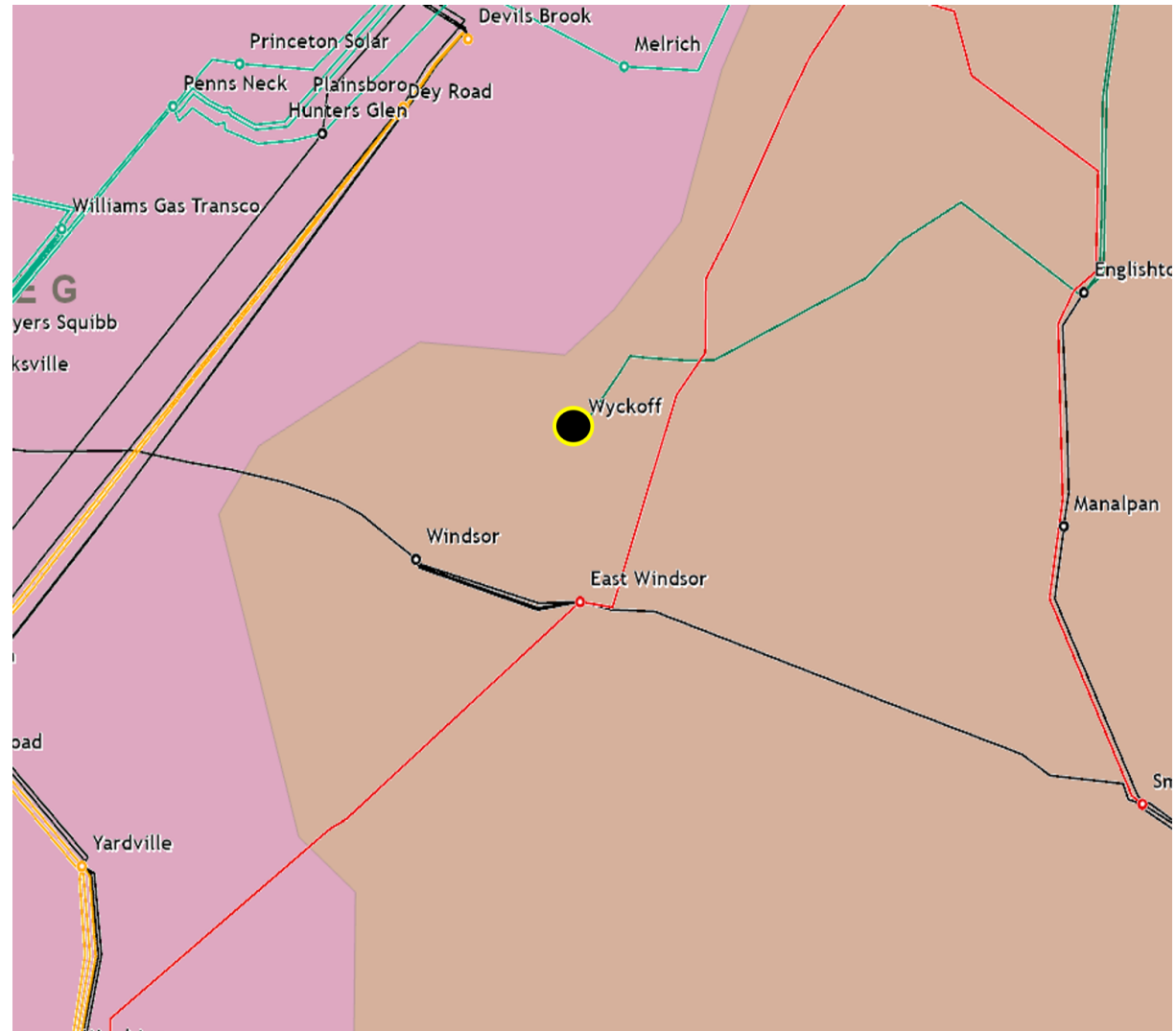
The existing Wyckoff Street Substation 34.5 kV breakers M65, J136, Q143, I87 and B19 and their associated disconnect switches are over 50 years old and are approaching end of life. The Wyckoff St 34.5 kV capacitor bank 1 and its protective circuit switcher are over 20 years old with a history of high SF6 leaks and are also approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

The lines are currently limited by terminal equipment.

Existing Transmission Line Ratings:

- Windsor - Wyckoff Street 34.5 kV M65 Line:
 - Existing Line Rating: 41 / 50 / 48 / 57 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

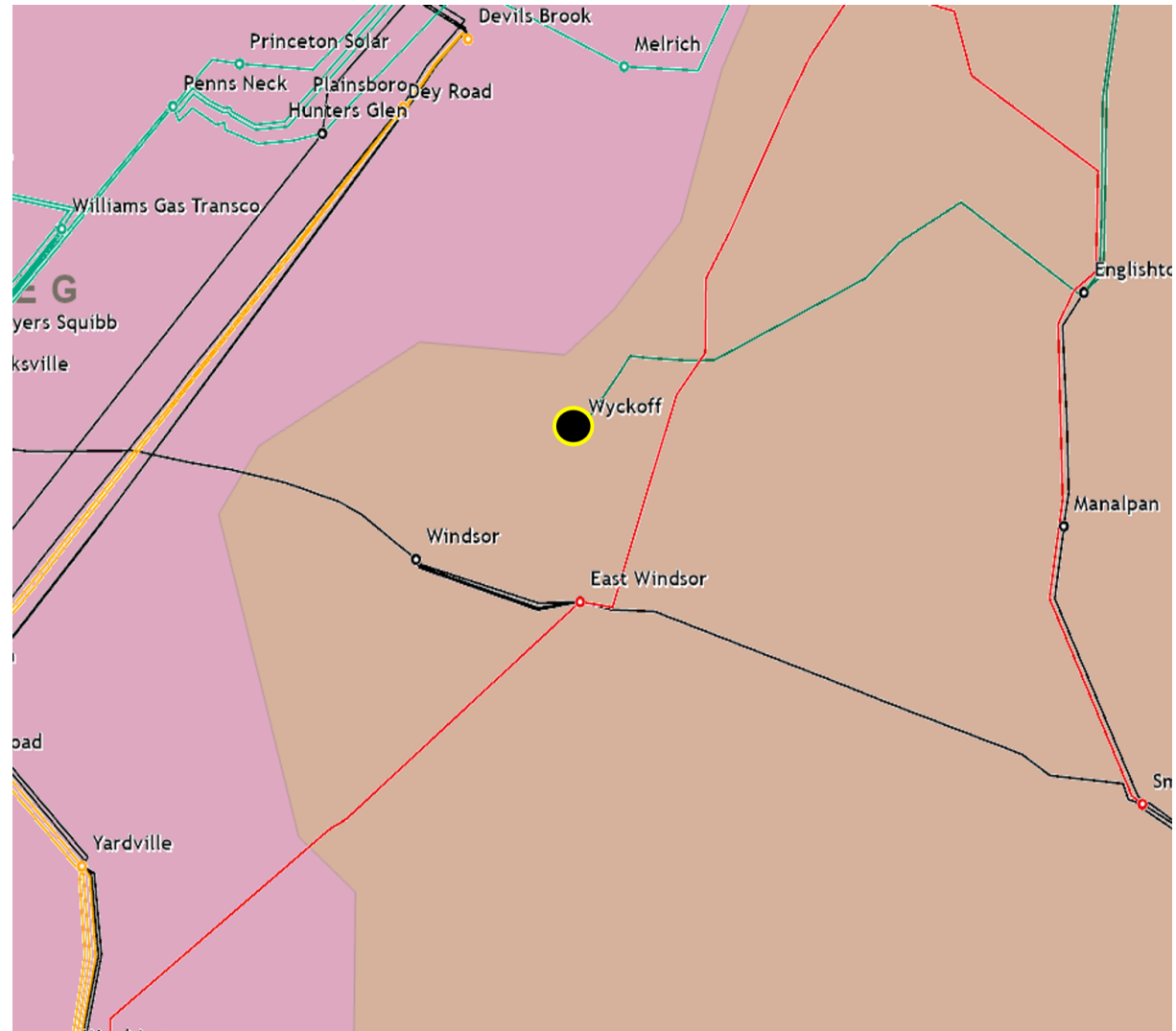
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Need Number: JCPL-2026-050

Problem Statement: *Continued from previous slide...*

- Windsor - Wyckoff Street 34.5 kV J136 Line:
 - Existing Line Rating: 65 / 77 / 79 / 88 MVA (SN/SE/WN/WE)
 - Existing Conductor Rating: 70 / 85 / 79 / 88 MVA (SN/SE/WN/WE)
- Windsor - Wyckoff Street 34.5 kV Q143 Line:
 - Existing Line and Conductor Rating: 55 / 67 / 63 / 79 MVA (SN/SE/WN/WE)
- Englishtown - Wyckoff Street 34.5 kV I87 Line:
 - Existing Line and Conductor Rating: 55 / 67 / 63 / 79 MVA (SN/SE/WN/WE)
- Wyckoff St 115/34.5 kV Transformer Bank 3:
 - Existing Branch Rating: 82 / 103 / 108 / 124 MVA (SN/SE/WN/WE)
 - Existing Transformer Rating: 161 / 161 / 175 / 175 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-053

Process Stage: Need Meeting – SRRTEP-MA – 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

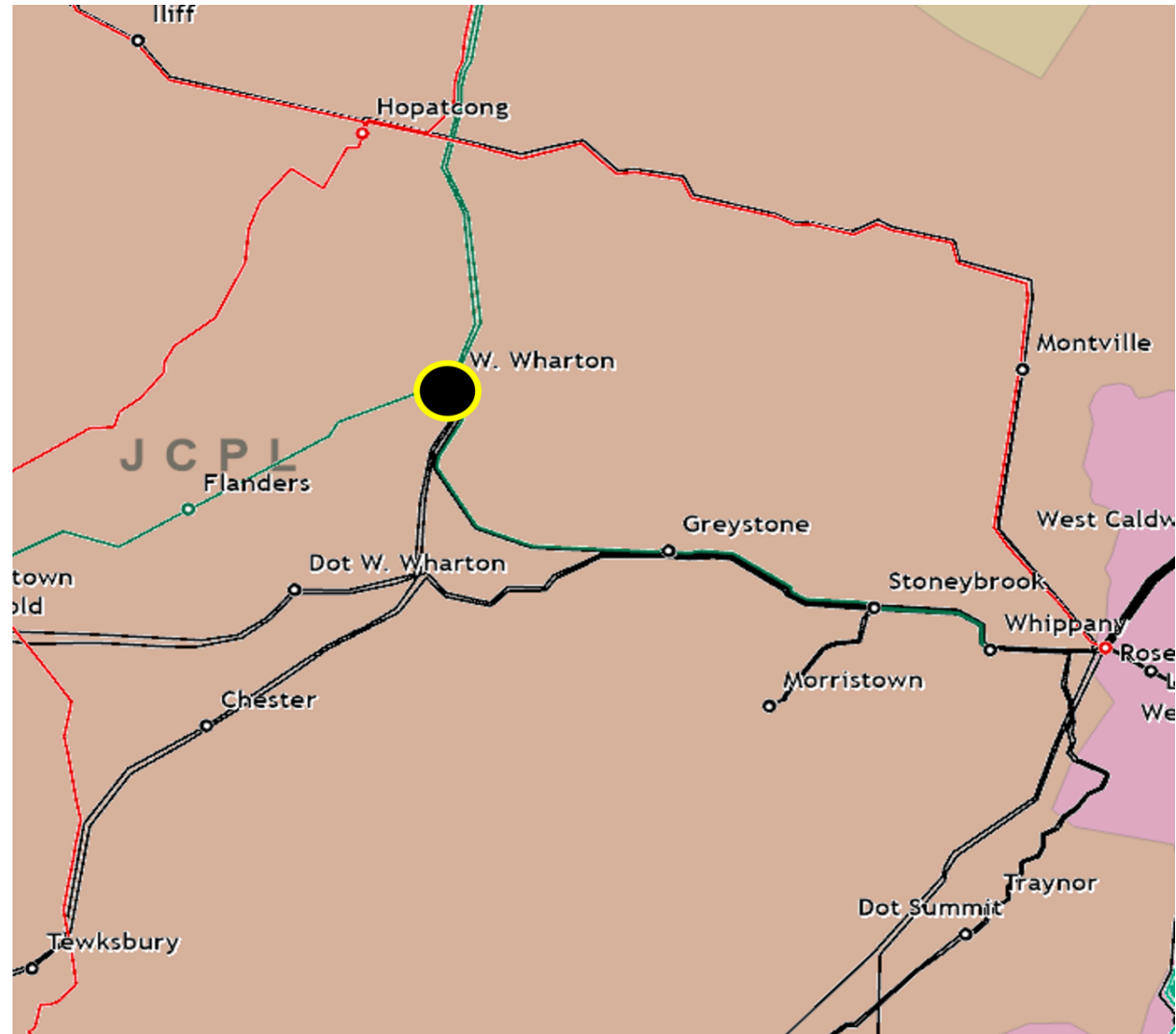
Substation Condition Rebuild/Replacement

- Age/condition of substation equipment
- Circuit breakers and other fault interrupting devices

Problem Statement:

The existing West Wharton #4 34.5 kV capacitor and associated circuit breaker are 26 years old and is approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

Existing West Wharton Capacitor #4 Ratings: 64 / 64 / 64 / 64 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-054

Process Stage: Need Meeting – SRRTEP-MA – 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Substation Condition Rebuild/Replacement

- Age/condition of substation equipment
- Circuit breakers and other fault interrupting devices

Problem Statement:

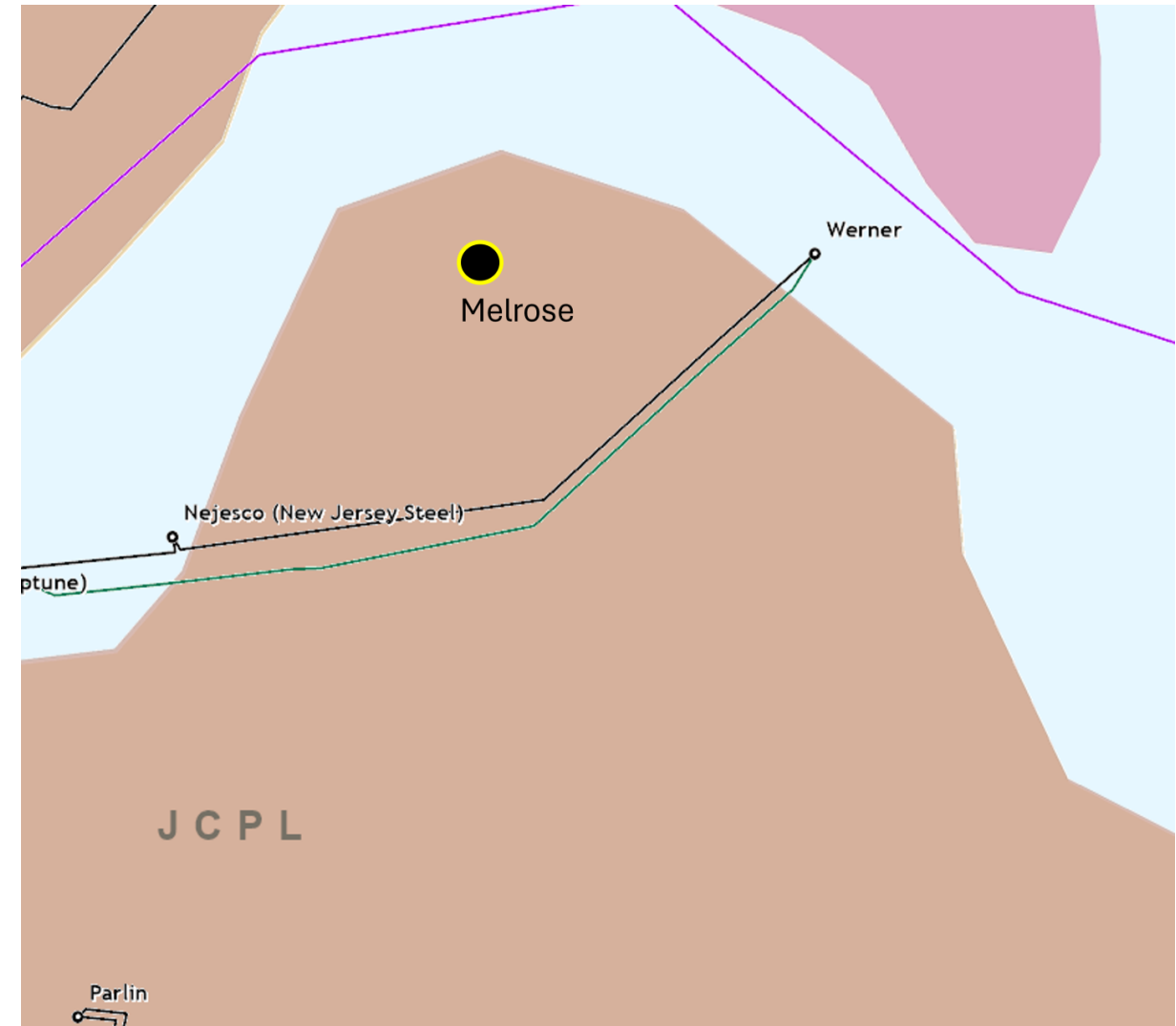
The existing Melrose Substation 34.5 kV disconnect switches 6LBS, U99_1, U99_2, and U99_4 are over 30 years old and are approaching end-of-life. Replacement components are difficult to source which can lead to non-standard repairs.

The line is currently limited by terminal equipment.

Existing Transmission Line Ratings:

EH Werner - Raritan River 34.5 kV U99 Line:

- Existing Line Rating: 41 / 49 / 51 / 56 MVA (SN/SE/WN/WE)
- Existing Conductor Rating: 44 / 53 / 50/ 63 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-055

Process Stage: Need Meeting – SRRTEP-MA – 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Projects Global Factors

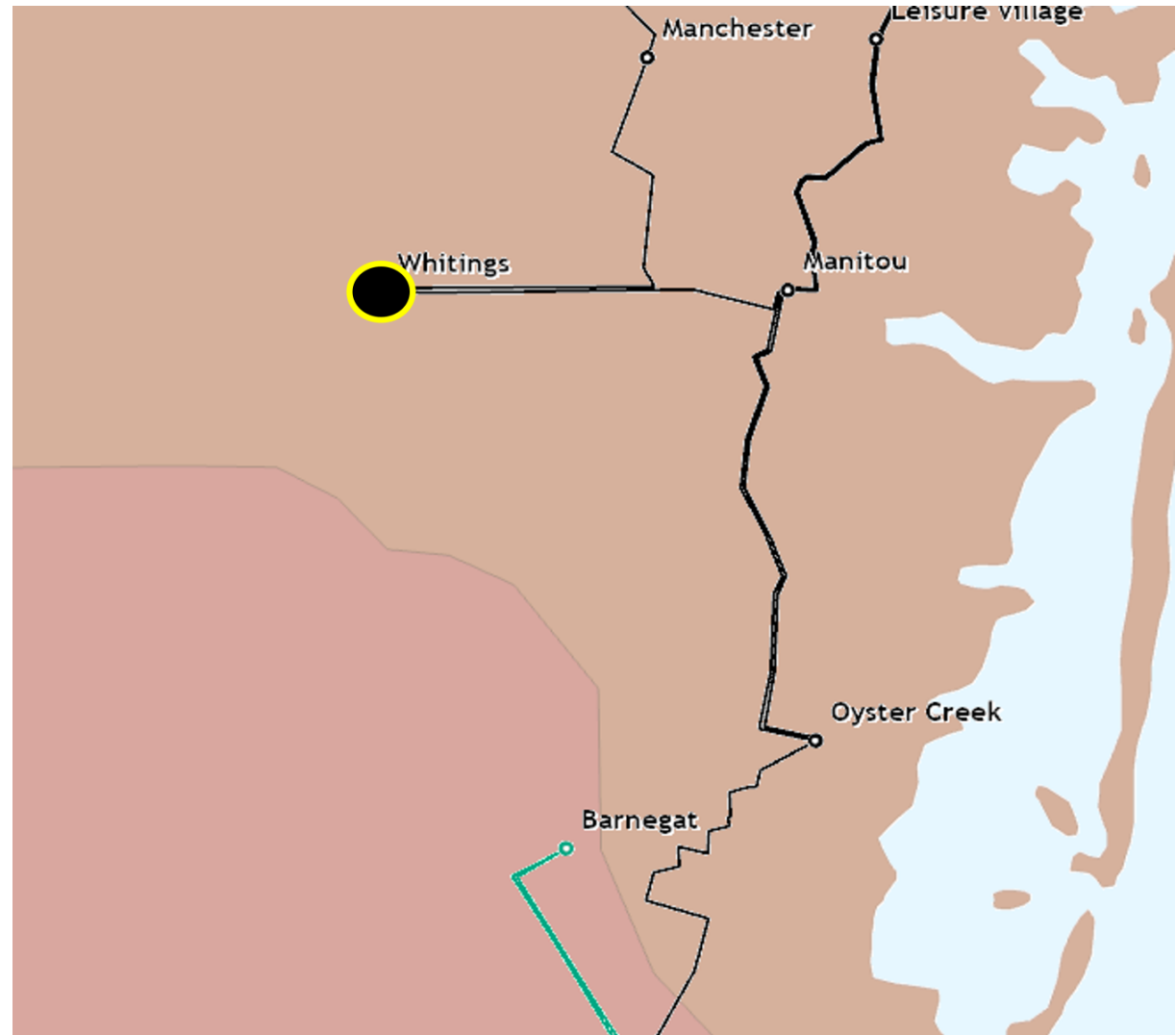
- System reliability and performance

Problem Statement:

The existing Whitings Substation #4 and #5 230-34.5 kV transformer bank low-side protection systems have legacy relay settings. The protective schemes for the 34.5 kV breakers BK5A, BK5B, BK4A, and BK4B are currently configured such that both the primary and backup relays may operate simultaneously during a single fault event. This condition could result in unintended tripping of multiple breakers and create the potential for indefinite backfeeding from the 34.5 kV system.

The Whitings 230-34.5 kV #5 transformer is currently limited by terminal equipment.

- Existing Whitings 230-34.5 kV #4 transformer ratings:
 - Existing Branch & Transformer Rating: 153 / 162 / 196 / 200 MVA (SN/SE/WN/WE)
- Existing Whitings 230-34.5 kV #5 transformer ratings:
 - Existing Branch Rating: 137 / 150 / 171 / 191 MVA (SN/SE/WN/WE)
 - Existing Transformer Rating: 149 / 150 / 188 / 191 MVA (SN/SE/WN/WE)



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

JCPL Transmission Zone M-3 Process

New Providence Substation 34.5 kV Breaker Replacement

Need Number: JCPL-2025-009

Process Stage: Solution Meeting – SRRTEP-MA – 10/16/2026

Previously Presented: Need Meeting – SRRTEP-MA – 12/11/2025

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Substation Condition Rebuild/Replacement

- Age/condition of substation equipment
- Circuit breakers and other fault interrupting devices

Problem Statement:

The existing New Providence Substation 34.5 kV oil circuit breakers HJ and D1, associated bus and line side disconnect switches, and protective relaying are over 50 years old and are approaching end of life. Replacement components are difficult to source leading to non-standard repairs.

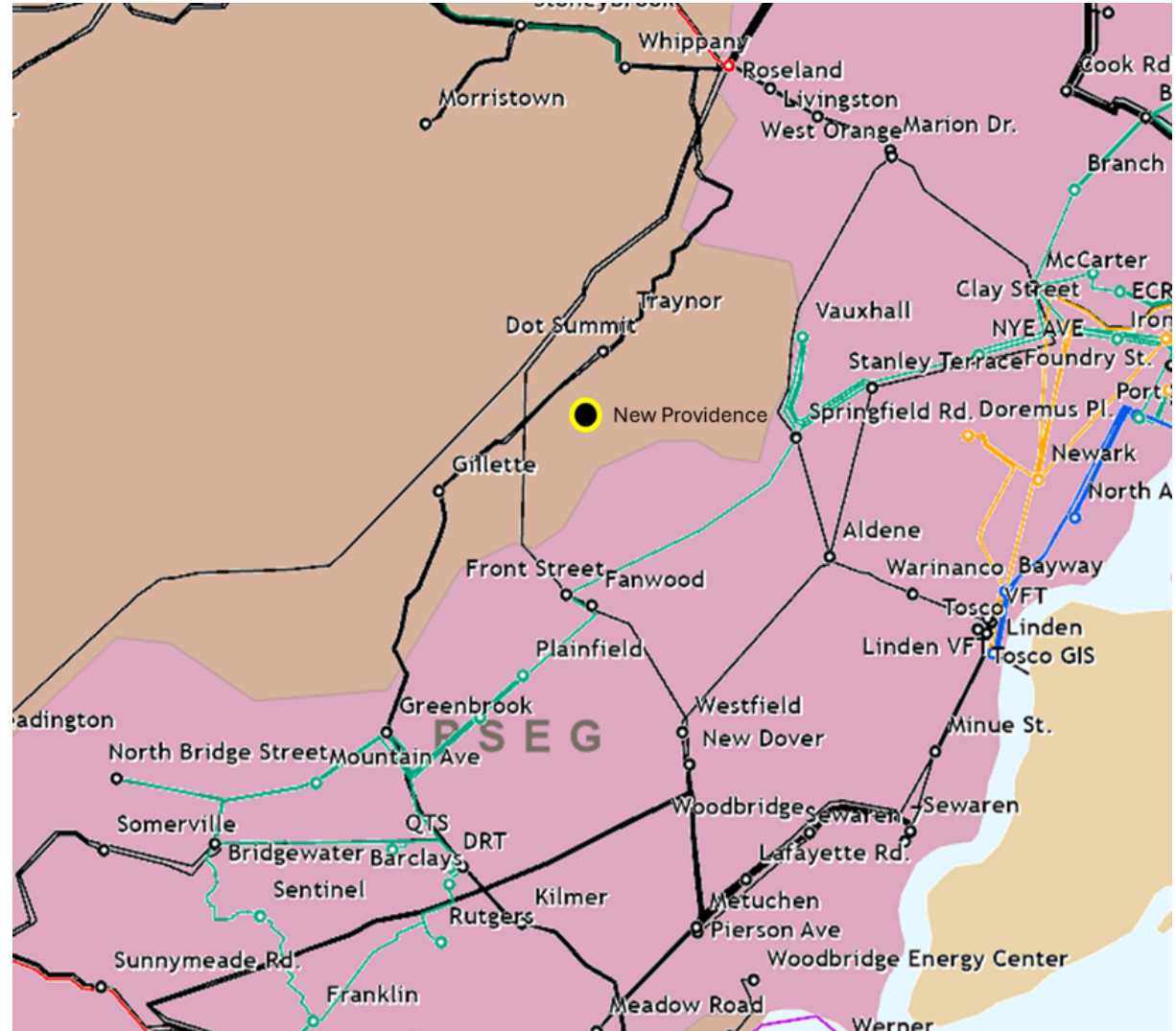
The lines are currently limited by terminal equipment.

CSC H Tap - New Providence 34.5 kV H112 Line

- Existing Transmission Line Ratings: 35 / 46 / 48 / 57 MVA (SN/SE/WN/WE)
- Existing Conductor Ratings: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Air Reduction - New Providence 34.5 kV D108 Line

- Existing Transmission Line Ratings: 35 / 46 / 48 / 57 MVA (SN/SE/WN/WE)
- Existing Conductor Ratings: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)





JCPL Transmission Zone M-3 Process

New Providence Substation 34.5 kV Breaker Replacement

Need Number: JCPL-2025-009

Process Stage: Solution Meeting – SRRTEP-MA – 10/16/2026

Proposed Solution:

- Replace 34.5 kV OCB HJ and D1 and its associated disconnect switches at New Providence Substation.
- Upgrade substation conductors and relays.
- Replace 34.5 kV Cap Banks #1 and #2 and its associated cap switchers.
- Install a new PCE.

Ratings:

Gillette - New Providence 34.5 kV J114 Line:

- Before Proposed Solution: 35 / 46 / 48 / 57 MVA (SN/SE/WN/WE)
- After Proposed Solution: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Gillette - New Providence 34.5 kV H112 Line:

- Before Proposed Solution: 35 / 46 / 48 / 57 MVA (SN/SE/WN/WE)
- After Proposed Solution: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Gillette - Murray Hill 34.5 kV D108 Line:

- Before Proposed Solution: 35 / 46 / 48 / 48 MVA (SN/SE/WN/WE)
- After Proposed Solution: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Alternatives Considered:

Maintain existing condition with elevated risk of failure.

Transmission Cost Estimate: \$13.03 M

Projected In-Service: 05/31/2030

Project Status: Conceptual

Model: 2025 RTEP Model for 2030 Summer

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

10/5/2026 – V1 – Original version posted to pjm.com