Reliability Analysis Update
PJM MAAC

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Sub Regional RTEP Committee – PJM MAAC/South
November 13, 2026

Disclaimer: While materials are current at the time of publishing, applicable requirements may change. PJM Governing Documents control.

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2026 RTEP
First Read
Baseline Reliability Projects

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BGE Transmission Zone: Baseline
Constitution St - Concord St 115 kV Reconductoring

Process Stage: First Read

Criteria: N-1-1 (BGE FERC 715 Criteria)

Assumption Reference: 2026 RTEP assumptions

Model Used for Analysis: 2026 RTEP 2031 BGE Summer 90/10-load case

Proposal Window Exclusion: Below 200 kV

Problem Statement:

Flowgate #: 2026-W1-BGE-T1

The Constitution St – Concord 115 kV (110567) circuit is overloaded for N-1-1 contingencies, using the BGE 90/10 load model.

Proposed Solution:

Replace the Constitution St.-Concord St. 115kV (110567) underground cables with new 3500kcm Cu, LPP insulated HPFF cable .

Estimated Cost: $18.35 M

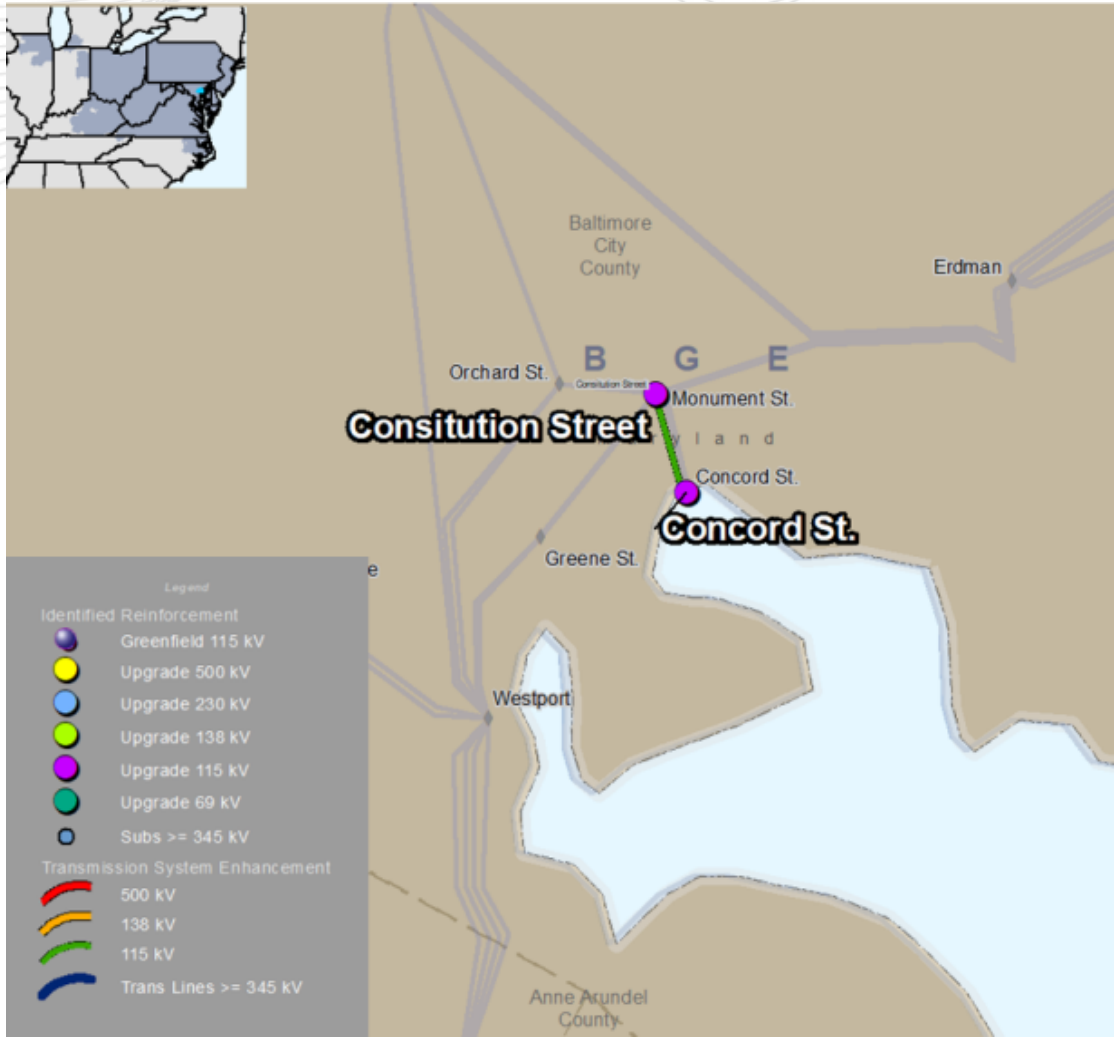
Existing Ratings: 127/143/168/184 MVA (SN/SE/WN/WE)

Proposed Ratings: 209/238/238/261 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2031

Projected In-Service Date: 6/1/2031



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DPL Transmission Zone: Baseline
North Seaford – Conaway 138kV Rebuild

Process Stage: First Read

Criteria: Baseline Load Growth Deliverability & Reliability

Assumption Reference: 2031 RTEP Assumptions

Model Used for Analysis: 2026 Series – 2031 RTEP Summer

Proposal Window Exclusion: Reliability Violations on Transmission Facilities Below 200 kV exclusion

Problem Statement:

Overloads on 138kV Line 13767 North Seaford-Conaway during the 2031 Summer N-1-1 study

Addressed Flowgate IDs: 2026-W1-N11-ST192, 2026-W1-N11-ST193

Proposed Solution:

Rebuild the 13767 North Seaford-Conaway 138kV Line

- Rebuild the entire 17 mile 13767 North Seaford-Conaway 138kV line to 230kV standards utilizing steel monopole structures and 1590 ACSR Lapwing conductor

Total Estimated Cost: $74.743 M

Ratings MVA (SN/SE/WN/WE):

- Before Proposed Solution: 167/240/230/308
- After Proposed Solution: 302/334/375/390

Alternatives Considered:

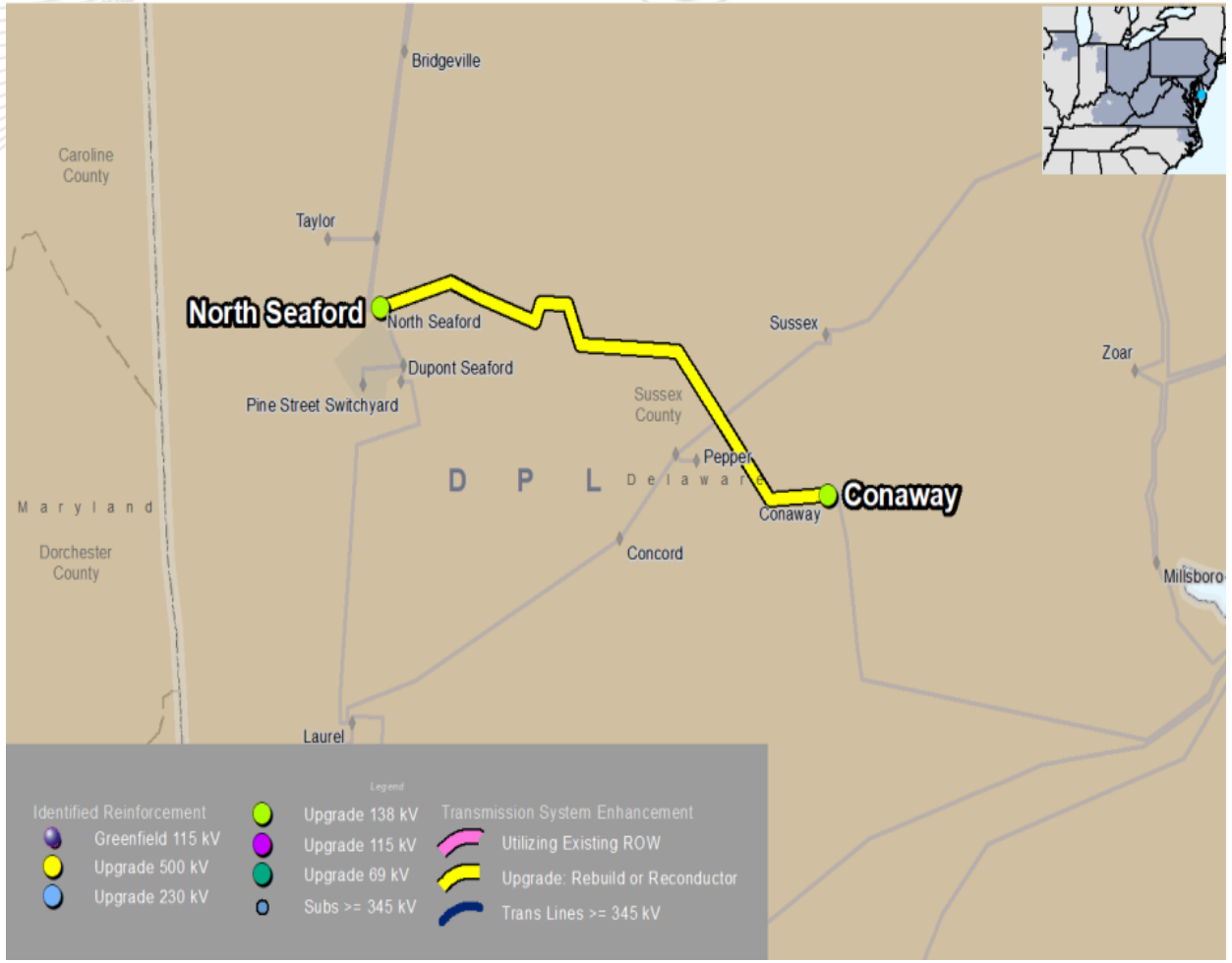
An alternative of reconductoring is not viable because the existing structures are aged and the current pol e configuration does not meet 138 kV design requirements. The existing structures cannot support the con ductor ratings required to mitigate the violation. The facility is near End of Life, and a rebuild is required du e to its age and condition.

Ancillary Benefits:

Building the line to 230kV construction operated at 138kV achieves a higher rating while avoiding future cost for conversion to 230kV.

Required In-Service: 06/01/2031

Projected In-Service: 06/01/2031



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DPL Transmission Zone: Baseline
Nelson – Indian River 138kV Rebuild

Process Stage: First Read

Criteria: Baseline Load Growth Deliverability & Reliability

Assumption Reference: 2031 RTEP Assumptions

Model Used for Analysis: 2026 Series – 2031 RTEP Summer

Proposal Window Exclusion: Reliability Violations on Transmission Facilities Below 200 kV exclusion

Problem Statement:

Overloads identified on the 138 kV Line 13703 Nelson to Indian River as a result of the 2031 Summer N-1-1 Study.

Addressed Flowgate IDs: 2026-W1-N11-ST142, 2026-W1-N11-ST143, 2026-W1-N11-ST149, 2026-W1-N11-ST150

Proposed Solution:

Indian River - Nelson rebuild

- Rebuild the 13703 circuit to 230kV standards, approx. 21.2 miles, with new galvanized steel monopoles, 1590 ACSR Lapwing conductor
- Estimated Cost: $92.956 M

Upgrade Terminal Equipment at Nelson

- Upgrade one section of 477 kcmil stranded bus at Nelson.
- Estimated Cost: $0.535 M

Total Estimated Cost: $93.491 M

Ratings MVA (SN/SE/WN/WE):

- Before Proposed Solution: 139/193/171/228
- After Proposed Solution: 302/334/356/375

Alternatives Considered:

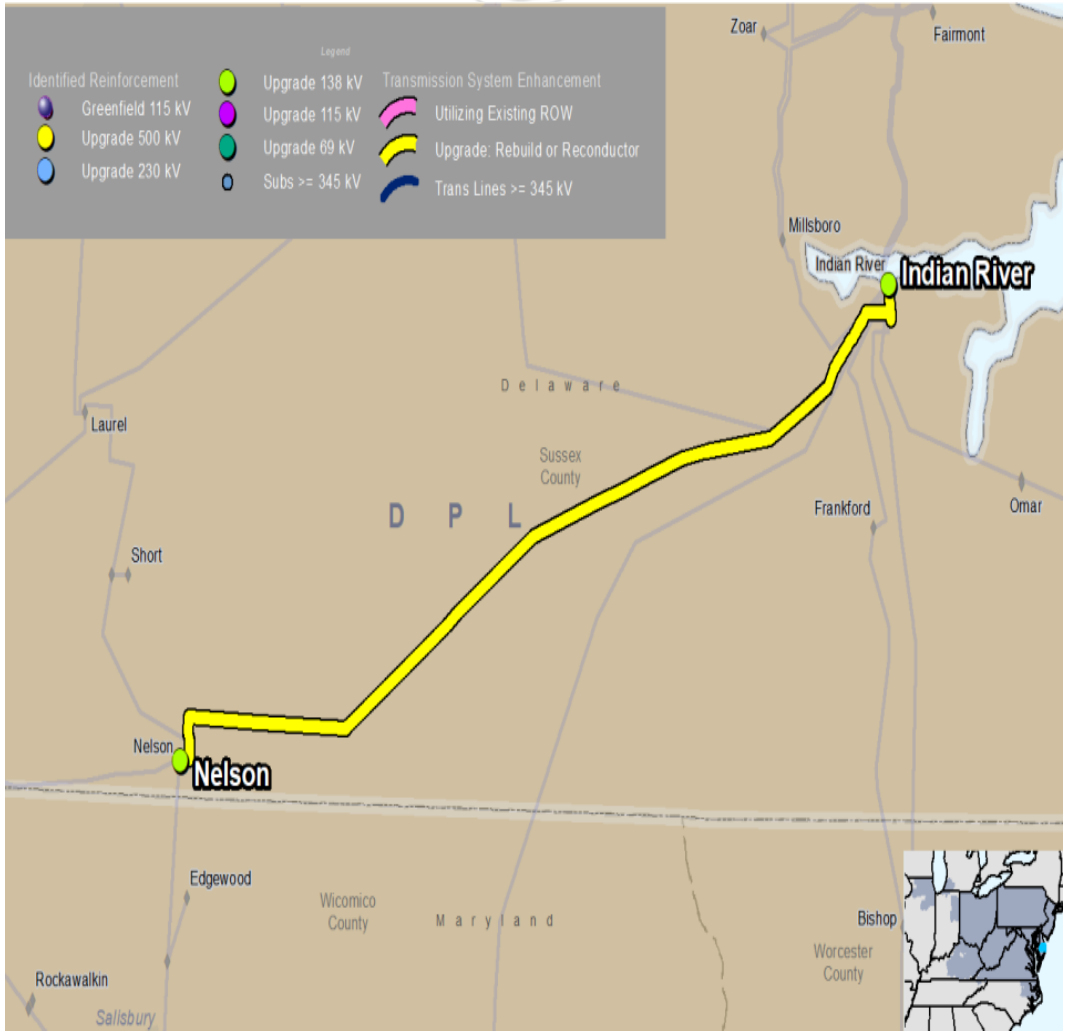
An alternative of reconductoring is not viable because the existing structures are aged and the current pole configuration does not meet 138 kV design requirements. The existing structures cannot support the conductor ratings required to mitigate the violation. The facility is at End of Life, and a rebuild is planned due to its deteriorated material condition.

Ancillary Benefits:

Building to 230kV standards supports higher rated conductor while enabling future 230kV conversion.

Required In-Service: 12/31/2031

Projected In-Service: 12/31/2031



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DPL Transmission Zone: Baseline Vienna – Nelson 138kV Upgrade

Process Stage: First Read

Criteria: Baseline Load Growth Deliverability & Reliability

Assumption Reference: 2031 RTEP Assumptions

Model Used for Analysis: 2026 Series – 2031 RTEP Summer & Winter

Proposal Window Exclusion: Reliability Violations on Transmission Facilities Below 200 kV exclusion

Problem Statement:

Overloads identified on the 138kV Line 13707 Vienna - Nelson during the 2031 N-1-1 study.

Addressed Flowgate IDs: 2026-W1-N11-ST115, 2026-W1-N11-ST116, 2026-W1-N11-ST117, 2026-W1-N11-ST118, 2026-W1-N11-WT1, 2026-W1-N11-WT2, 2026-W1-N11-WT3, 2026-W1-N11-WT4

Proposed Solution:

Bus Upgrade at Nelson

- At DPL's Nelson Substation upgrade all main 138kV bus conductor within the Line 13707 facility boundary to a minimum of 1590 ACSR. Requires replacement of existing aluminum support structures.
- Estimated Cost: $4.43 M

Stranded Bus Upgrade and 8124 switch replacement at Vienna

- Replace existing 4/0 SDCU, 500 kcmil SDCU & 750 kcmil SDCU conductors as well as 600A disconnect switches within DPL's Vienna Substation. Upgrade all main SDCU bus conductor within the L13707 facility boundary to a minimum of 1590 ACSR.
- Estimated Cost: $1.832 M

Total Estimated Cost: $6.263 M

Ratings MVA (SN/SE/WN/WE):

Before Proposed Solution: 165/186/192/211

After Proposed Solution: 374/481/423/476

Alternatives Considered:

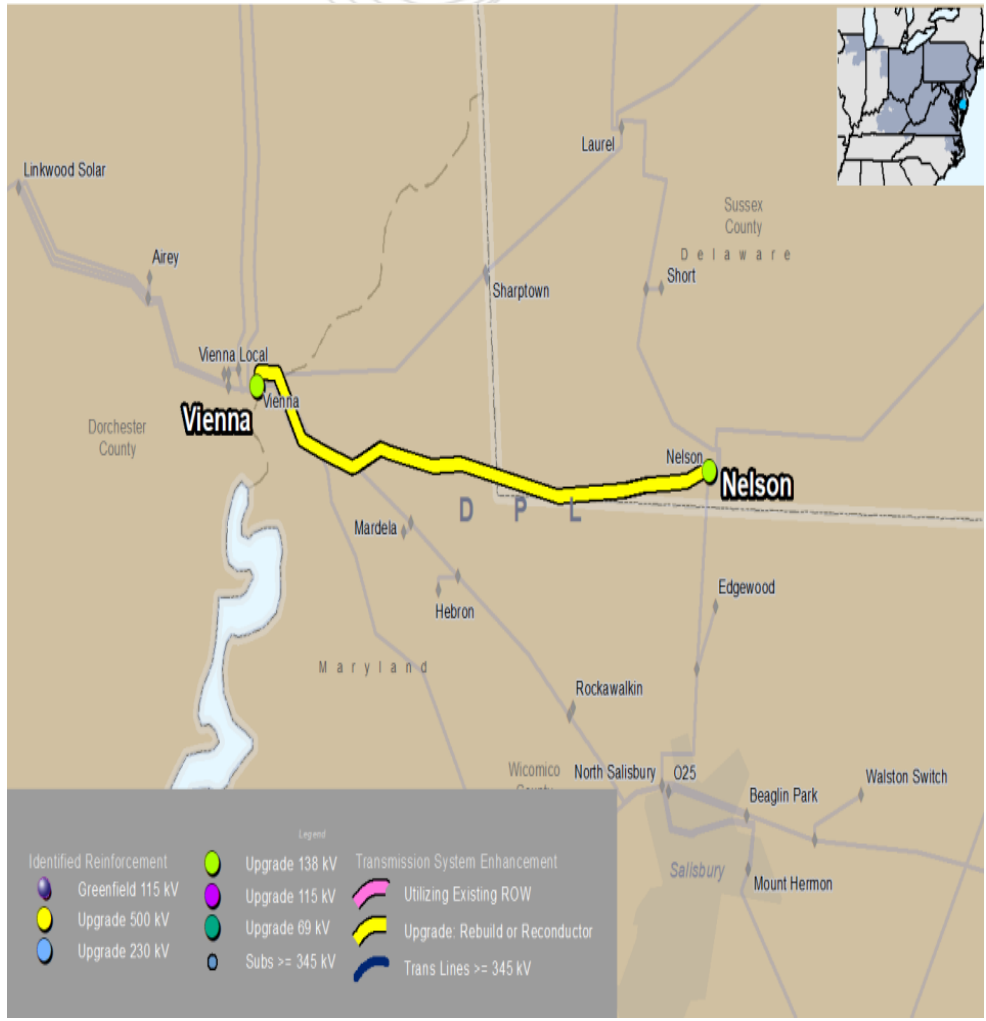
The proposed solution is non-wires, and no alternative solutions were considered.

Ancillary Benefits:

N/A

Required In-Service: 06/01/2031

Projected In-Service: 06/01/2031



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Penelec Transmission Zone: Baseline Philipsburg - Shawville 115 kV Line Rebuild

Process Stage: First Read

Criteria: Individual Plant Deliverability

Assumption Reference: 2026 RTEP assumptions

Model Used for Analysis: 2026 RTEP 2031 Light-load base case

Proposal Window Exclusion: Below 200 kV

Problem Statement:

Flowgate #: 2026-W1-IPD-LL20

In the 2026 RTEP 2031 Light-load case, the Philipsburg - Shawville 115 kV Line is overloaded for the Individual Plant Deliverability test.

Proposed Solution:

Rebuild the Philipsburg - Shawville 115 kV Line using 556 kcmil 26/7 ACSS conductor - 14.2 miles. Upgrade relaying at Shawville Substation and Philipsburg Substation.

Estimated Cost: $67.31 M

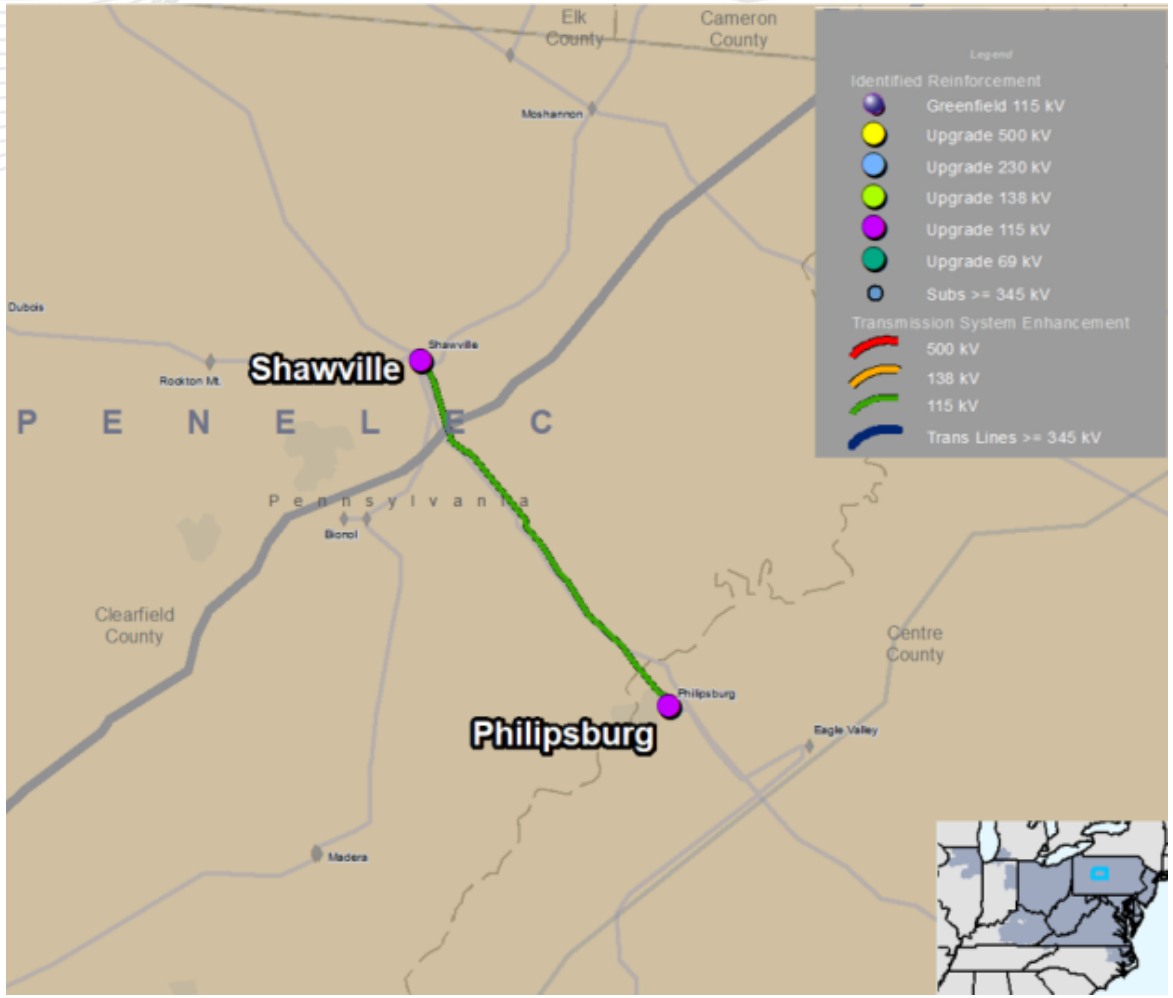
Existing Ratings: 167/202/188/239 MVA (SN/SE/WN/WE)

Proposed Ratings: 294/338/294/356 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2031

Projected In-Service Date: 6/1/2031



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First Read – Short Circuit

Baseline Reliability Projects

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Penelec Transmission Zone: Baseline
Raystown 46 kV Breaker “RAC_HNTG” Replacement

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2026 RTEP assumptions

Model Used for Analysis: 2031 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200 kV

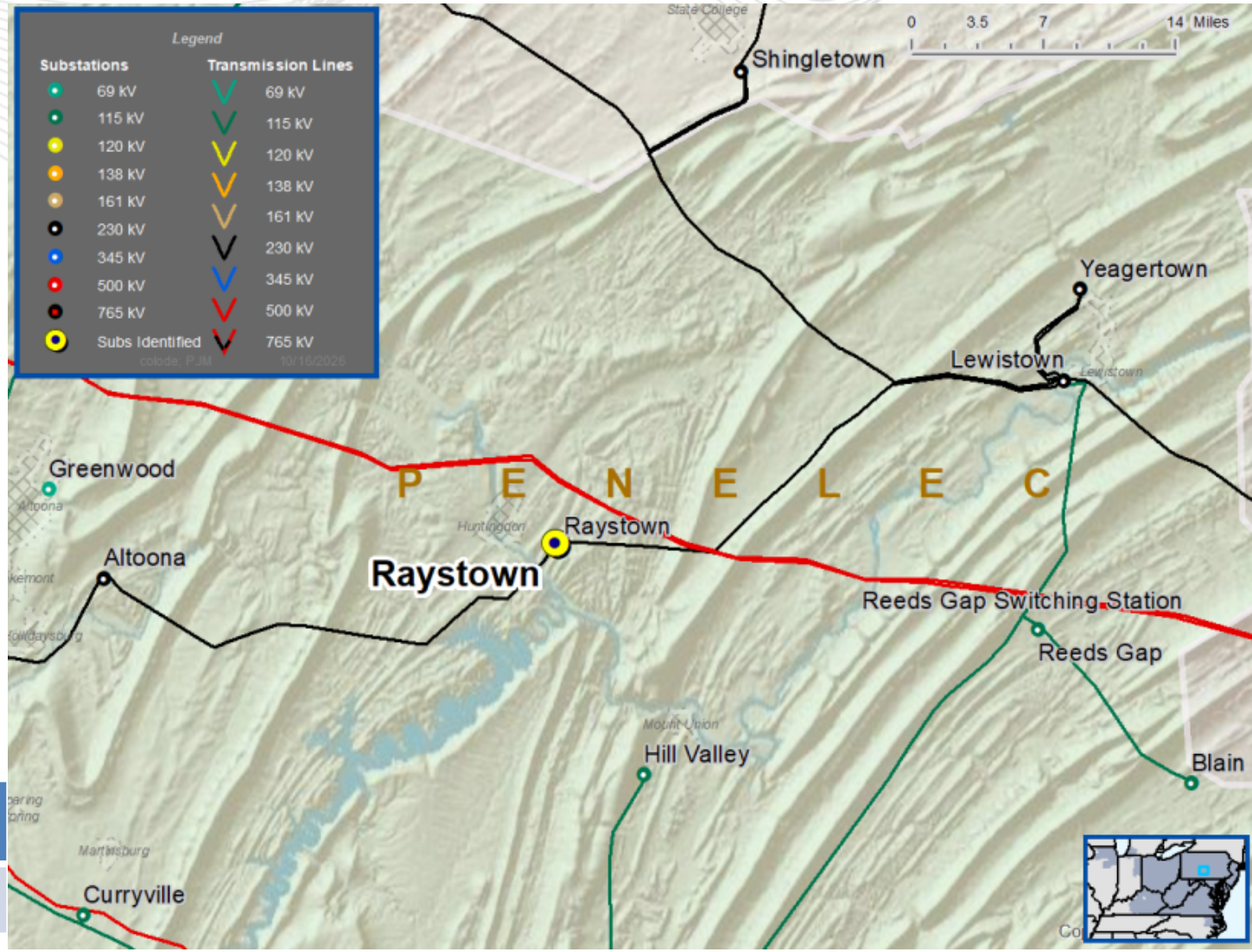
Problem Statement:

2026-W1-FE-SC10

In the 2031 RTEP Short Circuit base case, the Raystown 46 kV breaker “RAC_HNTG” is identified as overdutied.

Existing Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Raystown–69 kV breaker “RAC_HNTG”	20



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Penelec Transmission Zone: Baseline
Raystown 46 kV Breaker “RAC_HNTG” Replacement

Proposed Solution: Proposal #2026_W1-247

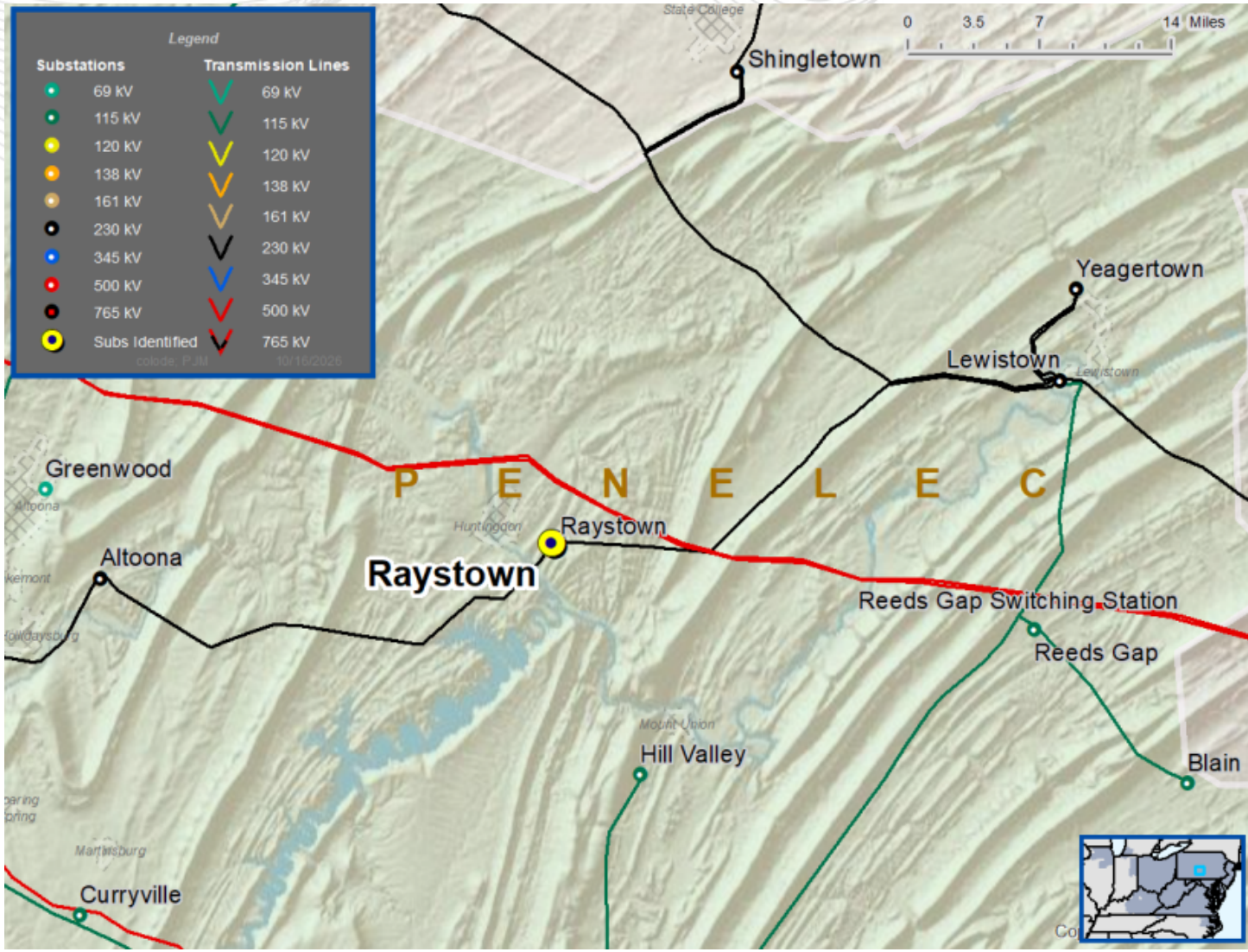
Replace the overdutied Raystown 46 kV circuit breaker “RAC_HNTG" with a 63 kA circuit breaker.

Estimated Cost: $1.236M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Raystown 46 kV circuit breaker with “RAC_HNTG"	63

Required IS Date: 6/1/2031
Projected IS Date: 6/1/2031



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JCPL Transmission Zone: Baseline
Manitou 34.5 kV Breakers (17 breakers) – Substation Rebuild to BAAH

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2026 RTEP assumptions

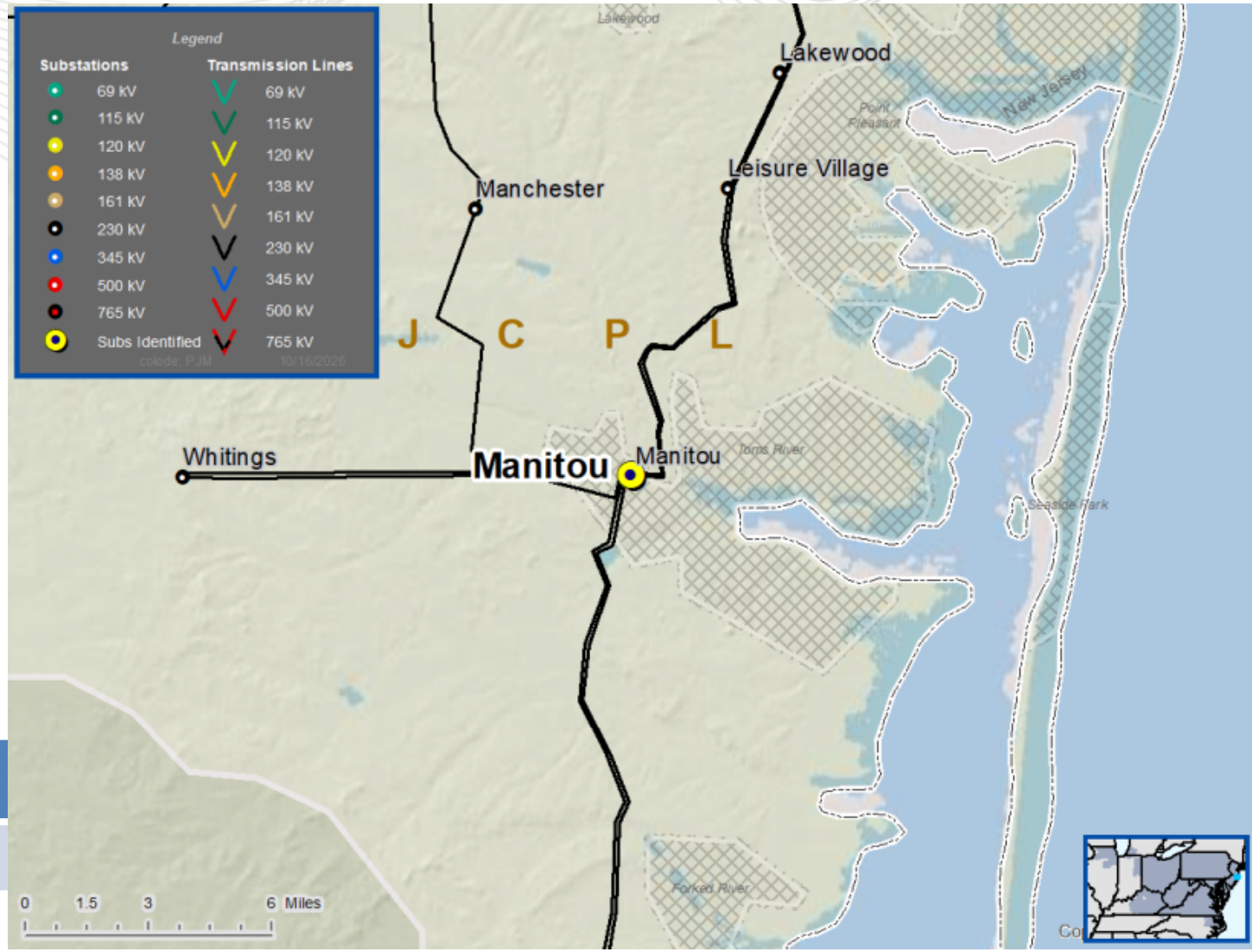
Model Used for Analysis: 2031 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2026-W1-FE-SC-24 through SC-40

In the 2031 RTEP Short Circuit base case, the 17 Manitou 34.5 kV breakers "BK1A,BK1B,BK2B,176-B-60, 69509A, 69509B, B41, B44, BK2A, BK7A, BK7B, BK8A, BK8B, C55, D212, V126, X50" are identified as overdutied.



Existing Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Manitou–34.5 kV breakers (17 breakers)	40

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JCPL Transmission Zone: Baseline
Manitou 34.5 kV Breakers (17 breakers) – Substation Rebuild to BAAH

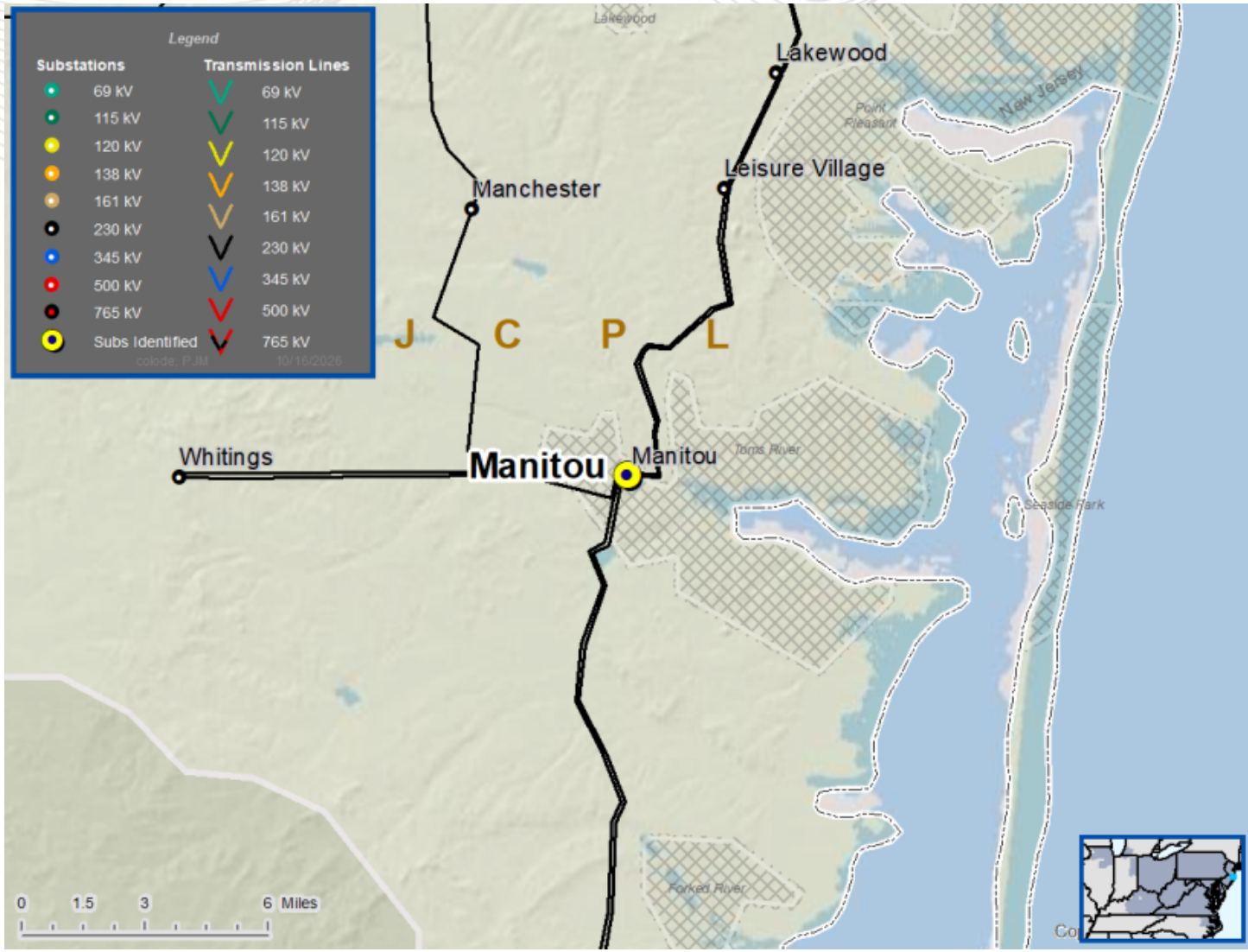
Proposed Solution: Proposal #2026_W1-249
Rebuilding the 34.5 kV yard as a breaker-and-a-half configuration will increase the reliability, resiliency, and operational flexibility of the 34.5 kV facilities at Manitou Substation and the surrounding 34.5 kV network.

Estimated Cost: $53.43M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Manitou 34.5kV yard rebuilt to BAAH	63

Required IS Date: 6/1/2031
Projected IS Date: 6/1/2031



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JCPL Transmission Zone: Baseline
Morris Park 34.5 kV Breakers “8 breakers” Replacement

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2026 RTEP assumptions

Model Used for Analysis: 2031 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200 kV

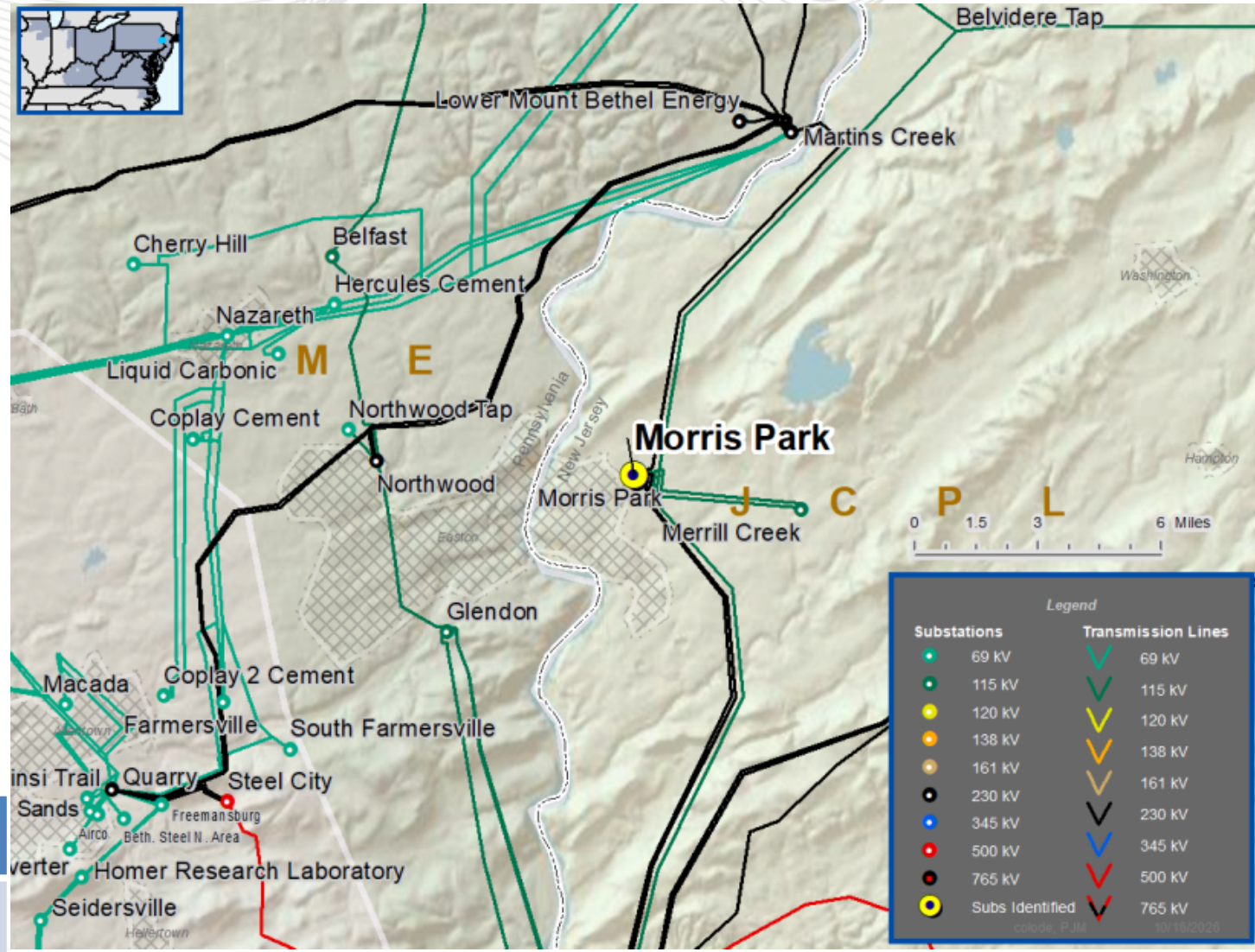
Problem Statement:

2026-W1-FE-SC41, SC42, SC43, SC44, SC45, SC46, SC60, SC61

In the 2031 RTEP Short Circuit base case, the 8 Morris Park 34.5 kV breakers “BK3A, BK3B, F6, T124, S123, X24, W23A, W23B” are identified as overdutied.

Existing Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Morris Park 34.5 kV breakers “BK3A, BK3B, F6, T124, S123, X24, W23A, W23B”	25.1



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JCPL Transmission Zone: Baseline
Morris Park 34.5 kV Breakers “8 breakers” Replacement

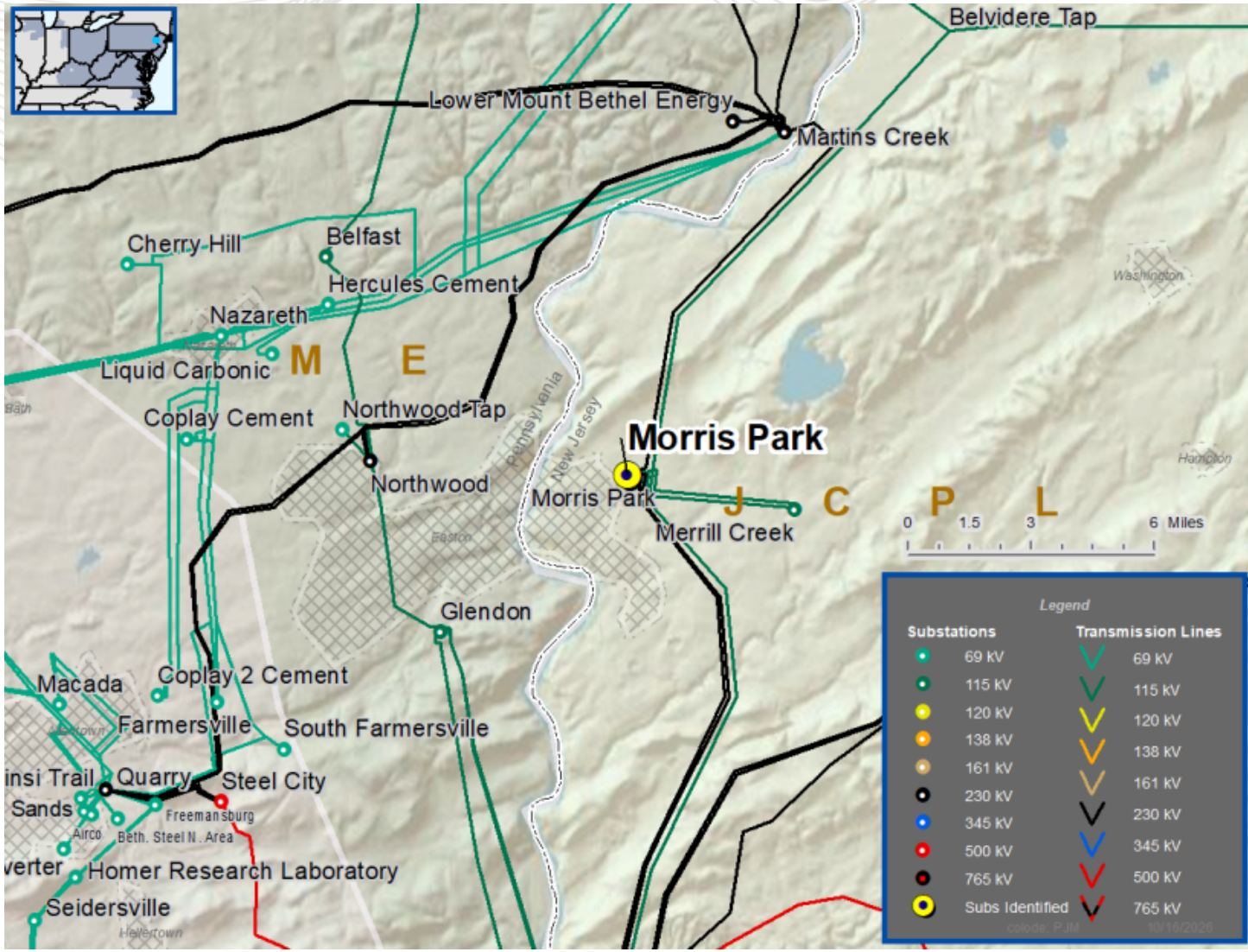
Proposed Solution: Proposal #2026_W1-250
Replace the 8 overdutied Morris Park 34.5 kV circuit breakers “BK3A, BK3B, F6, T124, S123, X24, W23A, W23B" with 63 kVA circuit breakers.

Estimated Cost: $7.13M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Morris Park 34.5 kV breakers “BK3A, BK3B, F6, T124, S123, X24, W23A, W23B”	63

Required IS Date: 6/1/2031
Projected IS Date: 6/1/2031



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JCPL Transmission Zone: Baseline
Newton 34.5 kV Breakers “AF, M715A, M715B” Replacement

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2026 RTEP assumptions

Model Used for Analysis: 2031 RTEP Short Circuit base case

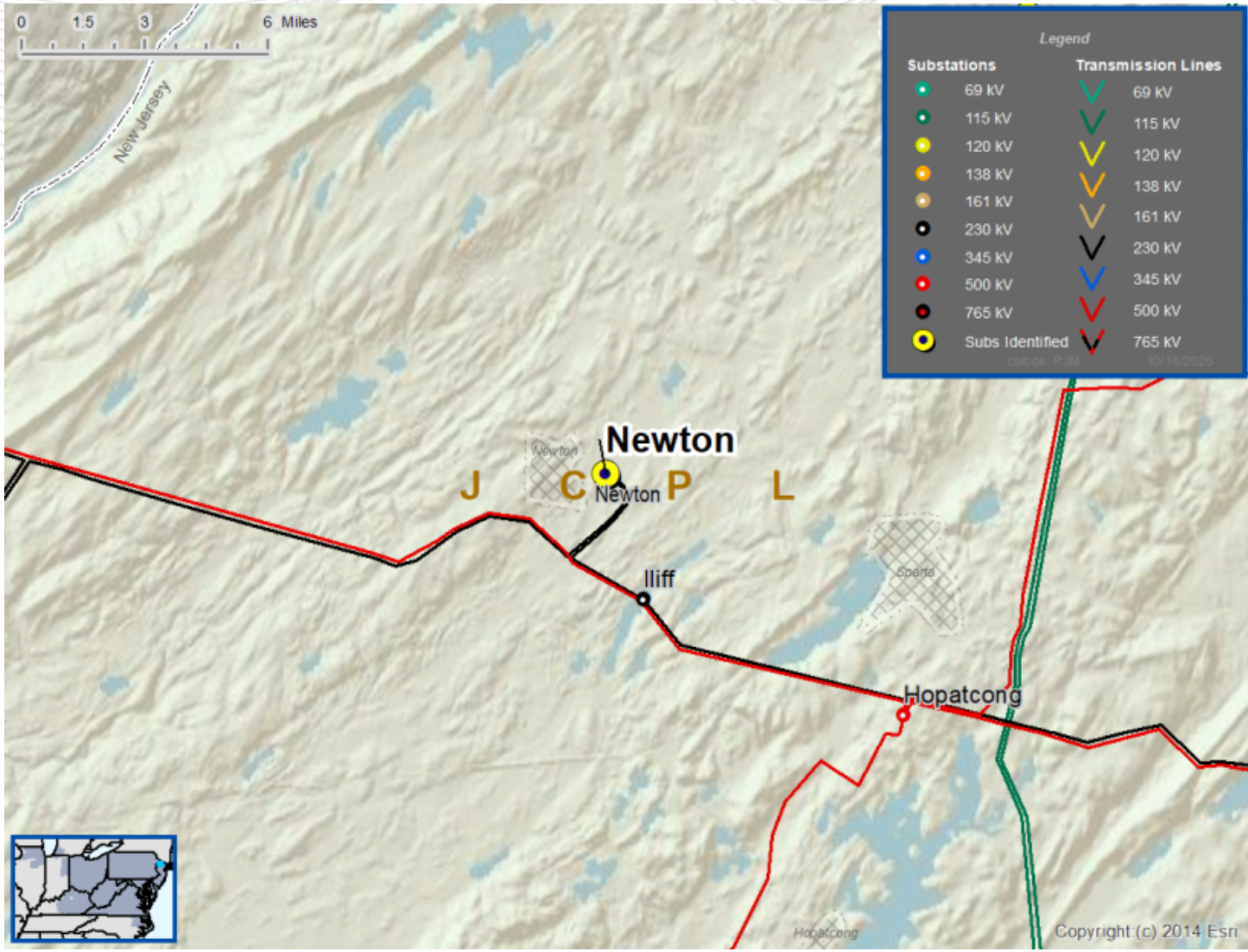
Proposal Window Exclusion: Below 200 kV

Problem Statement:

2026-W1-FE-SC56, SC58, SC59

In the 2031 RTEP Short Circuit base case, the Newton 34.5 kV breakers “AF, M715A, M715B” are identified as overdutied.

Circuit Breaker	Interrupting Rating (kA)
Newton 34.5 kV breaker “AF, M715A, M715B”	22.8



JCPL Transmission Zone: Baseline
Newton 34.5 kV Breakers “AF, M715A, M715B” Replacement

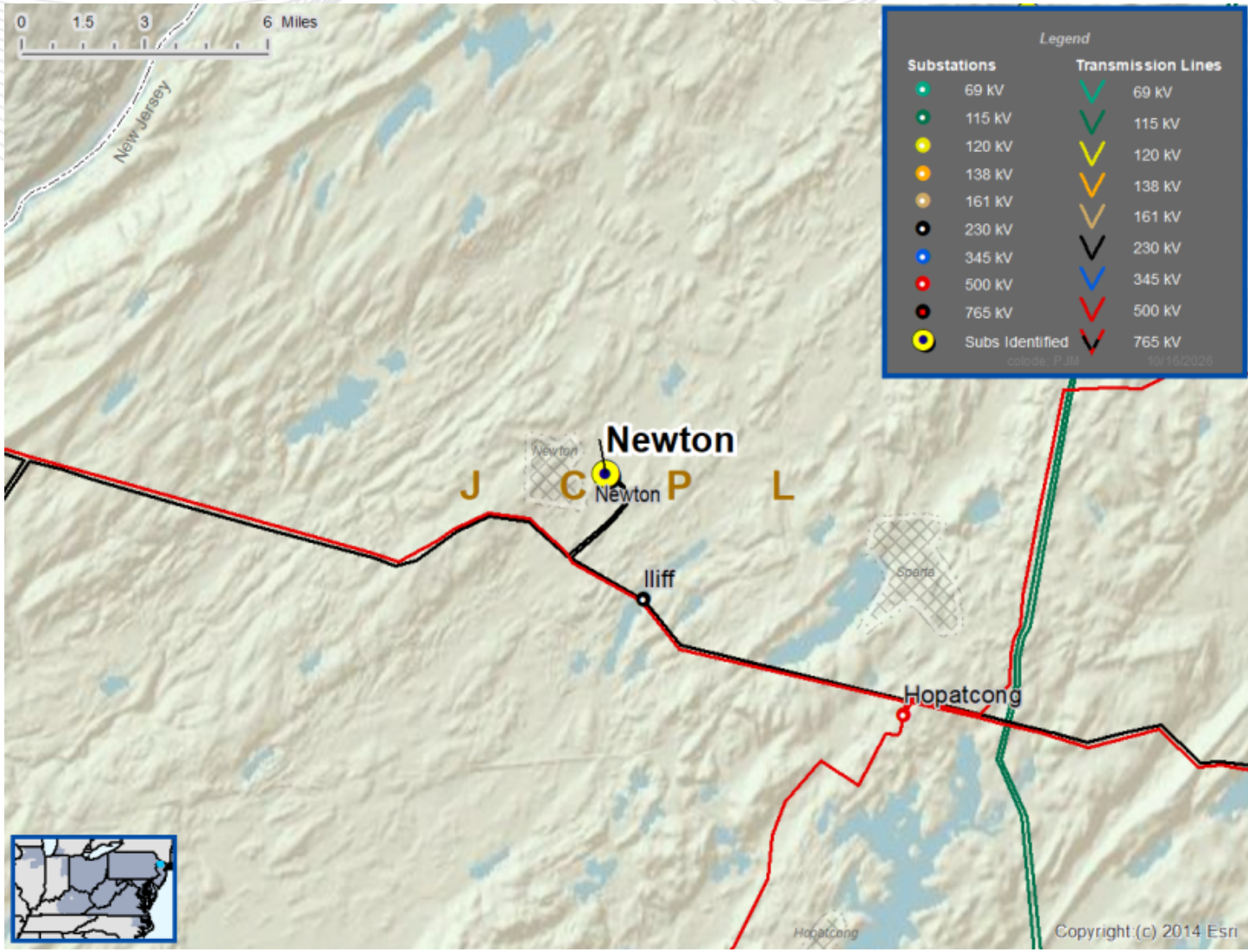
Proposed Solution: Proposal #2026_W1-251
Replace the overdutied Newton 34.5 kV circuit breakers “AF, M715A, M715B" with 63 kA circuit breakers.

Estimated Cost: $2.106M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Newton 34.5 kV breaker “AF, M715A, M715B”	63

Required IS Date: 6/1/2031
Projected IS Date: 6/1/2031



Cancellations

Baseline Reliability Projects

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DPL Transmission Zone: Baseline Vienna – Loretto 138kV Line

Process Stage: Cancellation

Last Presented: SRRTEP-Mid Atlantic 11/13/2025

Criteria: Generation Deliverability

Assumption Reference: 2030 RTEP **Model**: 2025 Series - 2030 RTEP Winter

Proposal Window Exclusion: Below 200 kV Exclusion

Flowgates: 2025-W1-GD-W232

Problem Statement: In the 2030 Winter case, the Vienna – Loretto 138 kV circuit is overloaded for line fault stuck breaker contingency.

Proposed Solution:

- Upgrade existing 500 & 750 SDCU on Vienna side of Vienna - Loretto facility with 2x954 ACSR.Replace 3 - 138kV 600A disconnect switches with 2000A rated units. (**b4023.1**)

Estimated Cost: 1.814 M

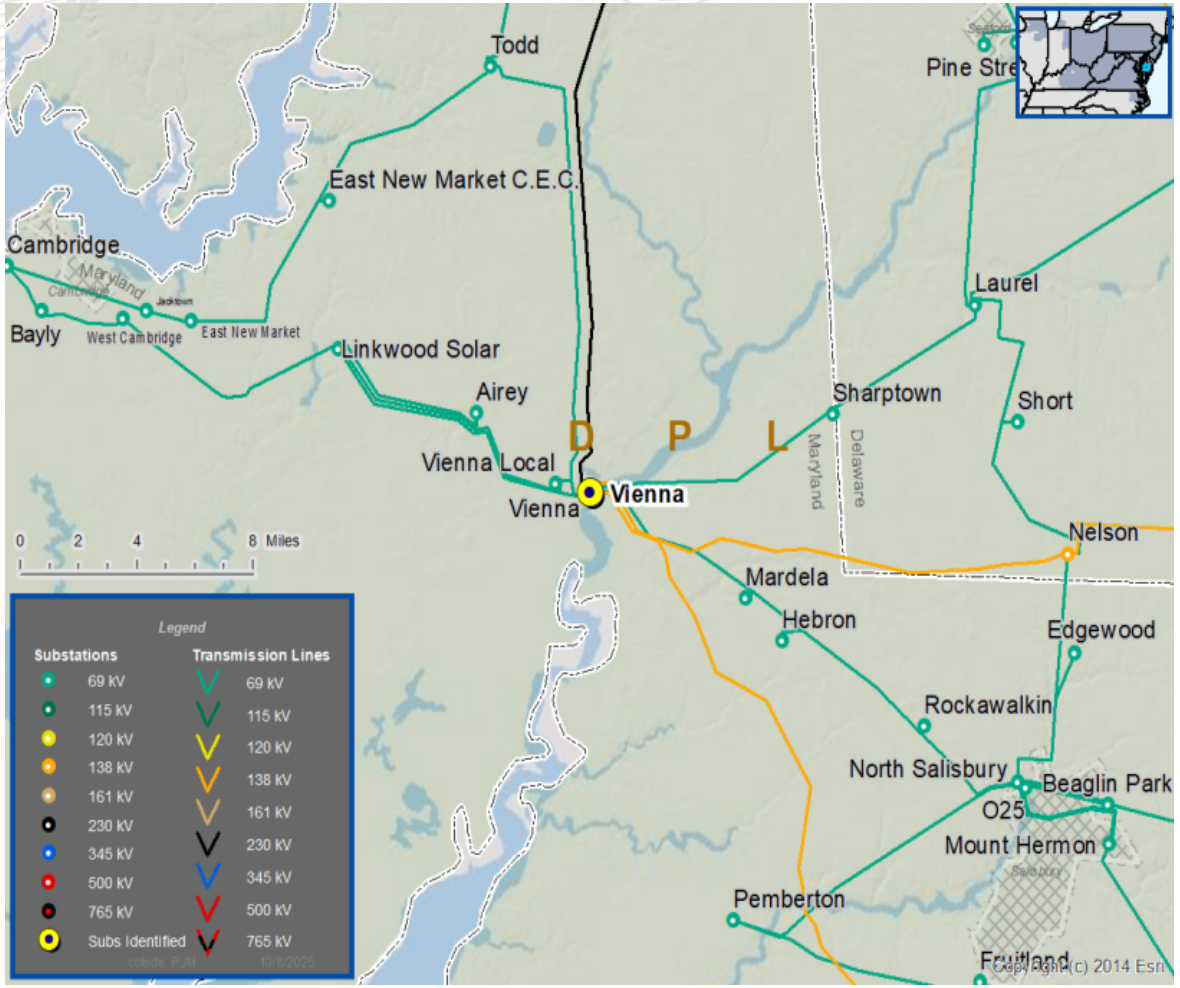
Previous Existing Ratings (Outdated): 184/284/220/289 MVA (SN/SE/WN/WE)

Proposed Ratings (After Baseline): 291/373/383/422 MVA (SN/SE/WN/WE)

Existing Ratings (Updated Methodology): 240/281/282/315 (SN/SE/WN/WE)

Required In-Service Date: 6/1/2030 **Projected In-Service Date:** 5/31/2030

Cancellation Reason: As part of facility rating methodology updates, the existing ratings on this facility have increased. These updated ratings are sufficient to resolve any reliability concern seen in the 2030 RTEP cases, and are also sufficient for the 2031 and 2034 RTEP Cases (per the 2026W1 series). Thus, this baseline is not needed, and will be cancelled.



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Reliability Analysis Update



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Revision History

Version No.	Date	Description
1	11/10/26	Original slides posted
2	11/12/26	Breaker numbers corrected on slide 14

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