



Reliability Analysis Update PJM MAAC

Matthew Wharton
Sub Regional RTEP Committee – PJM MAAC/South
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2025 RTEP First Read Baseline Reliability Projects

DPL Transmission Zone: Baseline Vienna – Loretto 138kV Line

Process Stage: First Read

Criteria: Generation Deliverability

Assumption Reference: 2030 RTEP Assumption

Model Used for Analysis: 2025 Series - 2030 RTEP Winter Summer

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement:

2025-W1-GD-W232

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.

Estimated Cost: 1.814 M

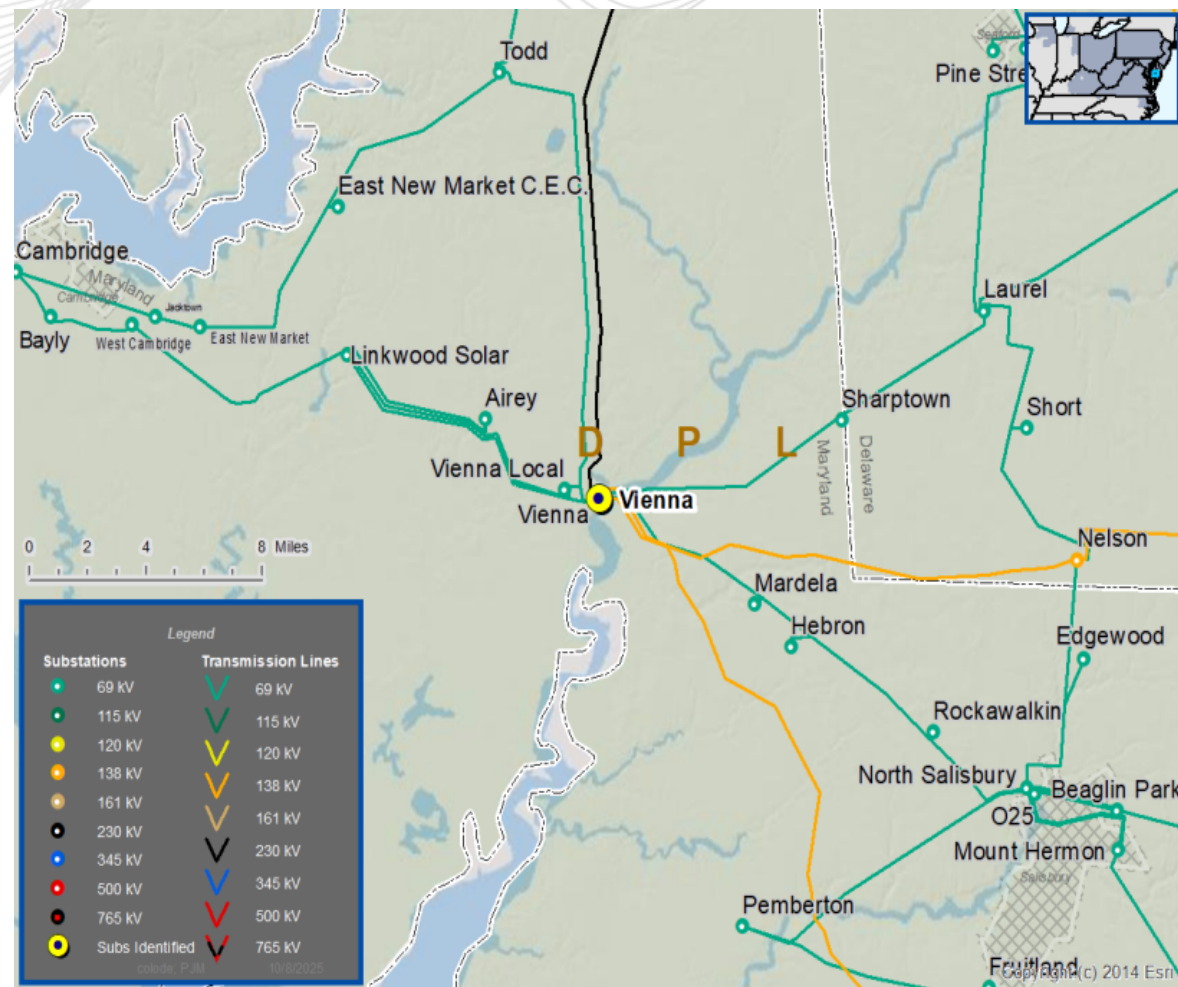
Existing Ratings: 184/284/220/289 MVA (SN/SE/WN/WE)

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

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 5/31/2030





DPL Transmission Zone: Baseline Sharptown – Laurel 69kV Line

Process Stage: First Read

Criteria: Generation Deliverability

Assumption Reference: 2030 RTEP Assumption

Model Used for Analysis: 2025 Series - 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement:

2025-W1-GD-S227

2025-W1-GD-S193

In the 2030 Summer case, the Sharptown – Laurel 69 kV circuit is overloaded for multiple line fault stuck breaker contingencies.

Proposed Solution:

- Rebuild the Sharptown – Laurel 69kV circuit utilizing 954 ACSR “Rail” 45/7 conductor. Upgrade terminal equipment at Laurel substation.

Estimated Cost: \$38.249 M

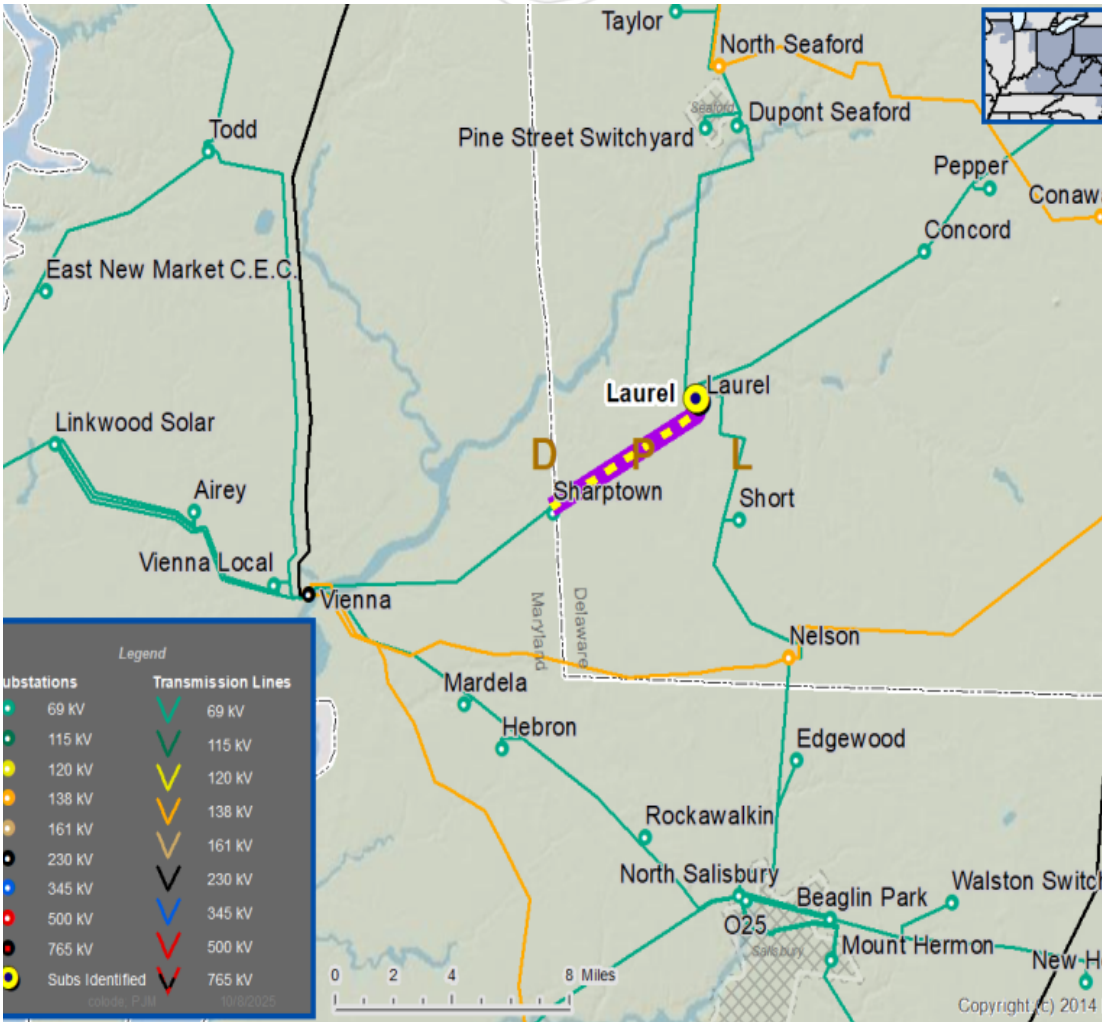
Existing Ratings: 43/43/54/54 MVA (SN/SE/WN/WE)

Proposed Ratings: 136/174/157/196 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 5/31/2030



ODEC Transmission Zone

ODEC Thermal And Voltage Solutions

Process Stage: First Read

Criteria: TO Criteria Violation

Assumption Reference: 2030 RTEP Assumption

Model Used for Analysis: 2030 RTEP Summer/Winter Base cases, ODEC Scenarios

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

Problem Statement:

2025-W1-ODEC-T1 - 2025-W1-ODEC-T24

2025-W1-ODEC-VM1 - 2025-W1-ODEC-VM73

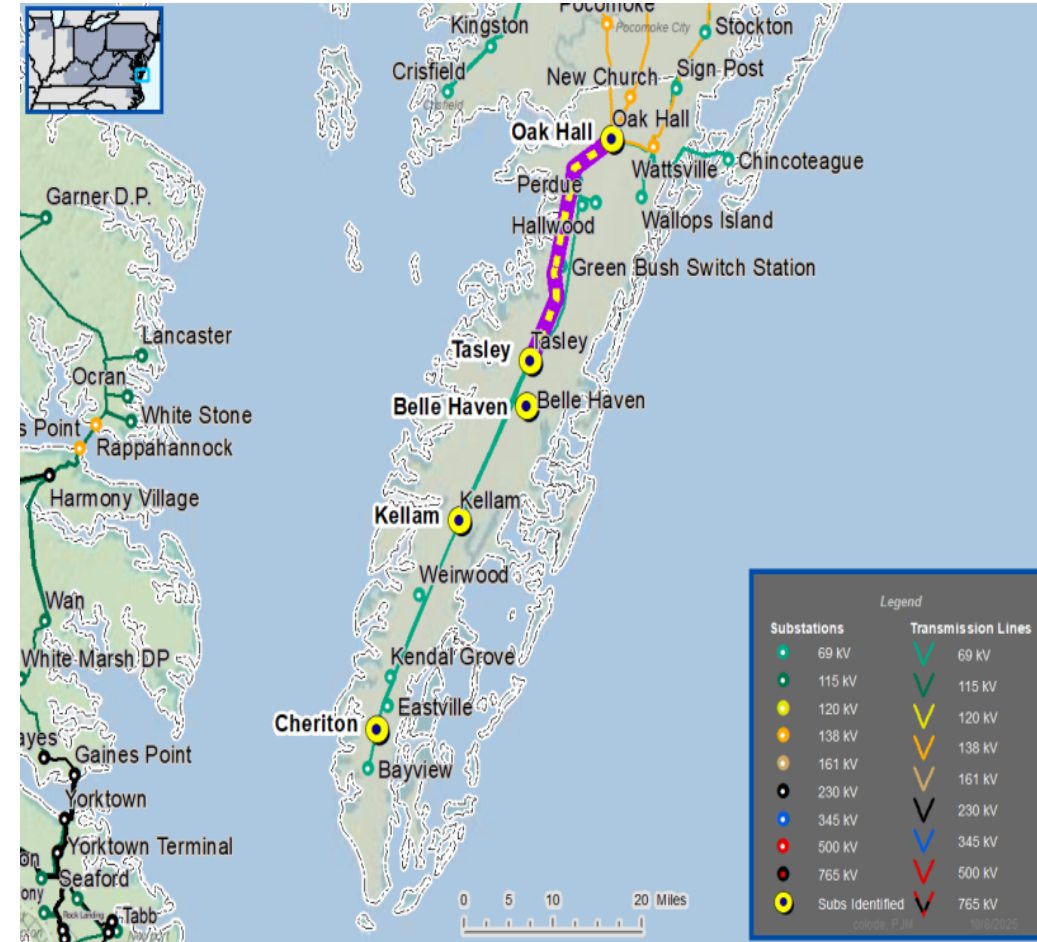
2025-W1-ODEC-VD1 - 2025-W1-ODEC-VD65

2025-W1-ODEC-NC1 - 2025-W1-ODEC-NC291

ODEC's planning criteria requires N-1-1 reliability studies on ODEC 69kV system. PJM analyzed multiple scenarios building off of the 2030 Summer/Winter RTEP base cases. Different assumptions include:

- Higher load in ODEC system per the observed 2025 January 23rd Winter Event
- NRBTMG generators (solar) offline per the observed 2025 January 23rd Winter Event
- Belle Haven STATCOM retired – it is in the ODEC EOL list

Thermal, Voltage, and Non-Convergence Issues were identified on many 69kV ODEC facilities across all study cases. There are thermal overloads on Hallwood – Parsley, Oak Hall – Hallwood, Oak Hall – Perdue, Tasley – Kellam, Tasley – Perdue, Tasley – Parksley 69kV circuits. There are numerous low voltage and voltage drop violations on 69kV ODEC system.



Proposed Solution:

- Construct new 69kV transmission line from Oak Hall – Tasley in existing ROW.
- Upgrade Tasley substation to BAAH and expand/reconfigure Oak Hall substation to accommodate the new line.
- Rebuild 69kV line from Oak Hall – Hallwood – Tasley.
- Replace and add additional capacitor banks at Tasley, Kellam, Cheriton, and Belle Haven 69kV substations.
- Upgrade relays at Oak Hall, Tasley, and Kellam.

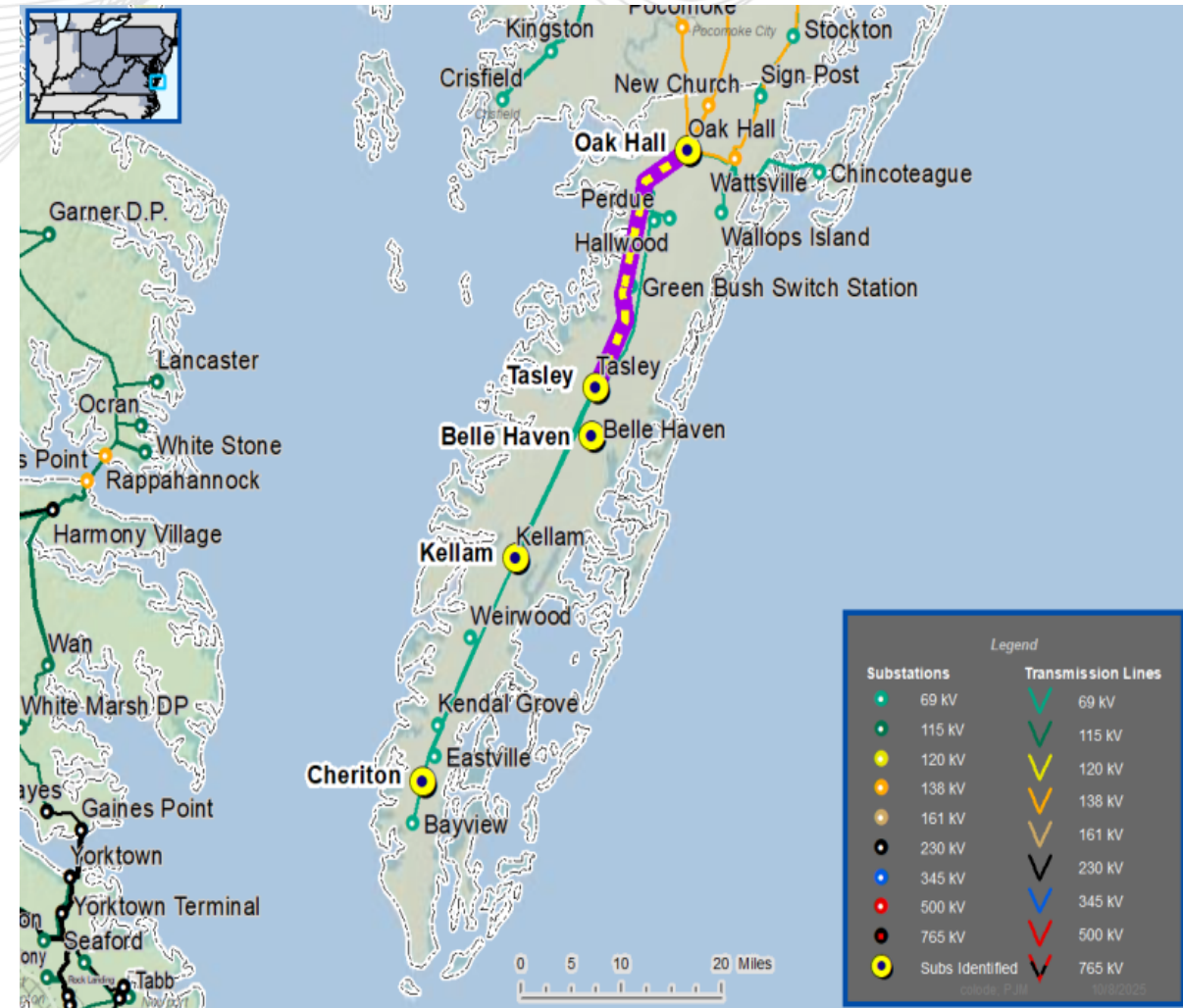
Estimated Cost: \$132.01M

Existing Ratings/Proposed (Oak Hall – Hallwood – Tasley):

	Existing Ratings (SN/SE/WN/WE)	Proposed ratings (SN/SE/WN/WE)
Oak Hall – Halwood – Tasley	87/114/100/129	227/287/245/304
Oak Hall – Tasley (new)	N/A	227/287/245/304
Tasley – Kellam	76/105/99/105	114/151/139/177

Required In-Service Date: 6/1/2030

Projected In-Service Date: 12/31/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2030 RTEP Assumption

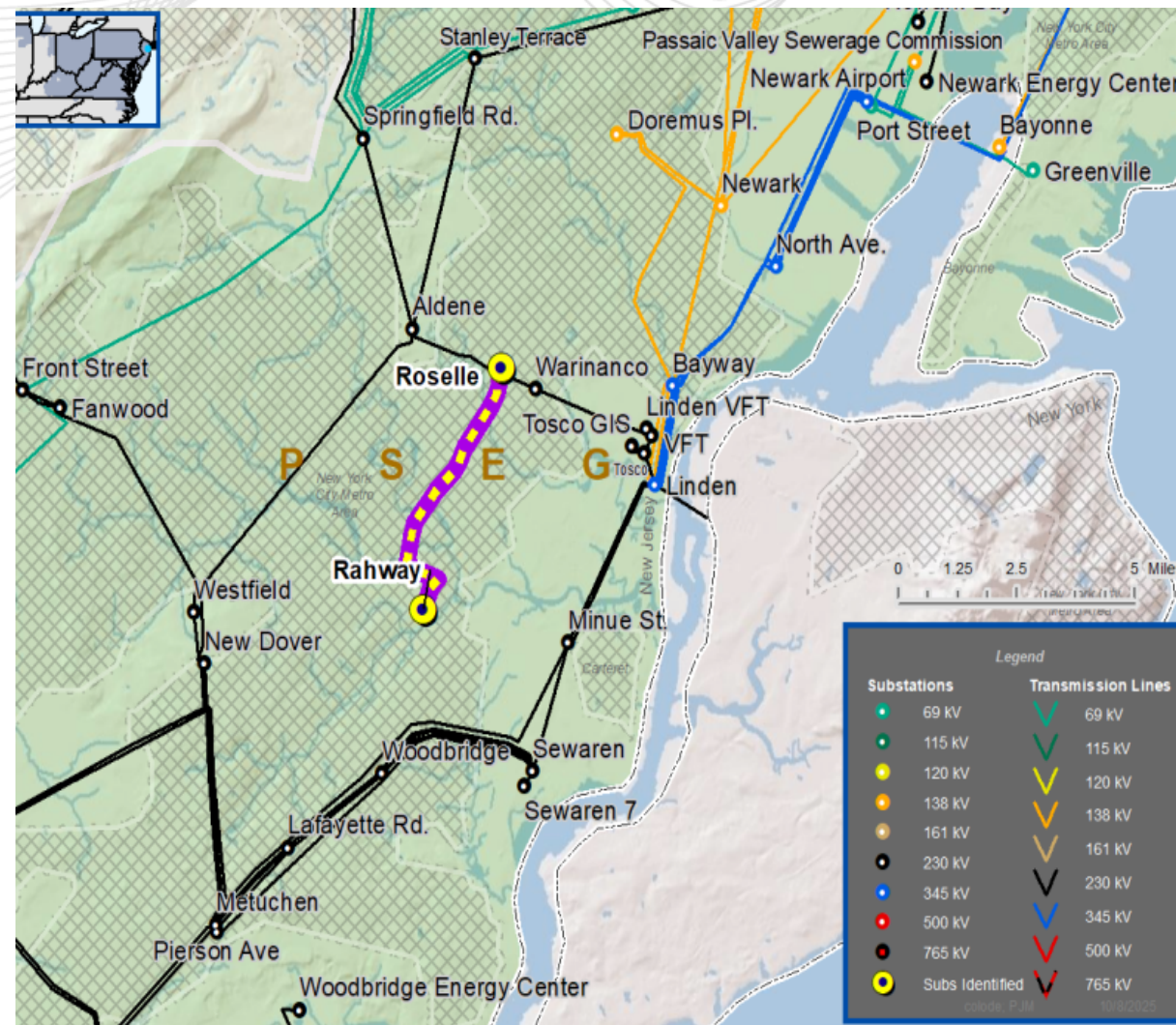
Model Used for Analysis: 2025 Series - 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement:

2025-W1-PSEG-T1

In the 2030 Summer case, under N-1-0 contingency condition, the Rahway – Roselle 69 kV Line is overloaded.



Proposed Solution:

Replace/update riser structure, pot head, cable and sweeps as required to accept high-capacity conductor. Rebuild duct banks as needed.

Reconductor 69kV line from Rahway to Roselle Station. High-capacity conductor to be rated at least 1100 A Summer Normal and 1200 A Summer Emergency. 2 miles of OH wreck and rebuild 2.5 miles of OH new construction 0.2 miles of UG Replace fiber as required.

Estimated Cost: \$29.4 M

Existing Ratings: 95/130/106/130 MVA (SN/SE/WN/WE)

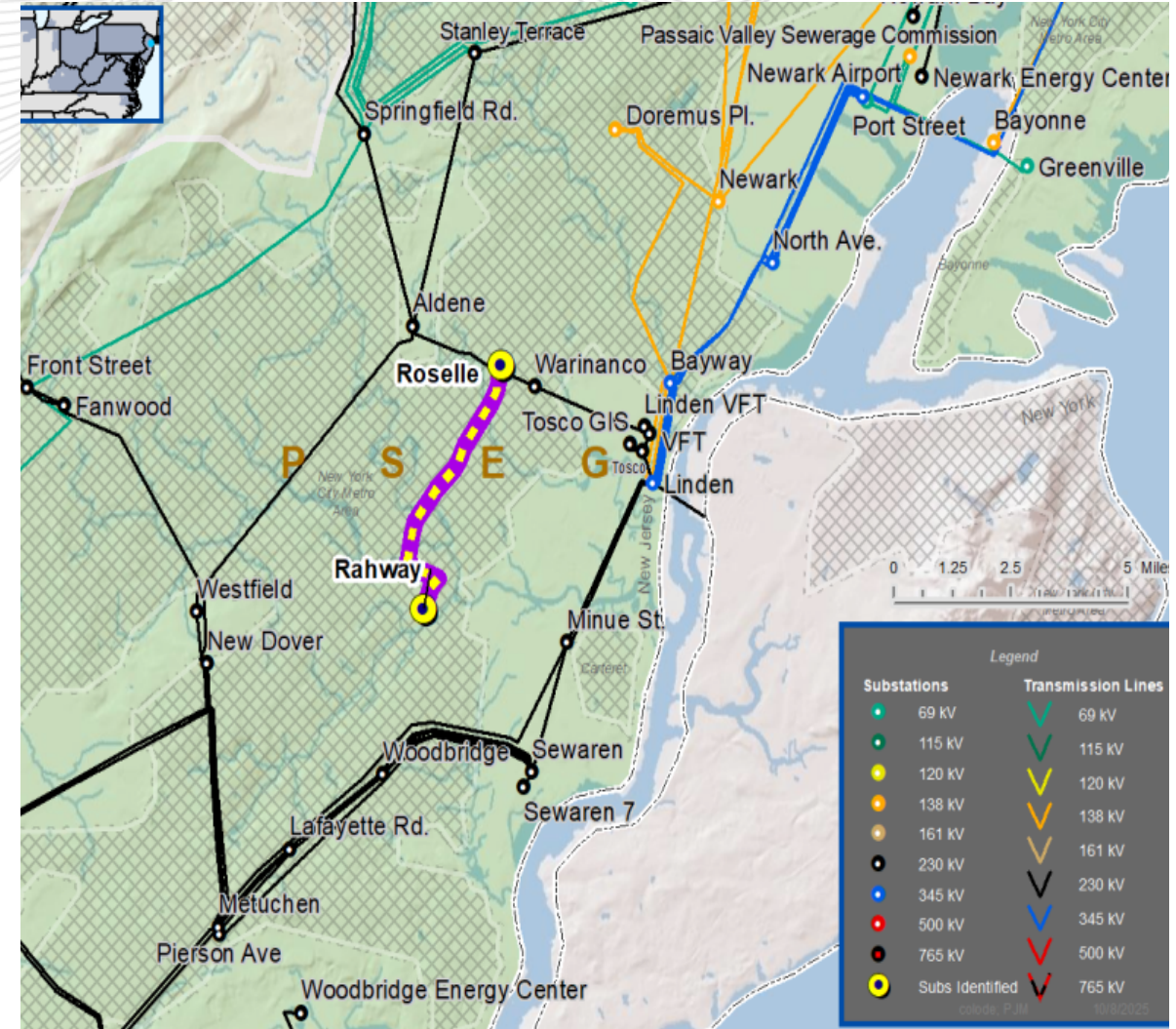
Proposed Ratings: 135/170/165/179 MVA (SN/SE/WN/WE)

Alternatives

Construct new 69kV line from Blair Road to Roselle. Reconfigure Blair Road to Rahway line for Blair Road to Roselle.

Required In-Service Date: 6/1/2030

Projected In-Service Date: 12/31/2029



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2030 RTEP Assumption

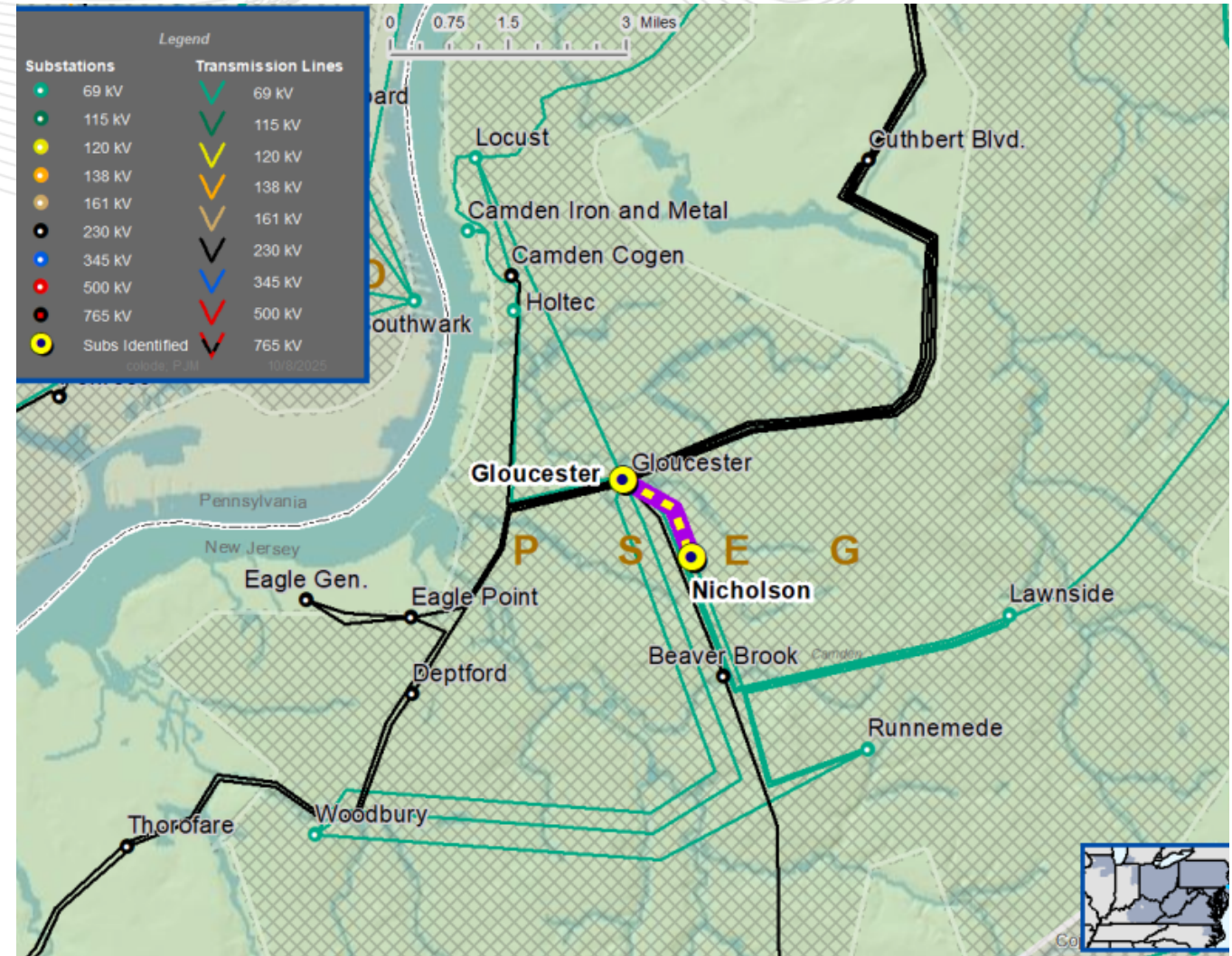
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement:

2025-W1-PSEG-T2

In the 2030 Summer case, under N-1-0 contingency condition, the Gloucester - Nicholson 69 kV Line is overloaded.



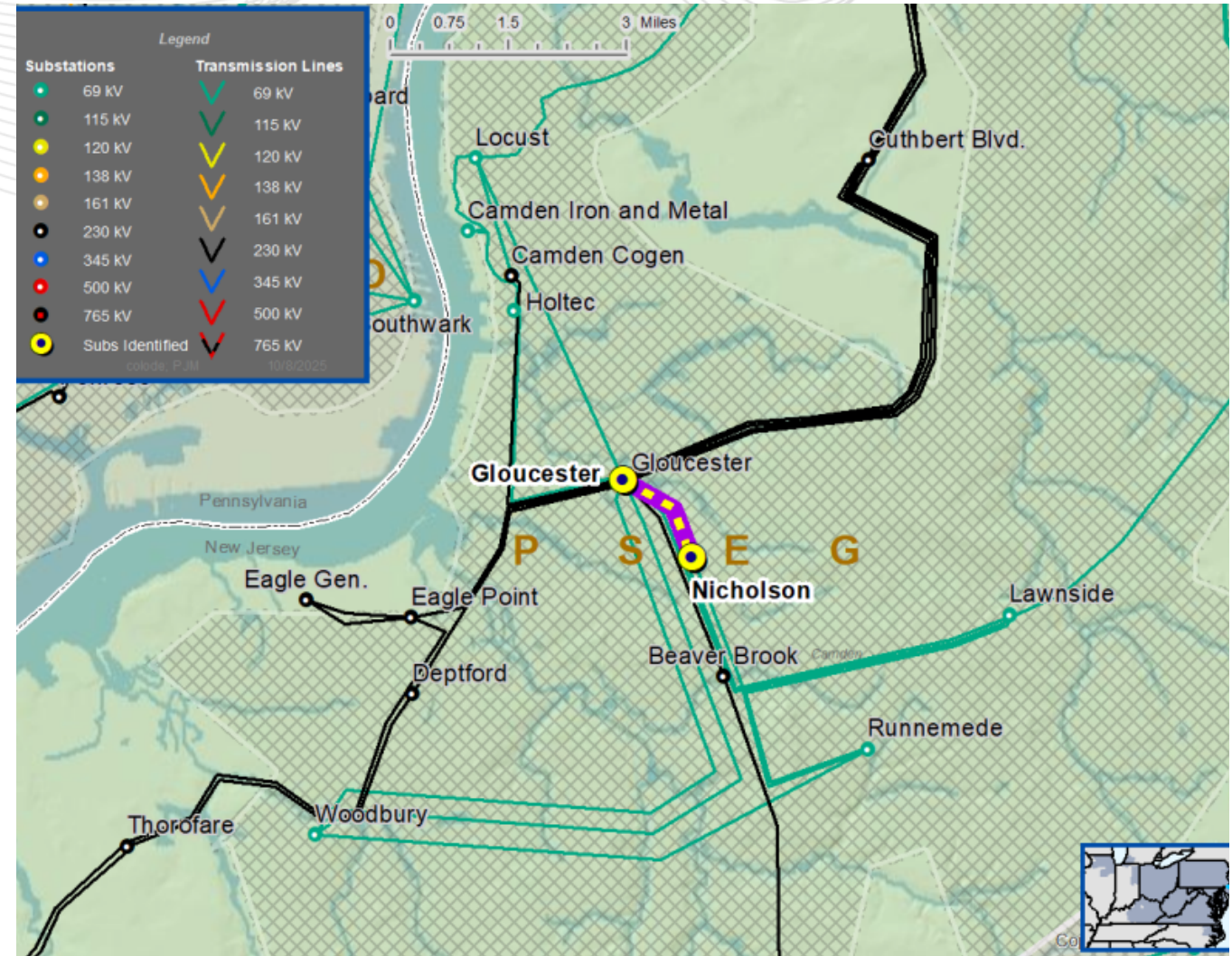
Proposed Solution:

Replace/update pole riser, pot head riser, associated sweeps and cable as required to accept high-capacity conductor. Replace LP41K relays with new primary SEL-311L and backup SEL-411L relays. Replace duct banks as required. Replace existing OH wire with high-capacity conductor. Replace LP10K relays with new primary SEL-311L and backup SEL-411L relays. Wreck and Rebuild OH circuit including transfer of any underbuilt circuits below the 69kV. Install composite poles instead of wood poles. Install shield wire. Install fiber and all necessary fiber accessories. Install high-capacity conductor from Gloucester to Nicholson. Minimum Ratings: Summer Normal -1100 amps (131MVA). Replace UG cable with high-capacity conductor and sweeps as required.

Estimated Cost: \$10.8M

Existing Ratings: 95/130/106/130 MVA (SN/SE/WN/WE)

Proposed Ratings: 135/170/165/179 MVA (SN/SE/WN/WE)

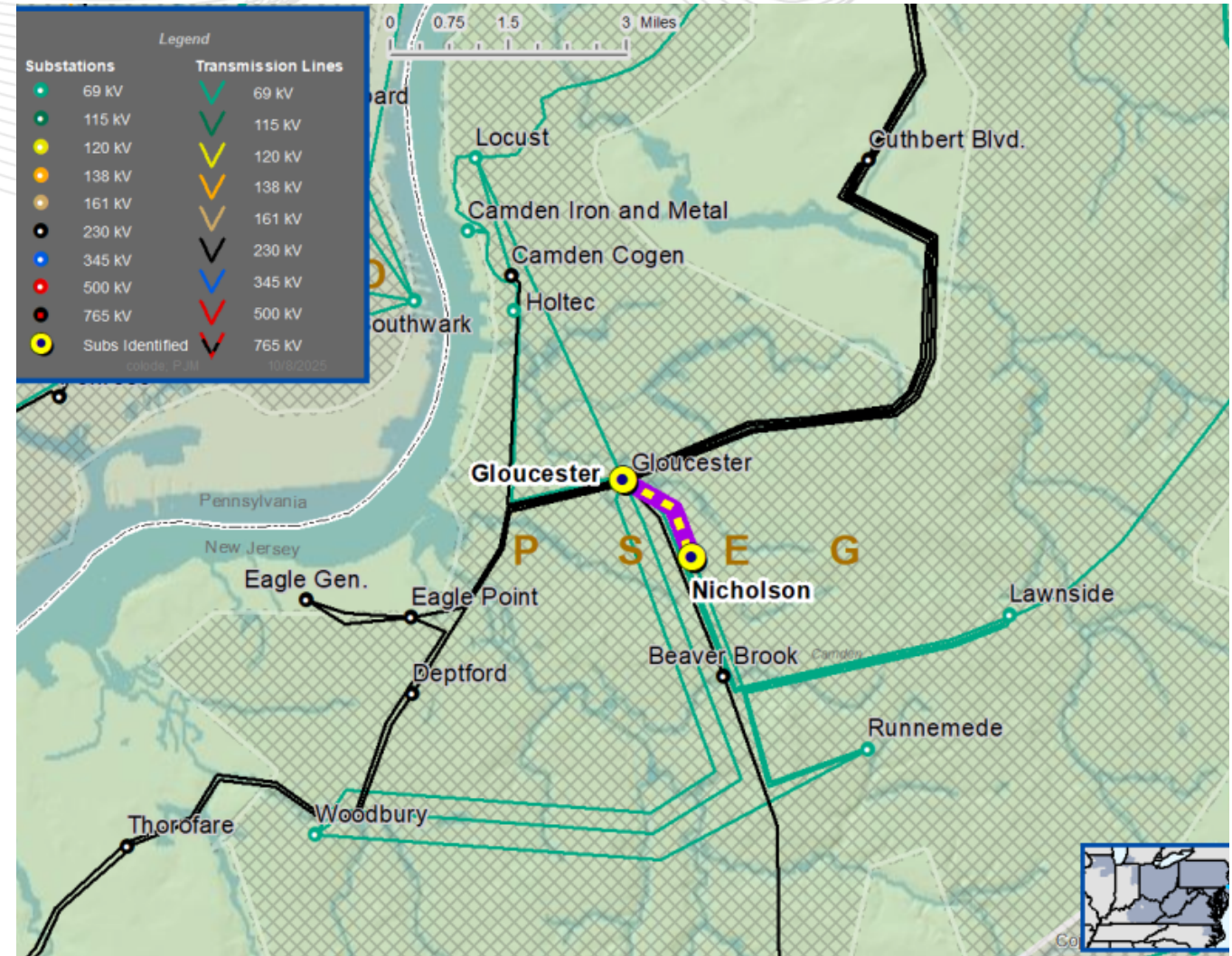


Alternatives

Install a breaker at Nicholson station and construct a new 69kV line from Gloucester to Nicholson stations. Construct a new 69kV line from Hilltop to Lawnside stations.

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



PSEG Transmission Zone: Baseline Prospect Park - North Paterson 69 kV Line

Process Stage: First Read

Criteria: Individual Plant Deliverability

Assumption Reference: 2030 RTEP Assumption

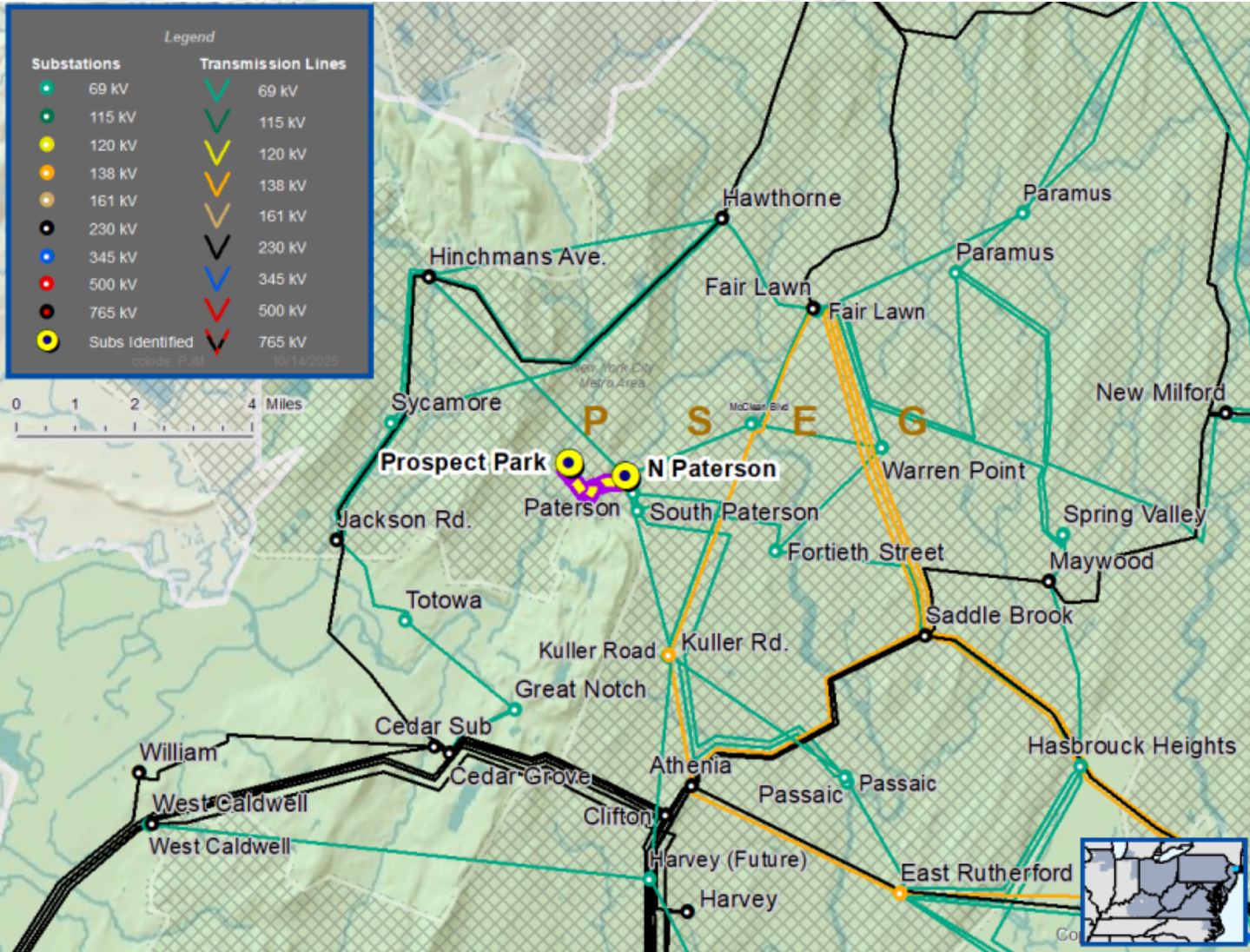
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Substation Equipment Exclusion

Problem Statement:

2025-W1-IPD-S133 and S164

In the 2030 Summer case, under N-1 condition, Prospect Park - North Paterson 69 kV Line is overloaded for Individual Plant Deliverability test.



PSEG Transmission Zone: Baseline Prospect Park - North Paterson 69 kV Line

Proposed Solution:

Upgrade the Pfisterer connection inside of Prospect Park to accept new high-capacity cable, modify conduit as needed. Upgrade the Pfisterer connection inside of North Paterson to accept new high-capacity cable, reconfigure duct banks in North Paterson to accommodate new high-capacity cable. Reconnector 69kV line from Prospect Park to North Paterson with a high-capacity conductor, including installing new composite poles and manholes along the line as required.

Estimated Cost: \$15.703M

Existing Ratings: 95/130/106/130 MVA (SN/SE/WN/WE)

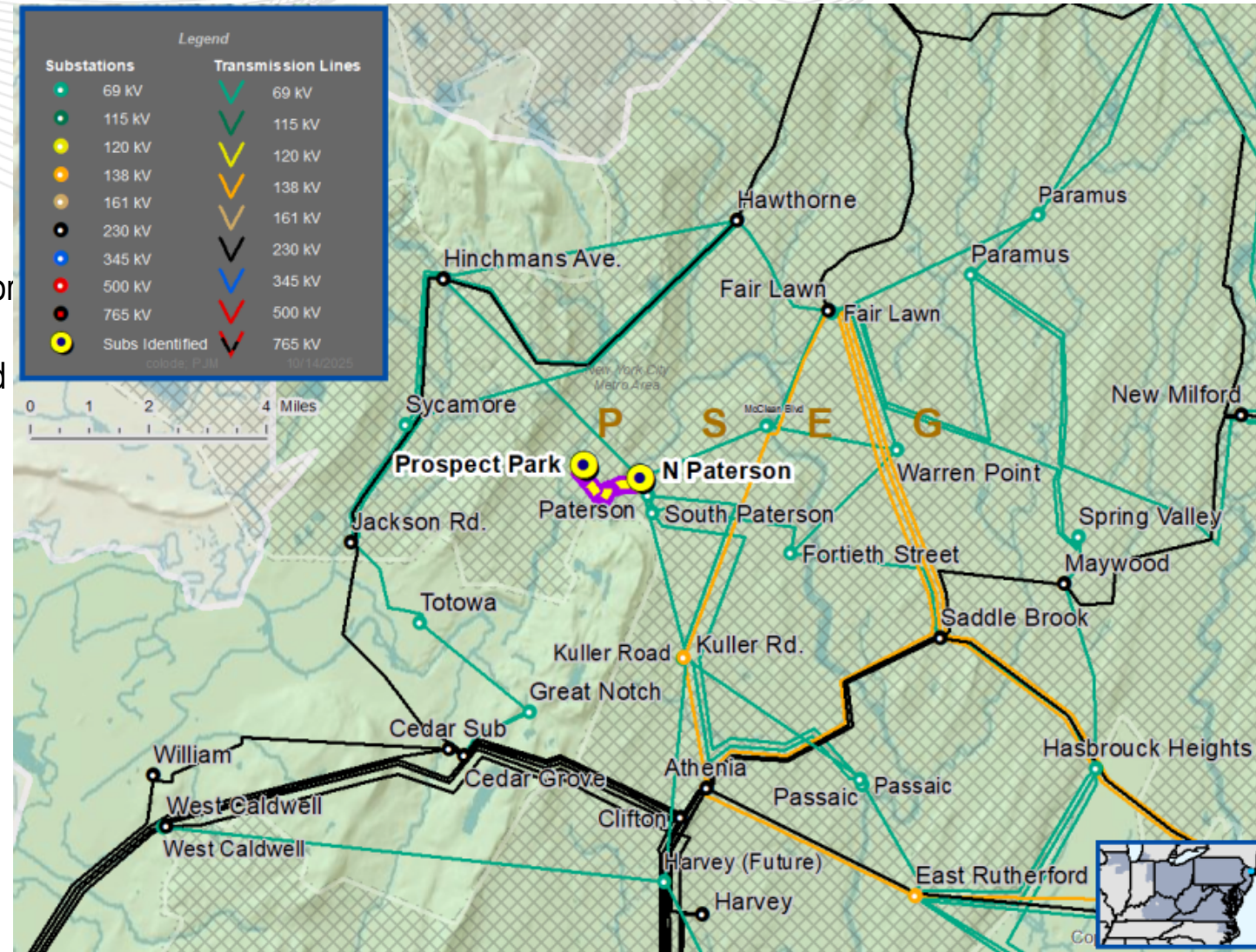
Proposed Ratings: 135/170/165/179 MVA (SN/SE/WN/WE)

Alternatives

Construct a new 69kV line from Cedar Grove station to Harvey station.

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



BGE Transmission Zone: Baseline Greene Street – Constitution St 115 kV Line

Process Stage: First Read

Criteria: N-1-1

Assumption Reference: 2030 RTEP Assumption

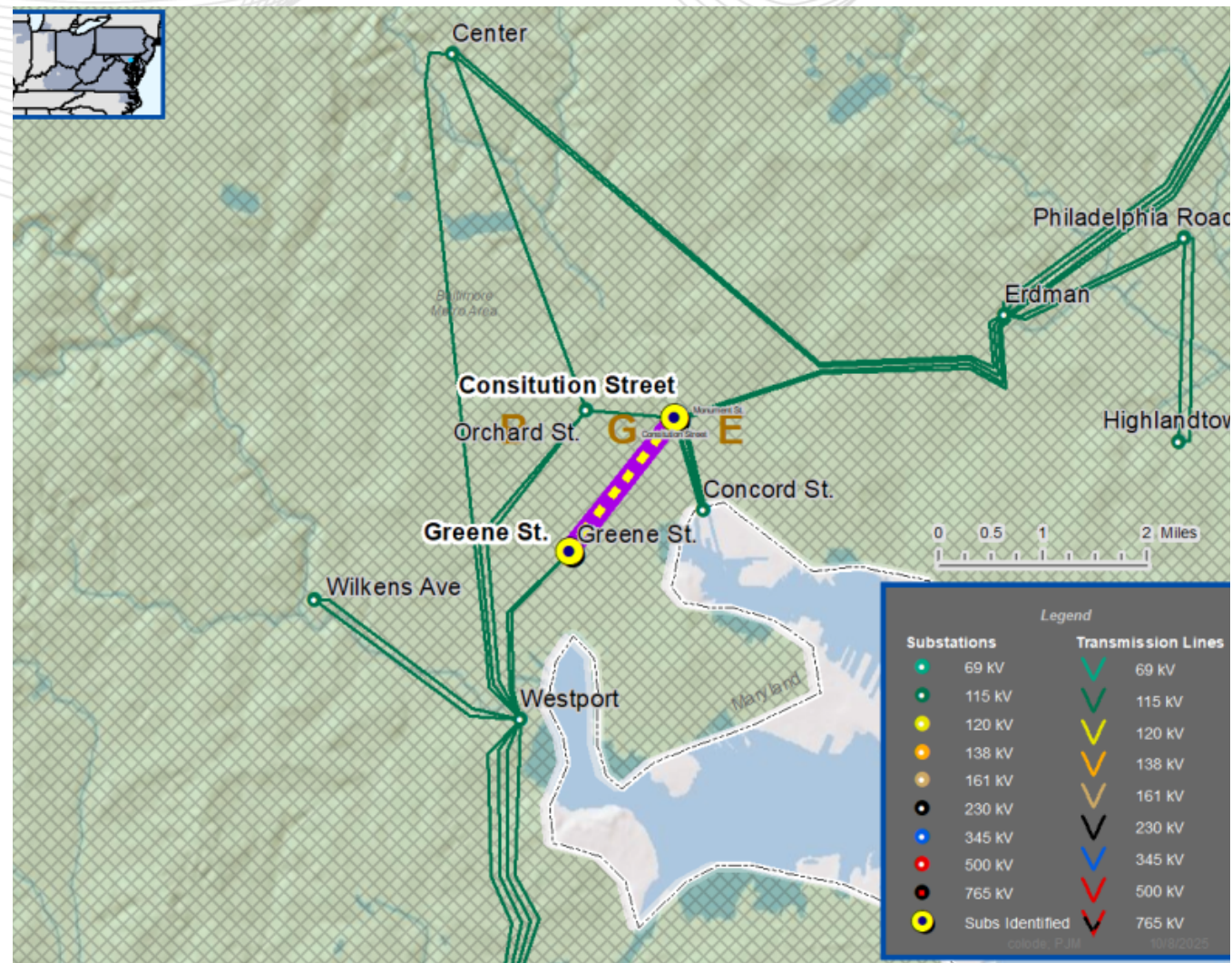
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement:

2025-W1-N11-ST3 to ST6, ST13 and ST14

In the 2030 Summer case, under multiple N-1-1 contingency conditions, the Greene St – Constitution St 115 kV Line is overloaded.



BGE Transmission Zone: Baseline Greene Street – Constitution St 115 kV Line

Proposed Solution:

Replace approx. 2 miles per circuit of existing HPFF cables with new 3500 KCM CU LPP HPFF cables.

Estimated Cost: \$58.49M

Existing Ratings: 140/158/187/203 MVA (SN/SE/WN/WE)

Proposed Ratings: 258/286/291/313 MVA (SN/SE/WN/WE)

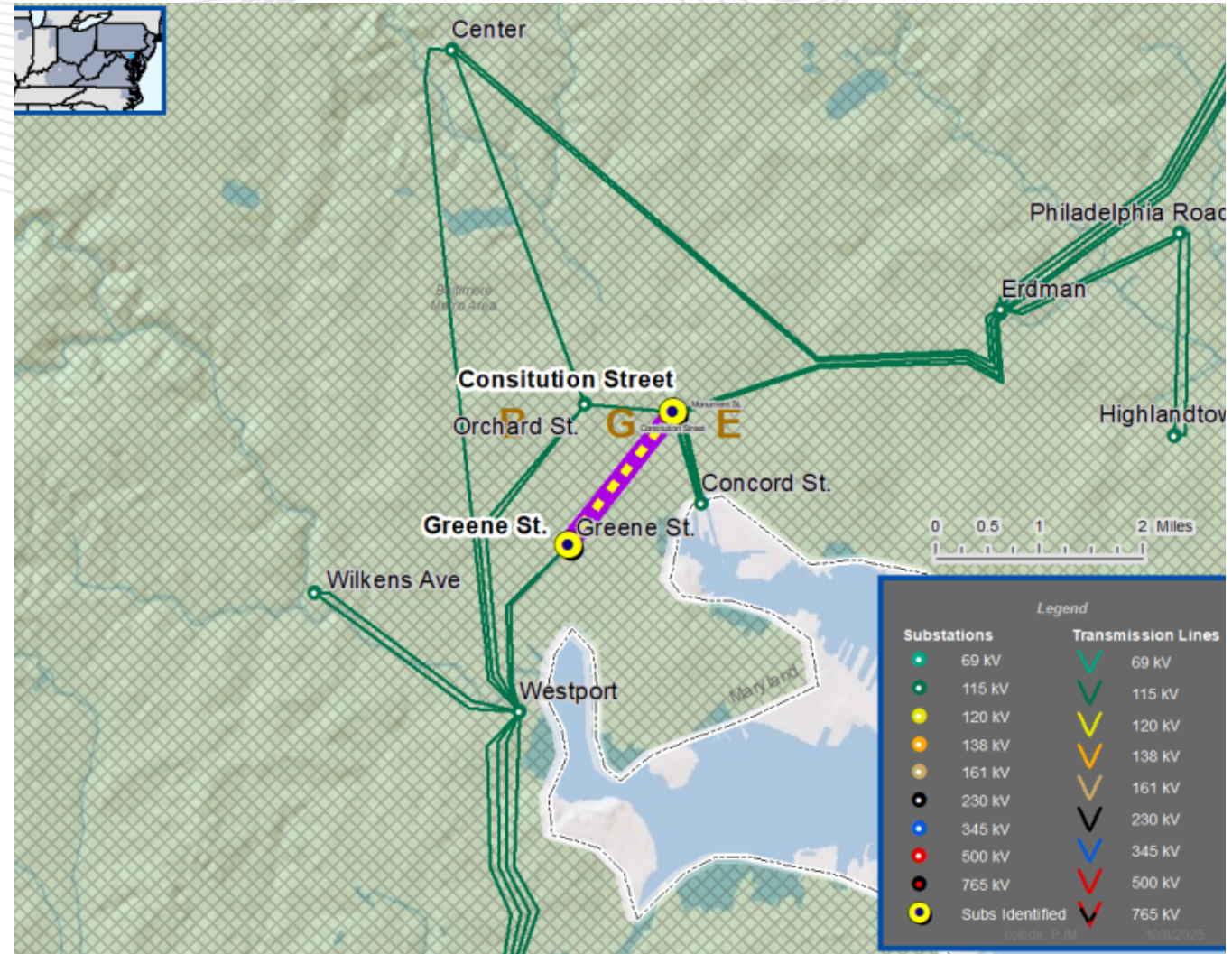
Alternatives: N/A

Ancillary Benefits:

Cable replacement will replace aging cables installed in the 1970's.

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



MetEd Transmission Zone: Baseline Jackson – North Hanover 115 kV Line

Process Stage: First Read

Criteria: N-1-1

Assumption Reference: 2025 RTEP assumptions

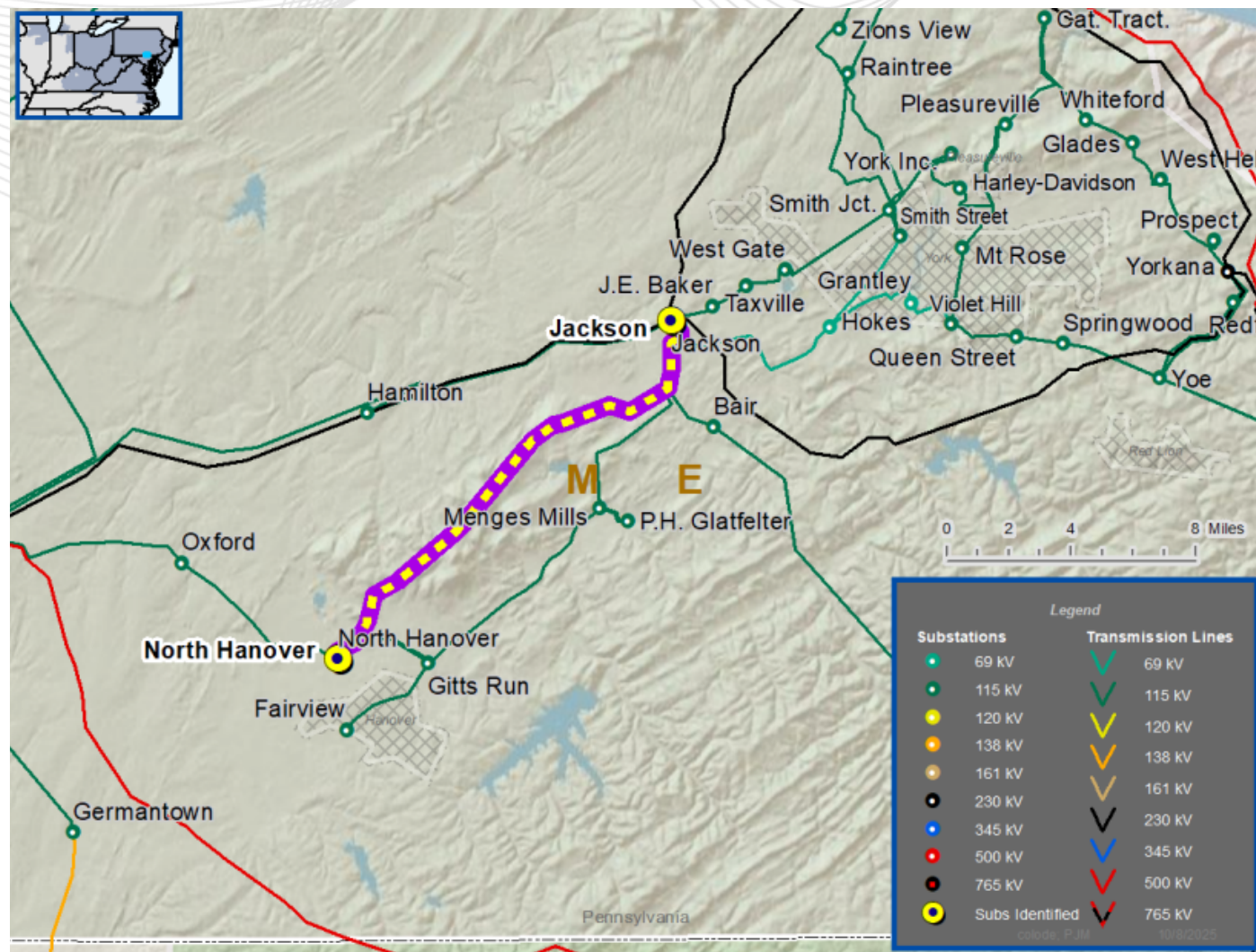
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-N11-ST1, 2025-W1-N11-ST2,
2025-W1-N11-SVM204527, 2025-W1-N11-SVM204532,
2025-W1-N11-SVM204548 and 2025-W1-N11-SVM204715

In the 2030 Summer case, under N-1-1 contingency conditions, the Jackson – North Hanover 115 kV Line is overloaded, and low voltage condition is observed at North Hanover, Eisenhower, Gitts Run and Fairview 115 kV buses.



MetEd Transmission Zone: Baseline Jackson – North Hanover 115 kV Line

Proposed Solution:

Rebuild the Jackson - North Hanover 115 kV 968 Line as a six-wire circuit, approximately 13.2 miles, using 954 ACSR 45/7.

Replace limiting conductors, line relaying, and disconnect switches at North Hanover on the Jackson terminal.

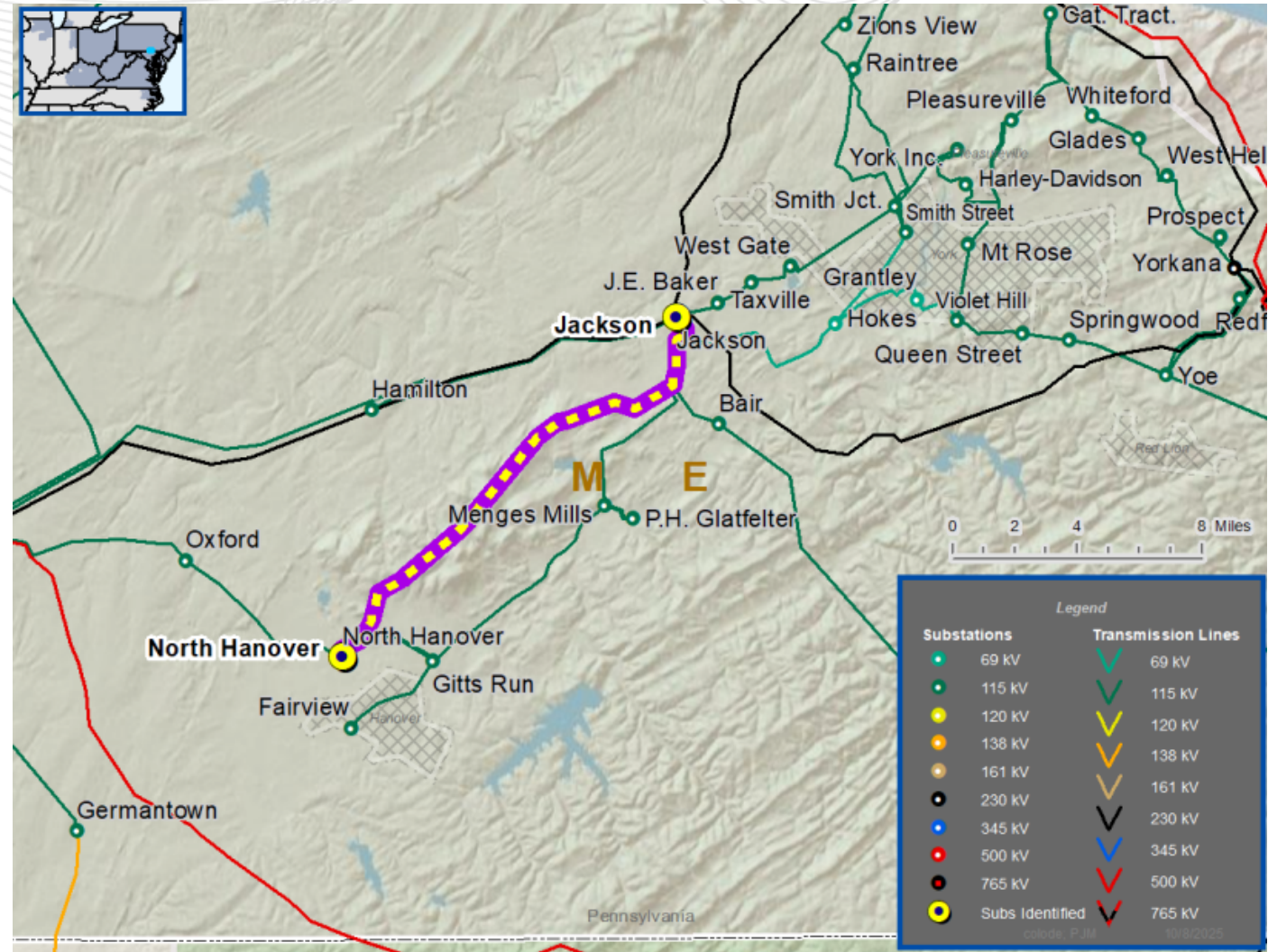
Replace limiting conductors, line relaying, circuit breaker and two 115 kV disconnect switches at Jackson on the North Hanover terminal.

Install new 115 kV capacitor at North Hanover.

Estimated Cost: \$61.79 M

Existing Ratings: 133/160/150/190 MVA (SN/SE/WN/WE)

Proposed Ratings: 514/626/582/742 MVA (SN/SE/WN/WE)

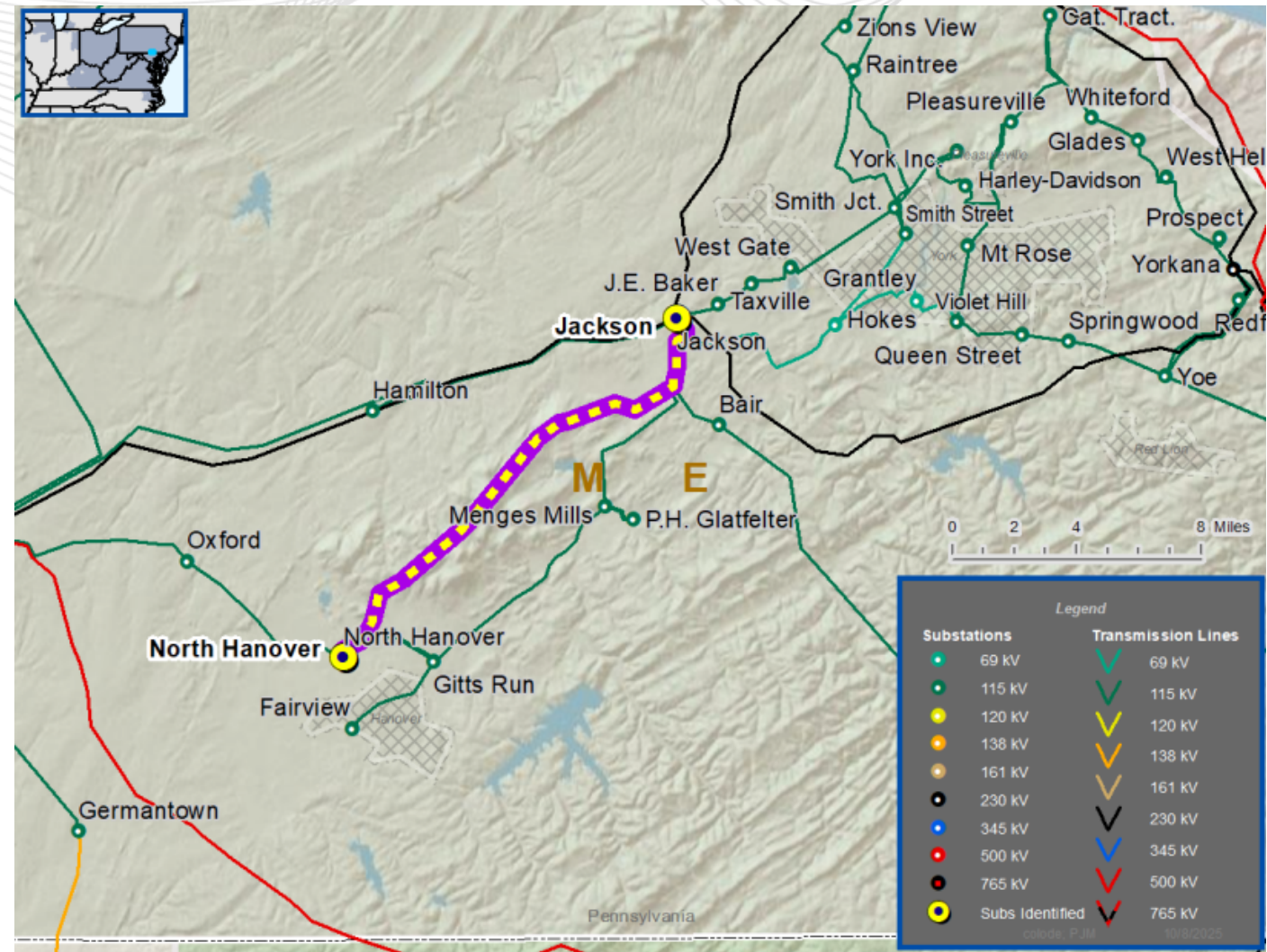


MetEd Transmission Zone: Baseline Jackson – North Hanover 115 kV Line

Alternatives: Same six-wire transmission line energized as double circuit with rebuild of 115 kV stations at Jackson and Eisenhower. Capacitor at North Hanover will not be required under this alternative. Cost is significantly higher.

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



Penelec Transmission Zone: Baseline Belleville – Center Union 46 kV Line

Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

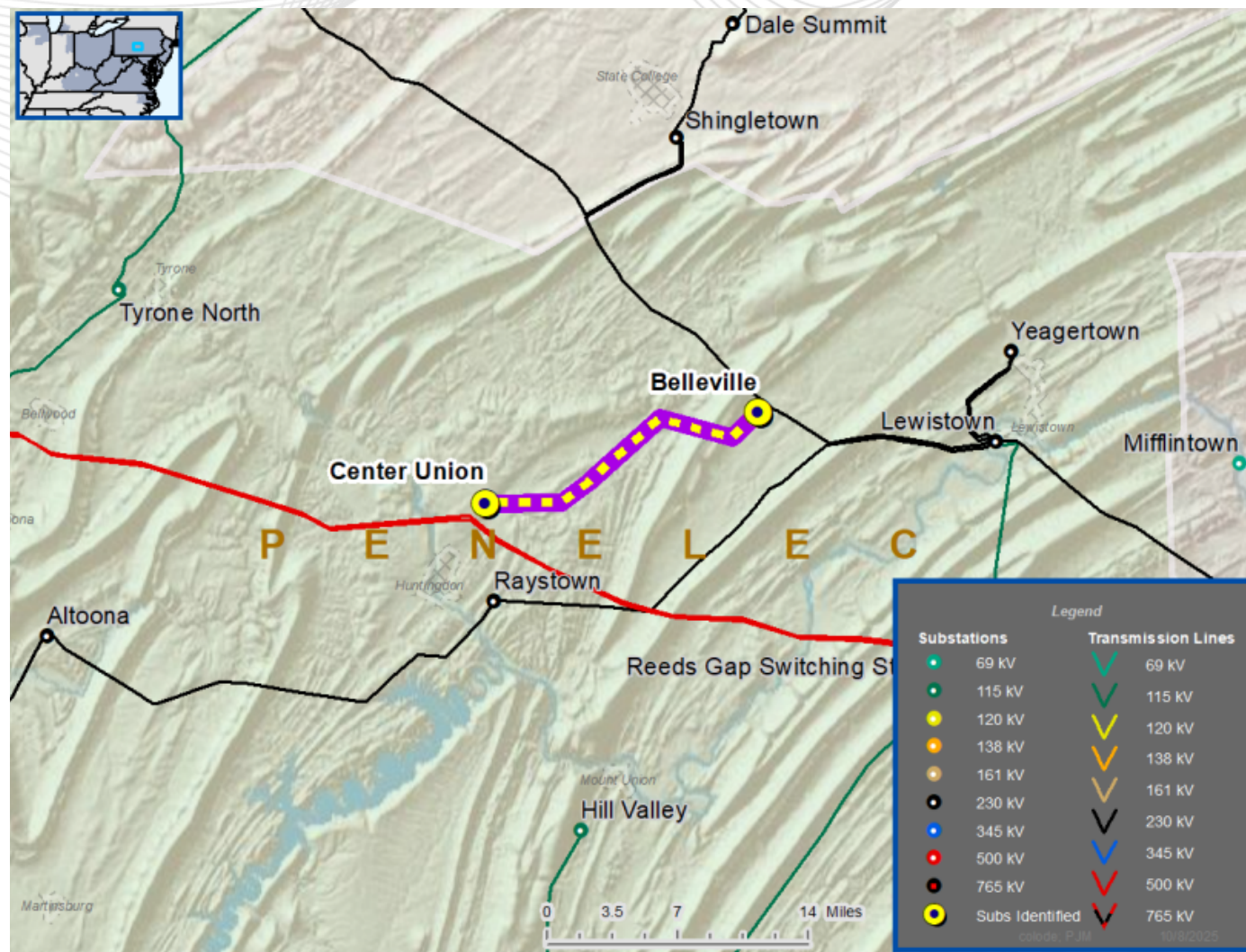
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-PN-T1

In the 2030 Summer case, under N-1 contingency condition, the Belleville – Center Union 46 kV Line is overloaded.



Penelec Transmission Zone: Baseline Belleville – Center Union 46 kV Line

Proposed Solution:

On Belleville – Center Union 46 kV Line, replace structures and use 795 ACSR 26/7 conductor on spans D-356 through D-360.

Estimated Cost: \$2.72 M

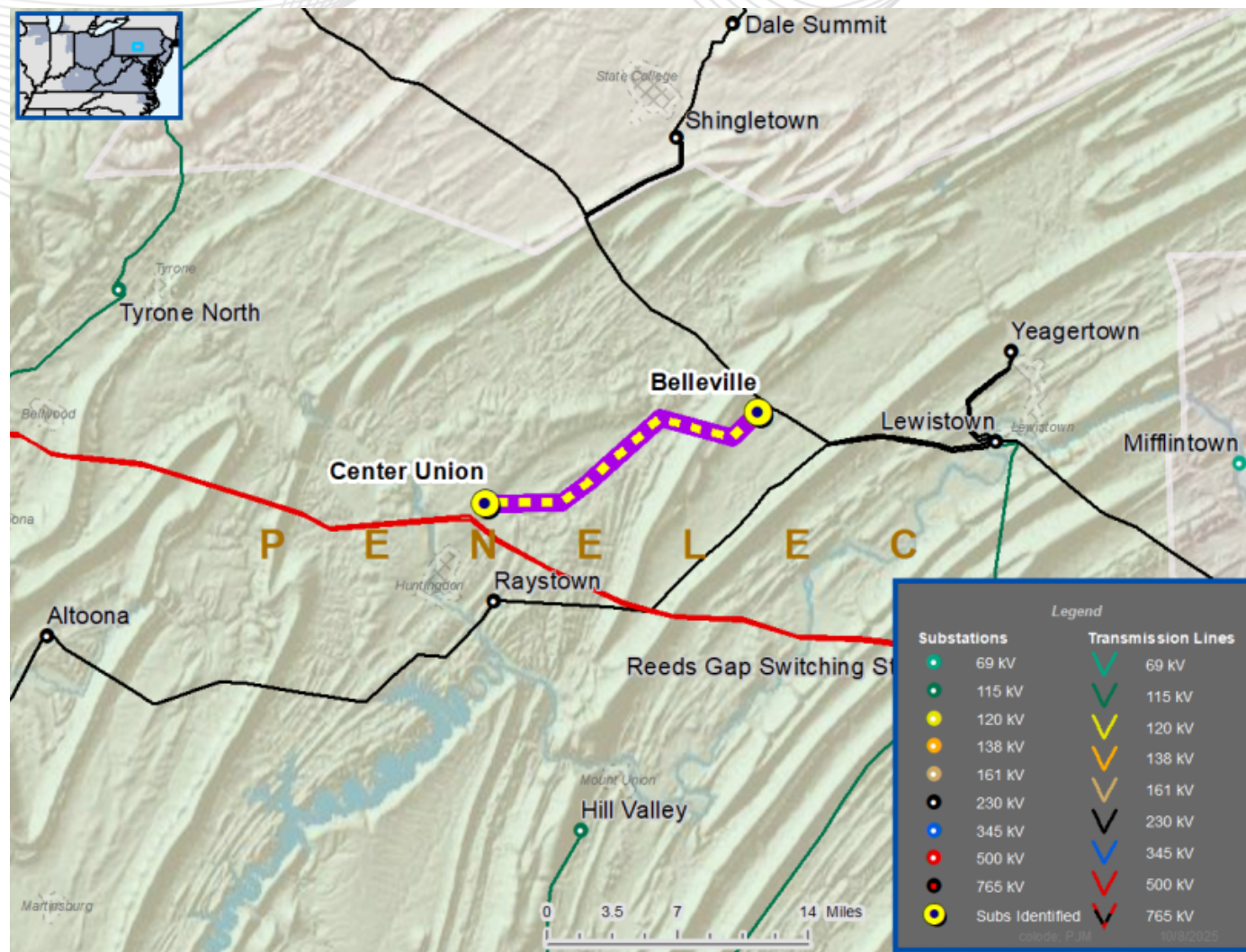
Existing Ratings: 20/21/26/26 MVA (SN/SE/WN/WE)

Proposed Ratings: 27/28/30/30 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

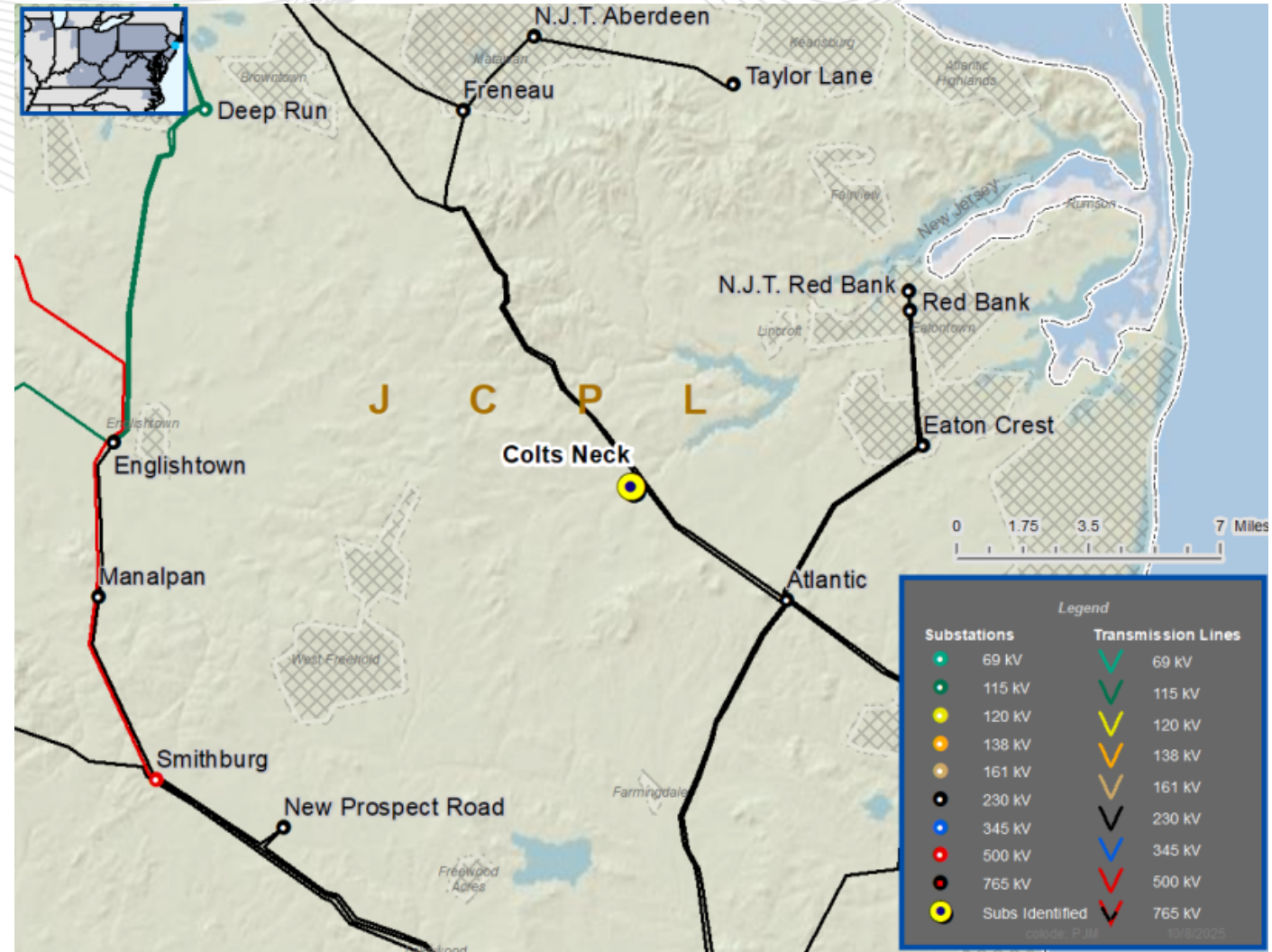
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-VM85 and 2025-W1-JCPL-VD25

In the 2030 Summer case, under N-1 contingency condition, low voltage and voltage drop exceeding criteria limits is observed at Colts Neck 34.5 kV Substation.



Proposed Solution:

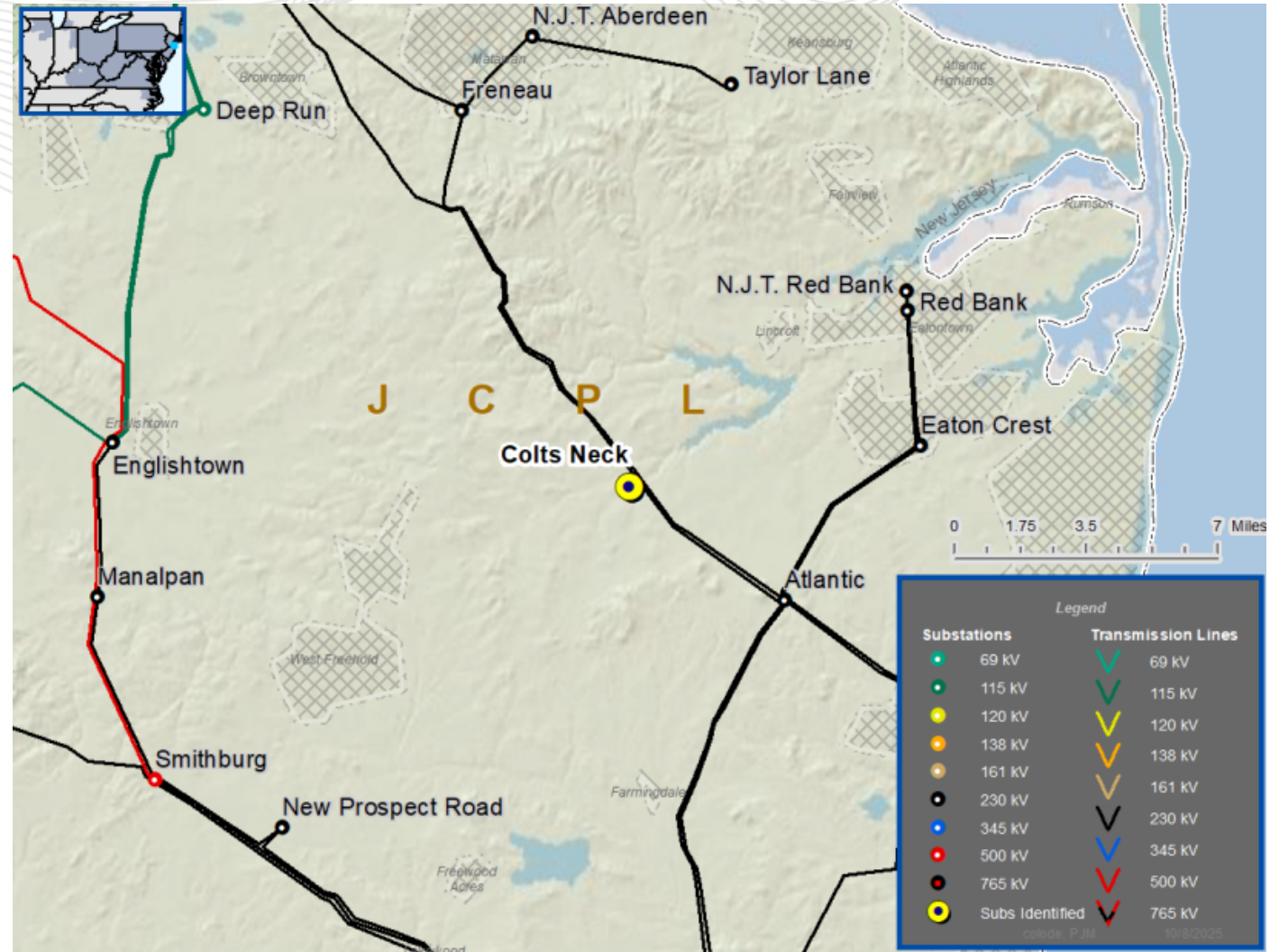
Install a 10.8 MVAR capacitor at Colts Neck 34.5 kV Substation.

Estimated Cost: \$2.69 M

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

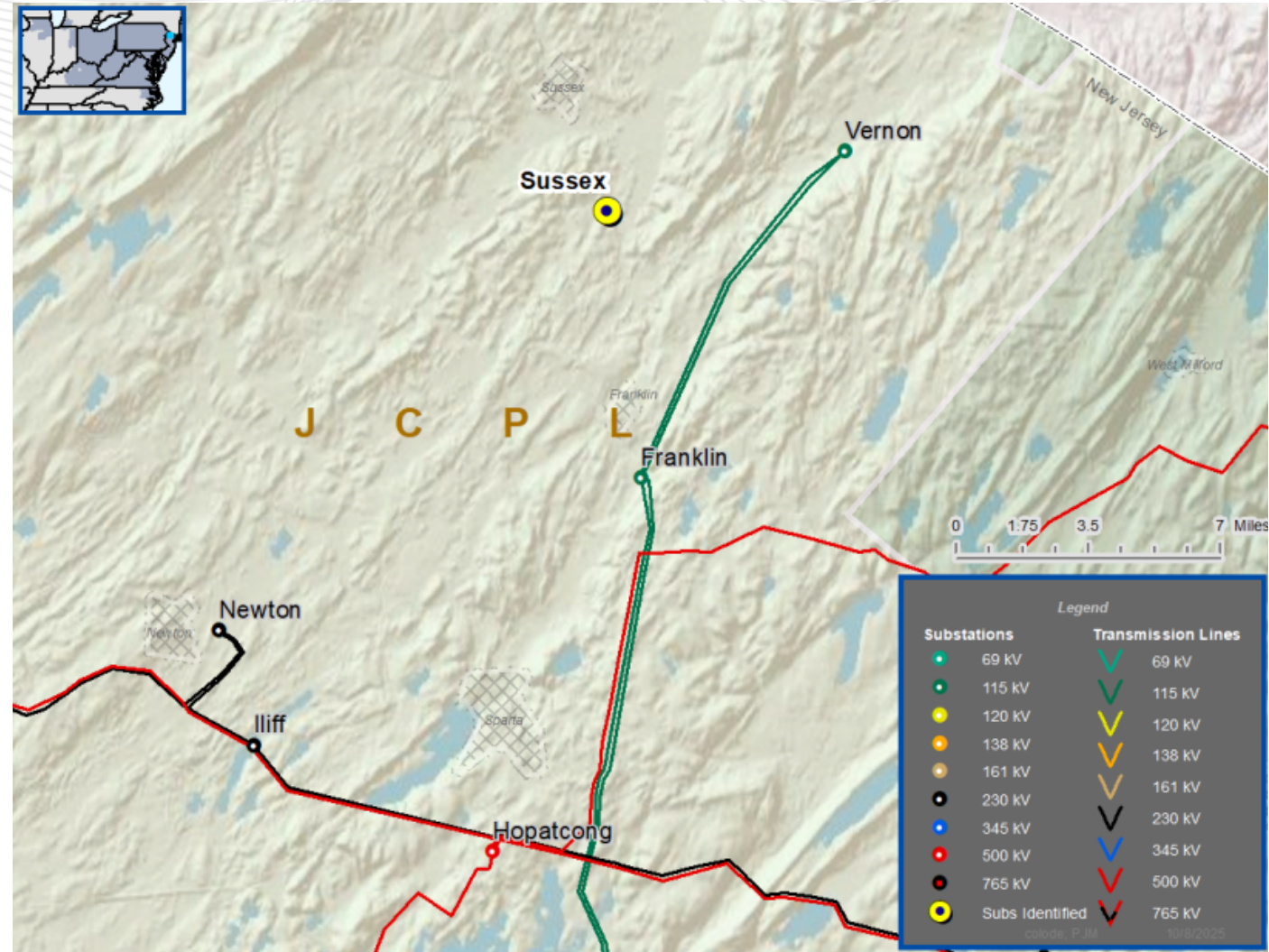
Model Used for Analysis: 2030 RTEP Winter

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-VD19 to VD24

In the 2030 Winter case, under N-1 contingency condition, voltage drop exceeding criteria limits is observed at Sussex 34.5 kV Substation and other nearby 34.5 kV substations.



Proposed Solution:

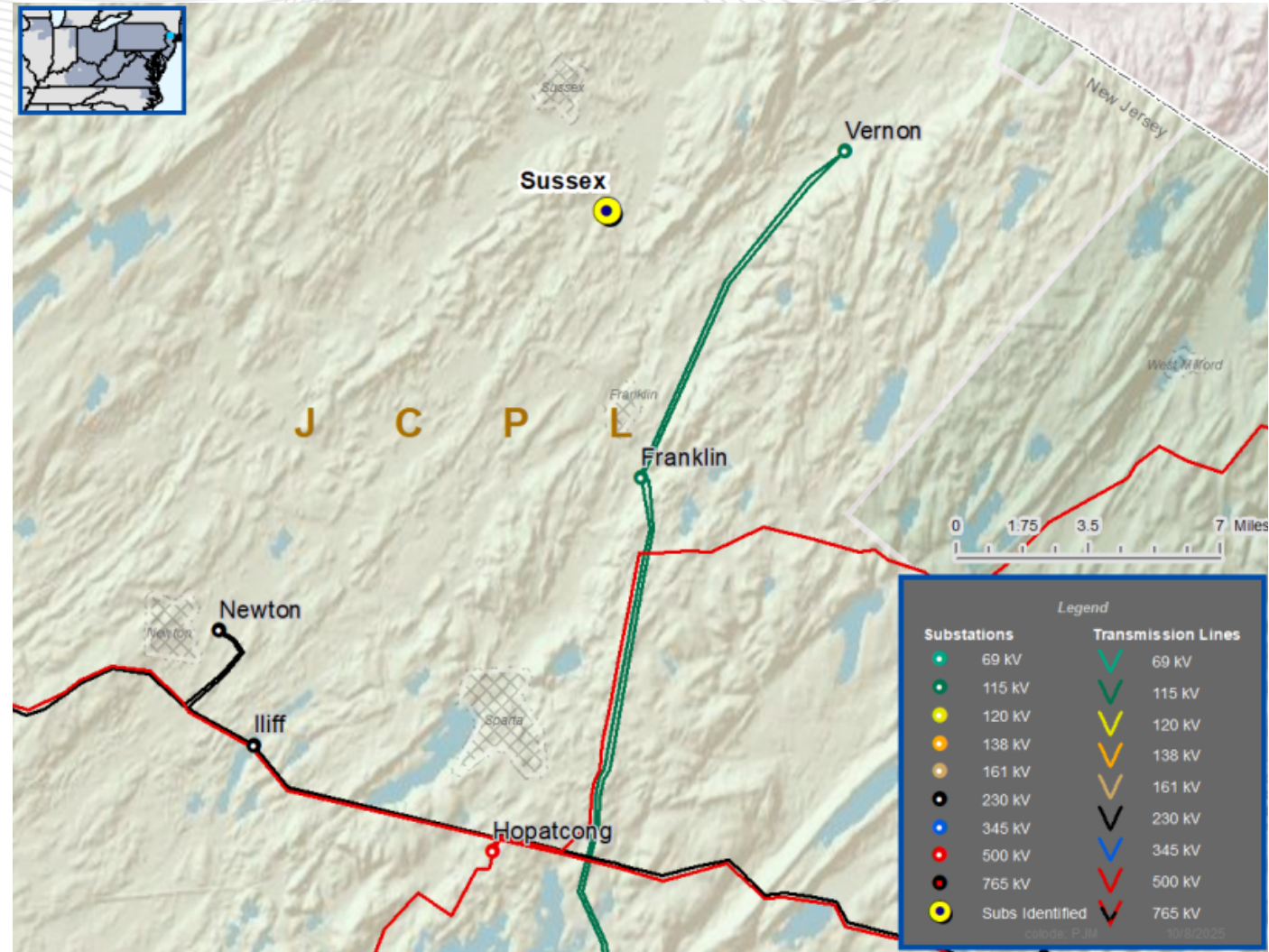
Install a 5.4 MVAR capacitor at Sussex 34.5 kV Substation.

Estimated Cost: \$2.28 M

Alternatives: N/A

Required In-Service Date: 12/1/2030

Projected In-Service Date: 6/1/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

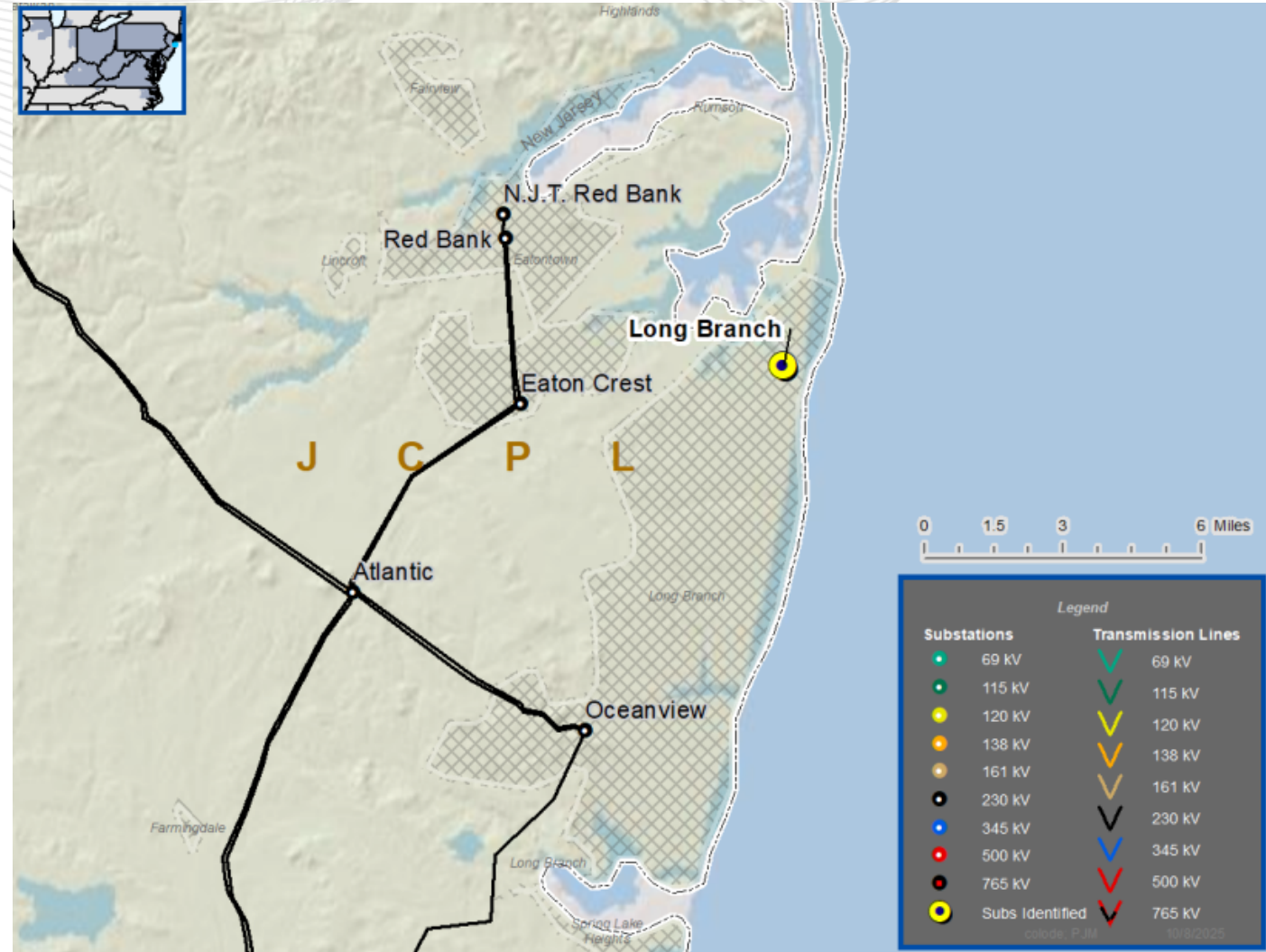
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-T3

In the 2030 Summer case, under N-1 contingency condition, the Long Branch – Bath Ave 34.5 kV circuit is overloaded.



Proposed Solution:

At Long Branch Substation, replace the 34.5 kV line terminal disconnect switch.

Estimated Cost: \$532 K

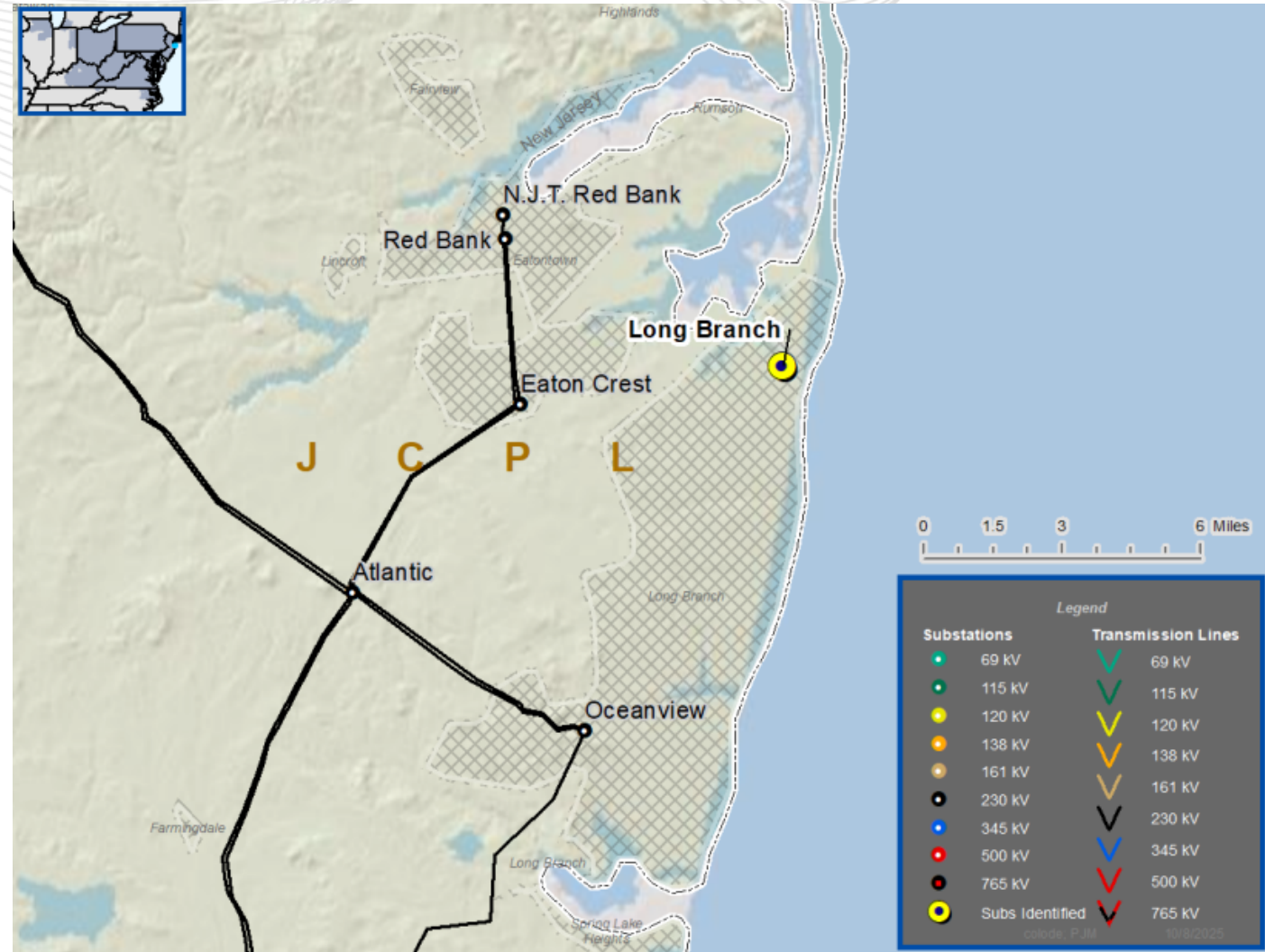
Existing Ratings: 41/52/54/62 MVA (SN/SE/WN/WE)

Proposed Ratings: 55/67/63/79 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

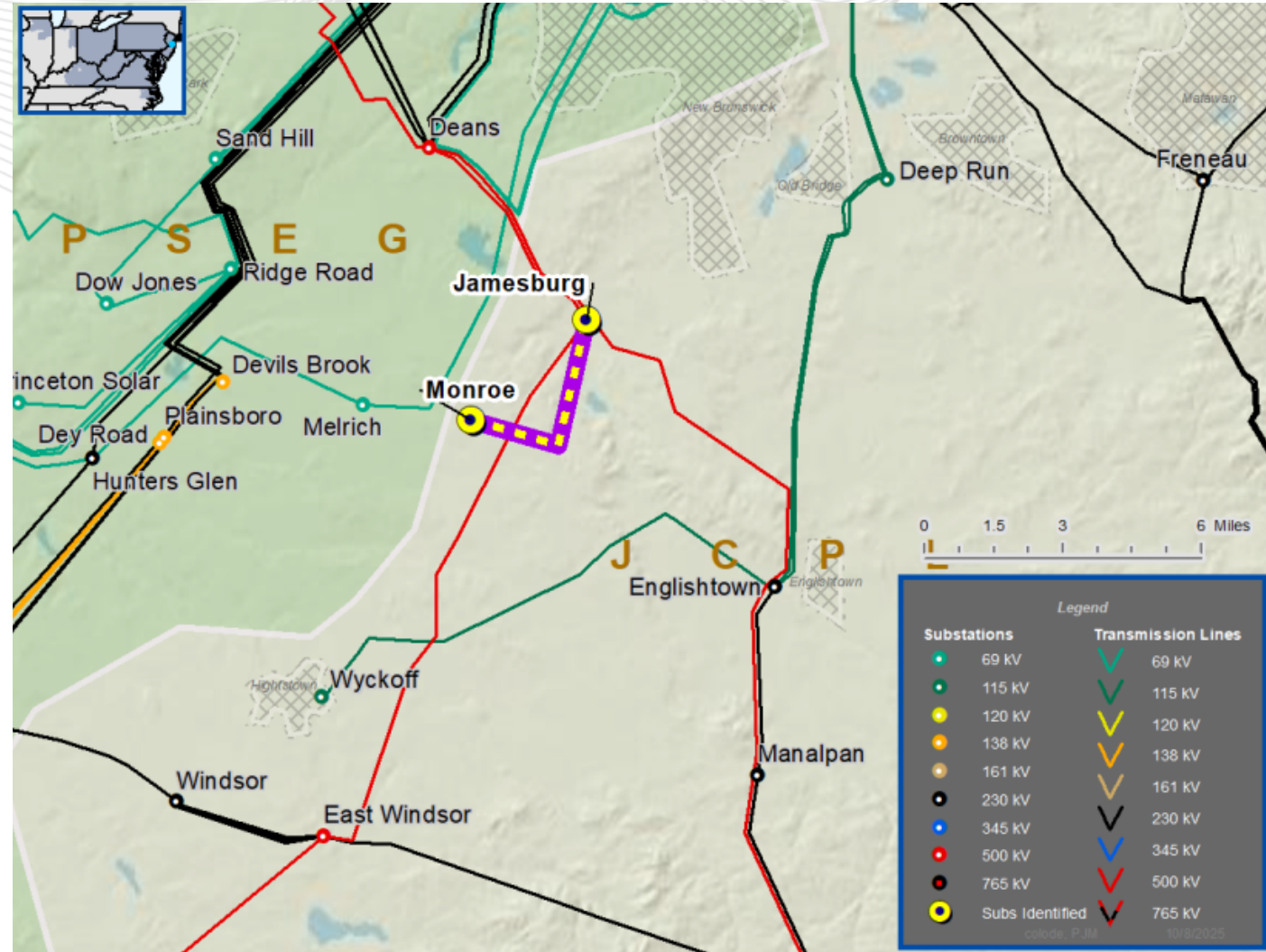
Model Used for Analysis: 2030 RTEP Summer

Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-T4

In the 2030 Summer case, under N-1 contingency condition, the Jamesburg – Monroe 34.5 kV Line is overloaded.



Proposed Solution:

Rebuild the Jamesburg - Monroe 34.5 kV N40 Line from Jamesburg Substation to Monroe Junction Substation, approximately 1.2 miles. Replace limiting conductor and revise relay settings at Monroe Substation.

Rebuild a section of the Englishtown - Monroe Junction 34.5 kV H34 Line that is on same structures as subject line near Monroe Junction Substation, approximately 0.4 miles. Install new relay and revise relay settings at Costco Substation.

Estimated Cost: \$6.35 M

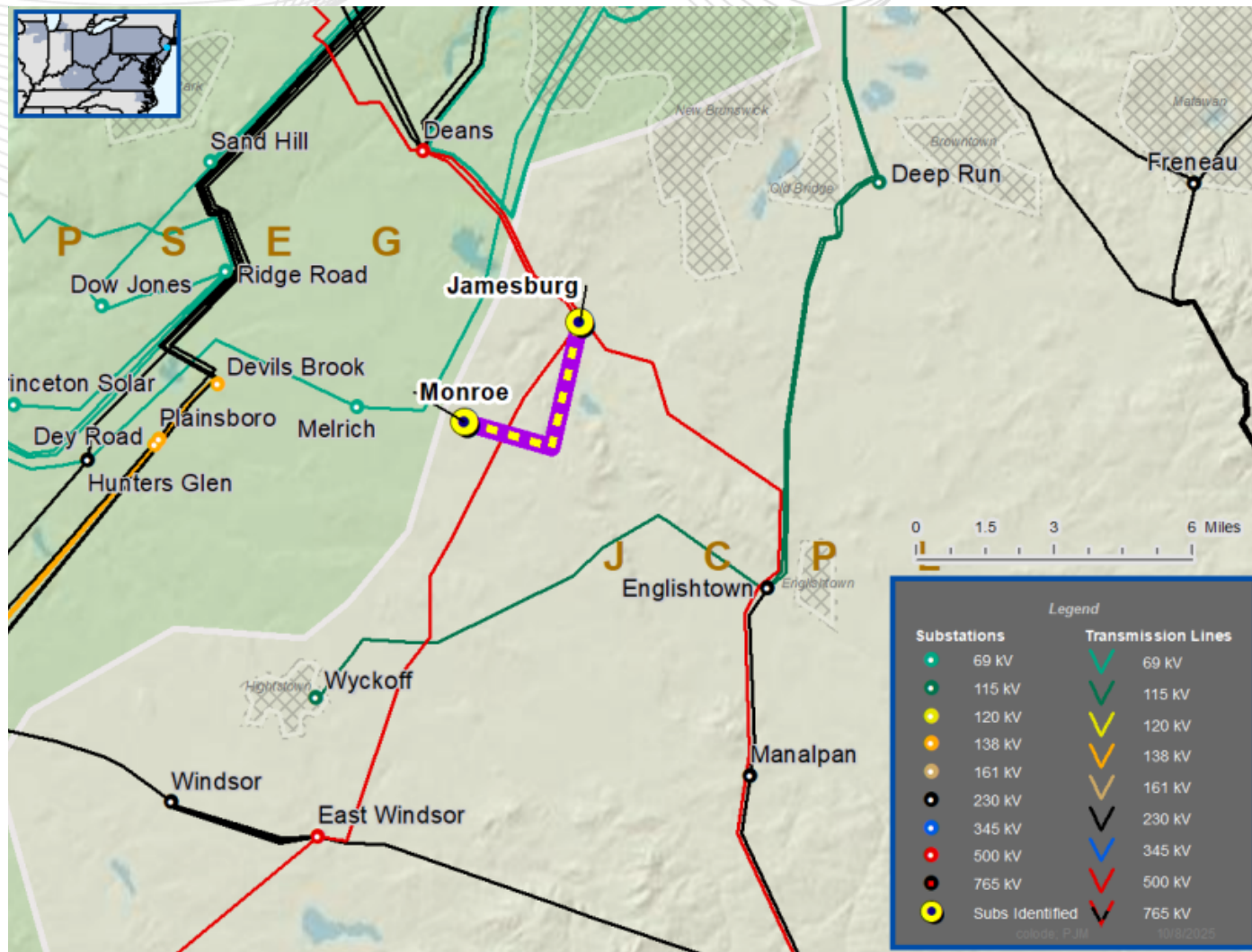
Existing Ratings: 45/54/50/63 MVA (SN/SE/WN/WE)

Proposed Ratings: 55/67/63/79 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

Model Used for Analysis: 2030 RTEP Summer, Winter & Light Load Cases

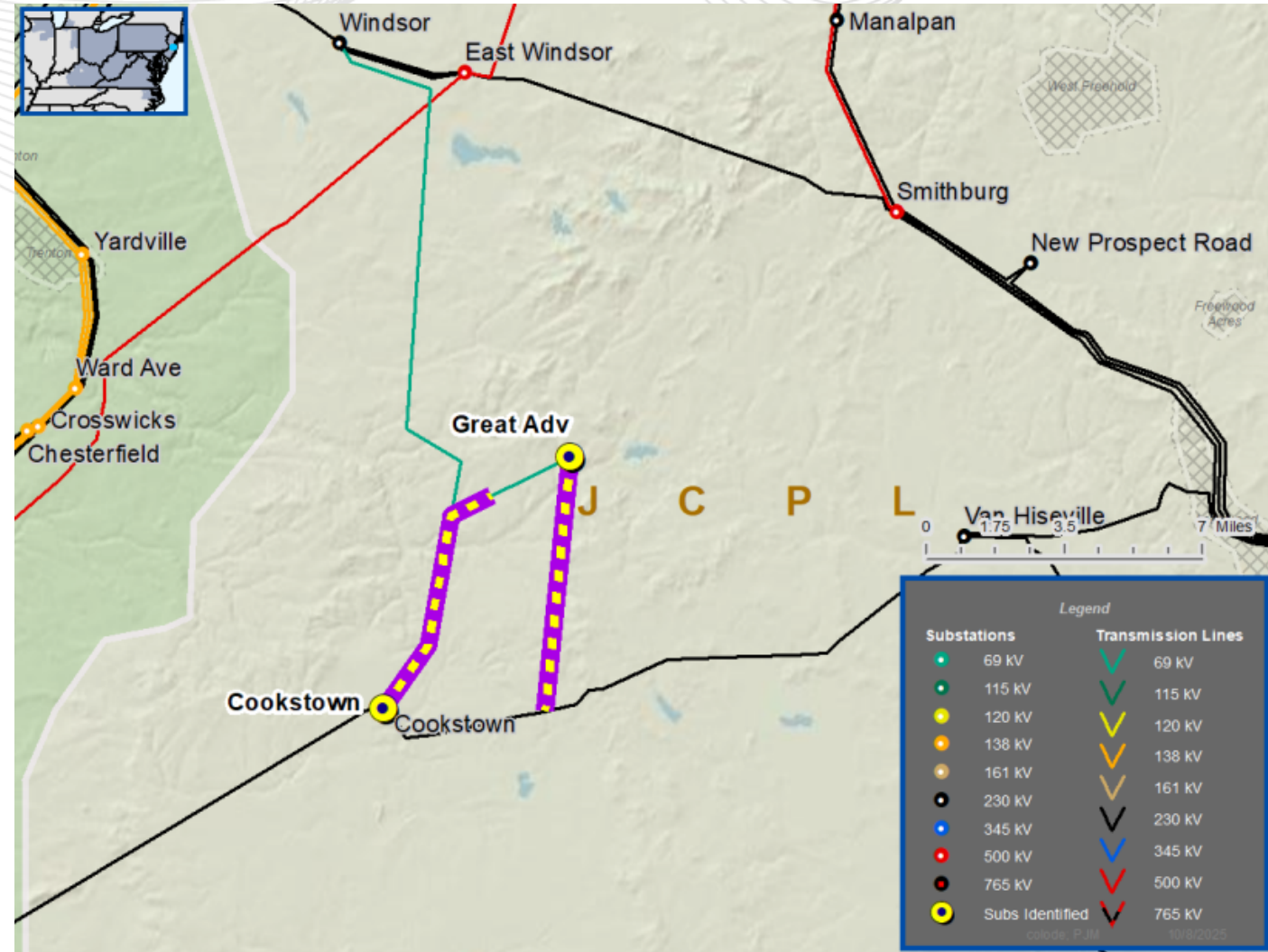
Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-T1 and T2, 2025-W1-JCPL-VM18 to VM84, and 2025-W1-JCPL-VD1 to VD18

In the 2030 Summer case, under normal and N-1 contingency condition, the Cookstown – Great Adventure Tap 34.5 kV Line is overloaded.

In the 2030 Summer, Winter and Light Load cases, under normal and multiple N-1 contingency conditions, low voltage and voltage drop exceeding criteria limits are observed at Great Adventure 34.5 kV Substation.



JCPL Transmission Zone: Baseline Great Adventure 34.5 kV Substation

Proposed Solution:

Rebuild Great Adventure 34.5 kV Substation as an eleven-breaker, breaker-and-a-half station.

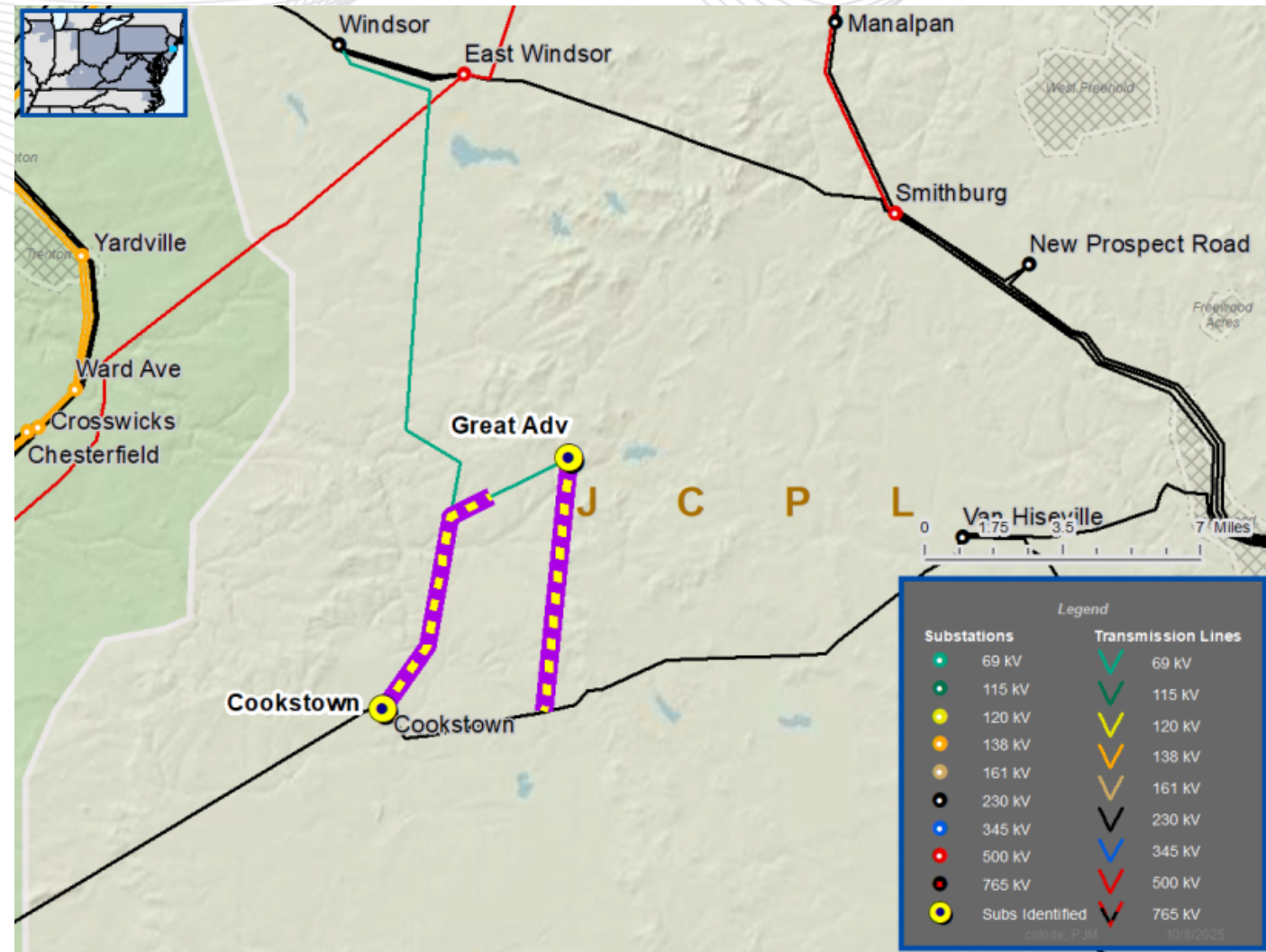
Rebuild the Cookstown – Windsor 34.5 kV H60 line from Cookstown Sub to Str #58 as double circuit, approximately 4.7 miles.

Rebuild the Cookstown – Van Hiseville 34.5 kV V22 line from Str #91445 to Greater Adventure Substation as double circuit, approximately 5.2 miles.

At Cookstown Substation, replace 34.5 kV breaker, two disconnect switches, relaying and ancillary terminal equipment.

Upgrade line relaying at Windsor and Van Hiseville Substations.

Estimated Cost: \$61.68 M



JCPL Transmission Zone: Baseline Great Adventure 34.5 kV Substation

Facility Ratings:

Cookstown – Great Adventure Tap (Windsor)

- Existing: 44/53/50/63 MVA (SN/SE/WN/WE)
- Proposed: 55/67/63/79 MVA (SN/SE/WN/WE)

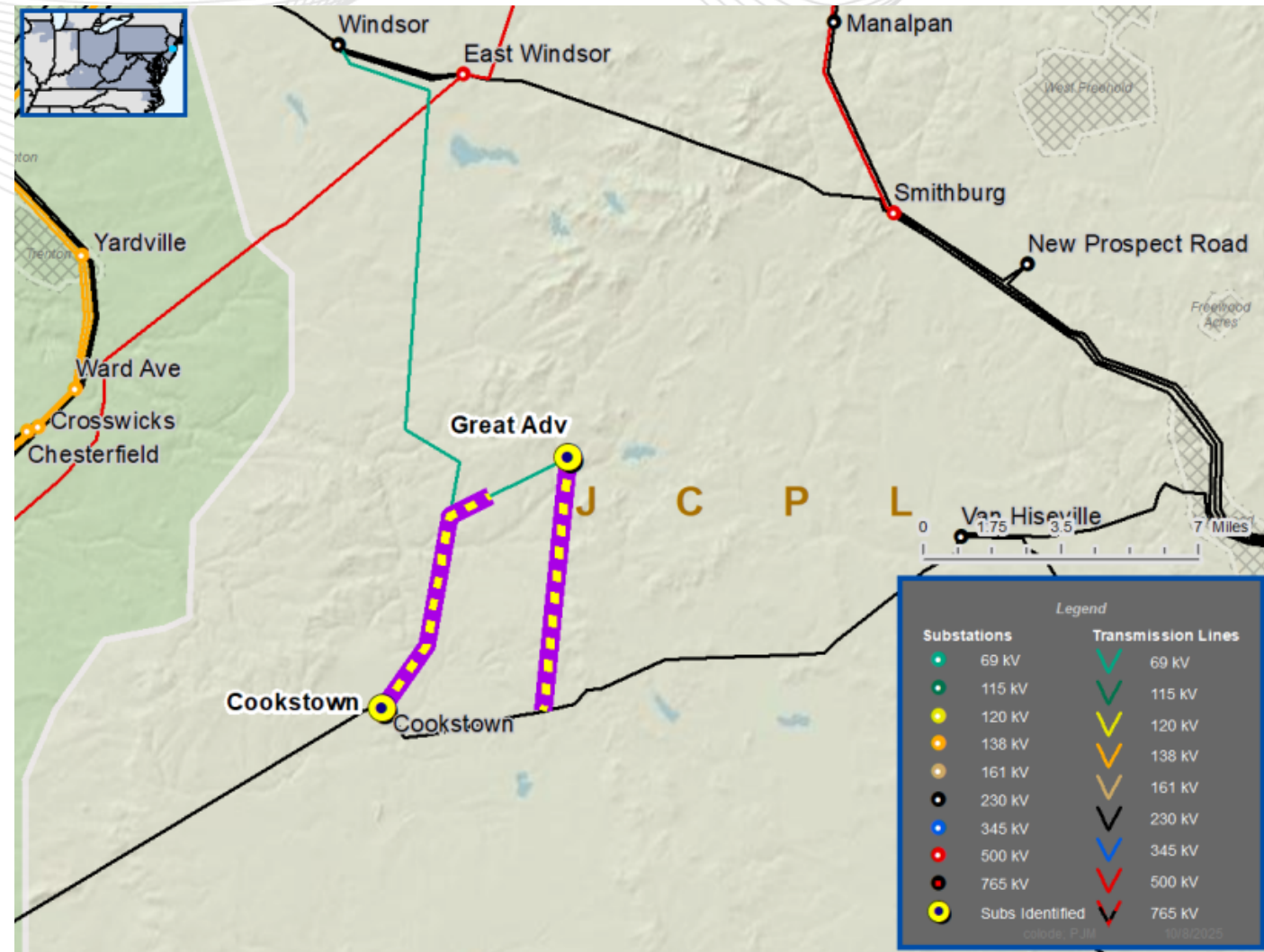
Cookstown – Great Adventure Tap (Van Hiseville)

- Existing: 41/50/48/57 MVA (SN/SE/WN/WE)
- Proposed: 55/67/63/79 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



JCPL Transmission Zone: Baseline Metedconk and Vermont Ave 34.5 kV Substations

Process Stage: First Read

Criteria: TO FERC Form 715

Assumption Reference: 2025 RTEP assumptions

Model Used for Analysis: 2030 RTEP Summer and Winter

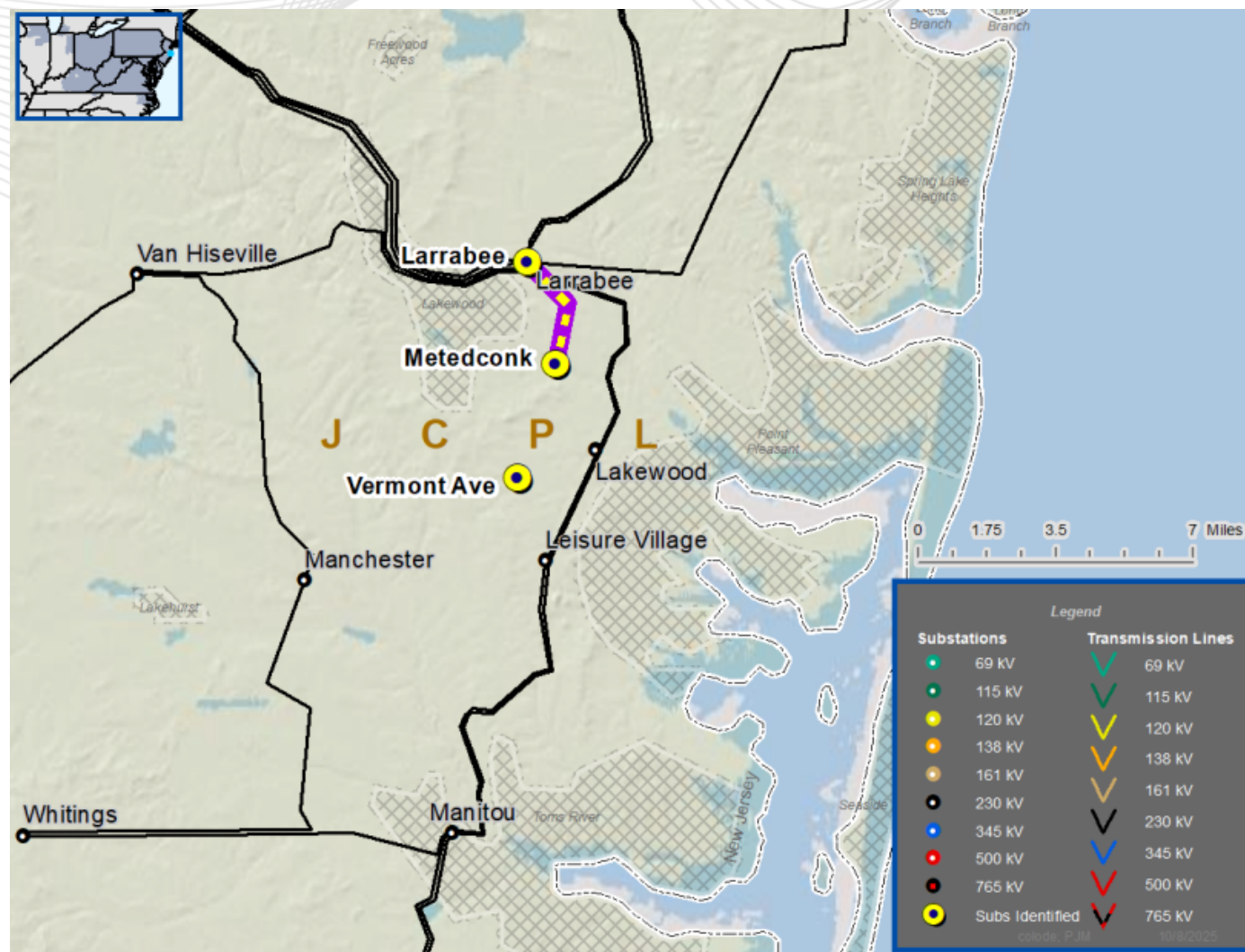
Proposal Window Exclusion: Below 200 kV

Problem Statement:

2025-W1-JCPL-T5 to T10, and 2025-W1-JCPL-VM1 to VM17

In the 2030 Summer and Winter cases, under N-1 contingency condition, the Larrabee – Metedconk 34.5 kV Lines 1 and 2 as well as Metedconk 34.5 kV Bus Tie Breaker circuit are overloaded.

In the 2030 Summer and Winter and cases, under normal and multiple N-1 contingency conditions, low voltage is observed at Vermont Ave 34.5 kV Substation.



JCPL Transmission Zone: Baseline Metedconk and Vermont Ave 34.5 kV Substations

Proposed Solution:

Rebuild Metedconk 34.5 kV Substation as a nine-breaker, breaker-and-a-half station.

Retire existing Vermont Ave 34.5 kV equipment and construct a new 34.5 kV Vermont Avenue Substation in a new plot nearby. Existing 13.8 kV Vermont Avenue distribution equipment will remain at the existing location.

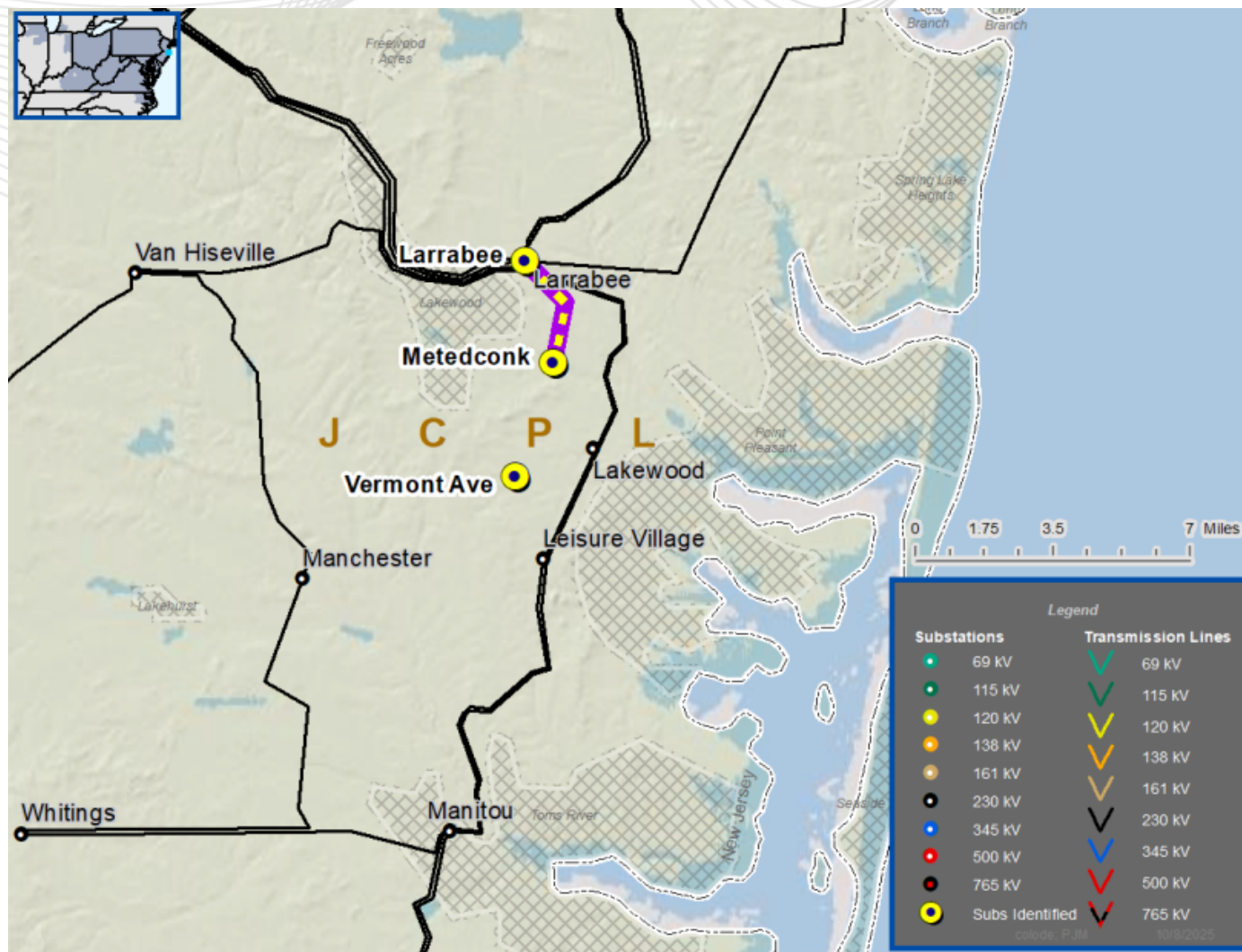
Larrabee- Metedconk E213 34.5 kV Line: Re-conductor the 2.6 mile line section from Larrabee to Metedconk using 795 ACSR 26/7 conductor.

Larrabee- Metedconk W127 34.5 kV Line: Re-conductor the 2.6 mile line section from Larrabee to Metedconk using 795 ACSR 26/7 conductor.

Replace limiting conductor at Larrabee Substation.

Replace line relaying at South Lakewood and Leisure Village Substations,

Estimated Cost: \$65.74 M



JCPL Transmission Zone: Baseline Metedconk and Vermont Ave 34.5 kV Substations

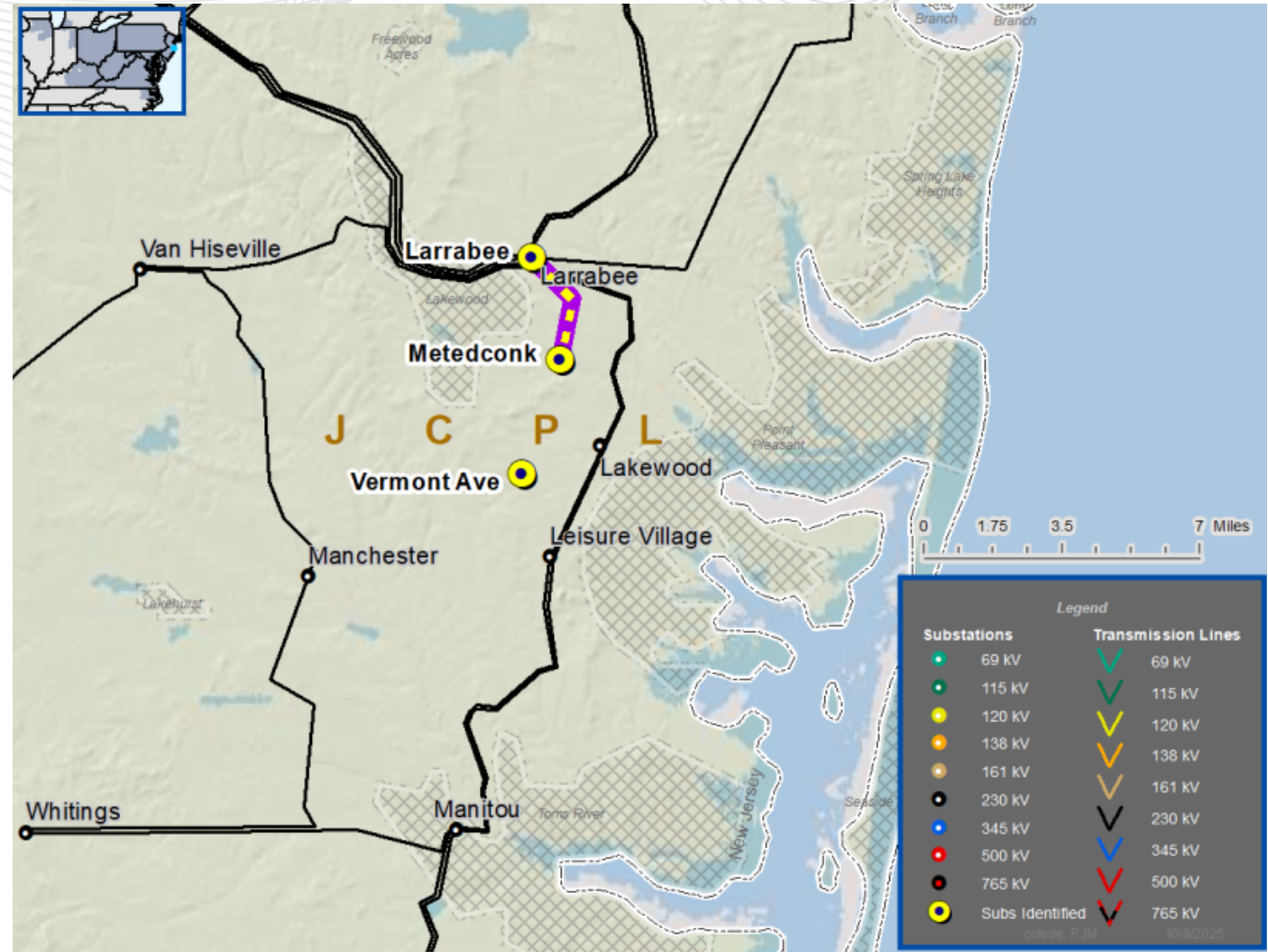
Existing Ratings: 44/52/49/62 MVA (SN/SE/WN/WE)

Proposed Ratings: 70/85/79/100 MVA (SN/SE/WN/WE)

Alternatives: N/A

Required In-Service Date: 6/1/2030

Projected In-Service Date: 6/1/2030



First Read – Short Circuit Baseline Reliability Projects

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2025 RTEP assumptions

Model Used for Analysis: 2030 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200kV

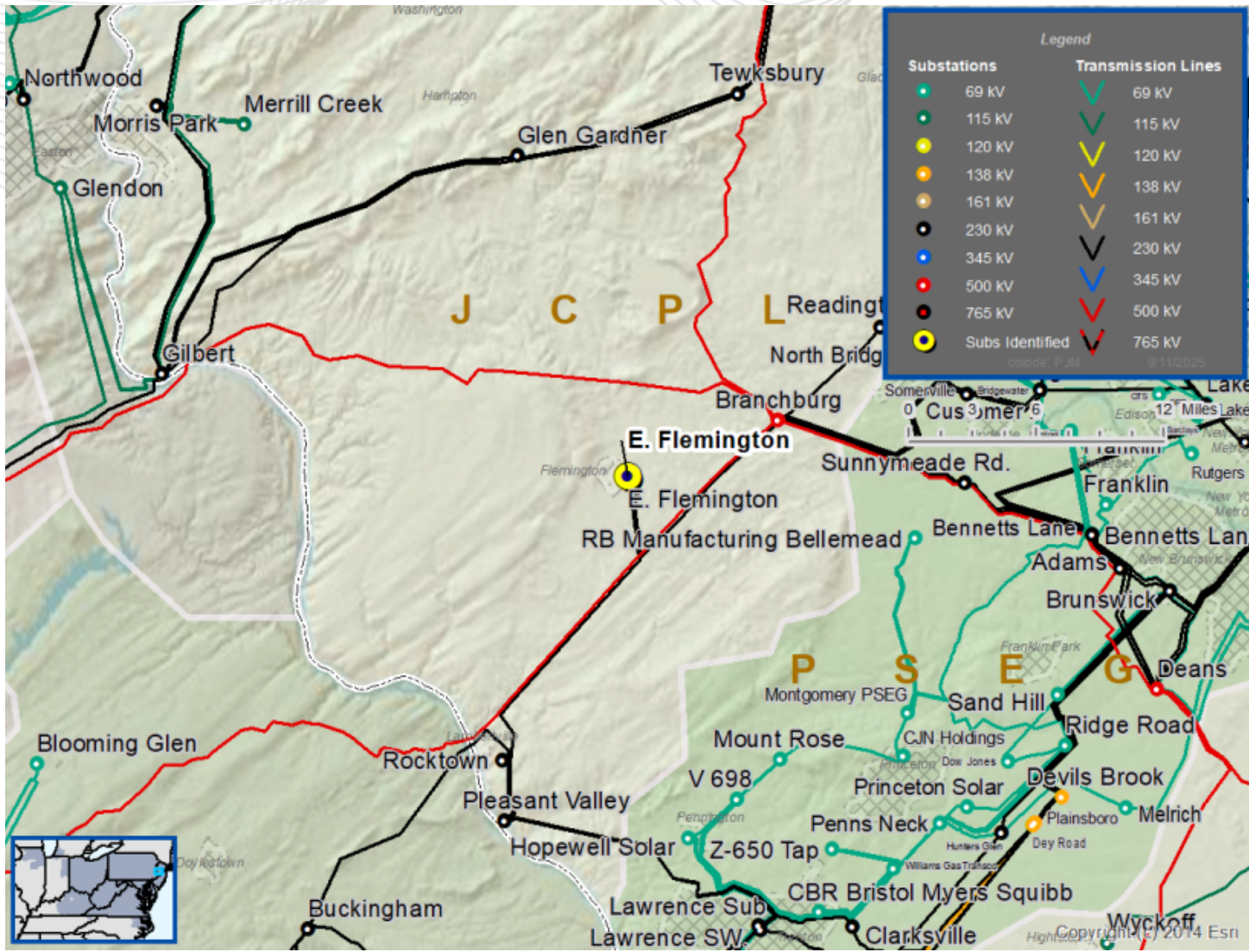
Flowgate: 2025-W1-JCPL-SC1, -SC2, -SC3, -SC4, -SC5, SC20, -SC21, -SC22

Problem Statement:

In the 5-year 2030 RTEP Short Circuit base case, the E.Flemington 34.5kV breakers H736, YH, Y727, AV, TC, C731, V724, A729 are identified under FERC Form 715 as being over duty.

Existing Facility Rating:

Breaker	Rating (kA)	Breaker	Rating (kA)
H736	21.7	TC	21.7
YH	21.7	C731	21.7
Y727	21.7	V724	21.7
AV	21.7	A729	21.7



Proposed Solution:

Replace 8 over duty E.Flemington 34.5kV circuit breakers H736, YH, Y727, AV, TC, C731, V724, A729 with an interrupting rating of 40 kA.

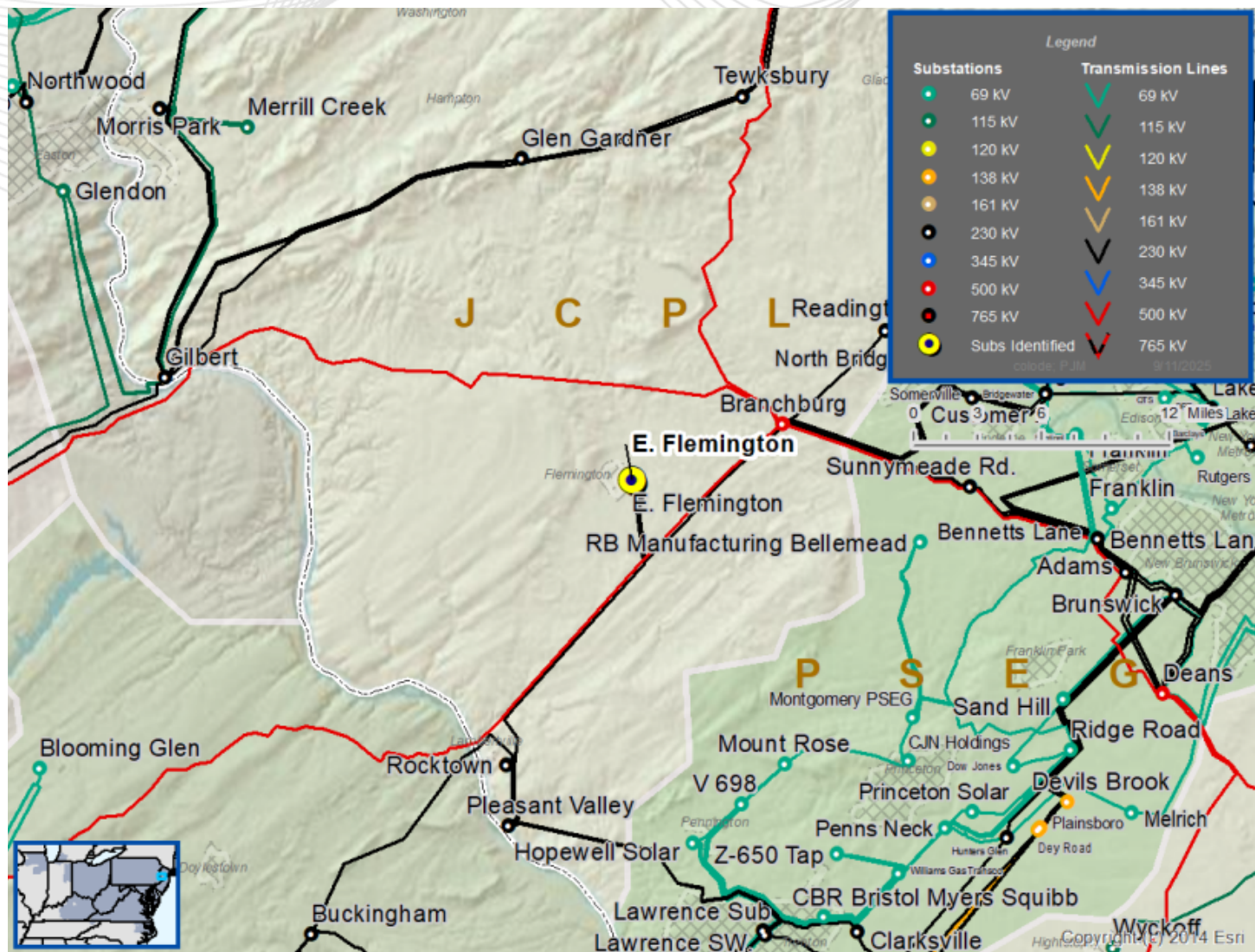
Estimated Cost: \$3.5M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
34.5kV breaker H736	40
34.5kV breaker YH	40
34.5kV breaker Y727	40
34.5kV breaker AV	40
34.5kV breaker TC	40
34.5kV breaker C731	40
34.5kV breaker V724	40
34.5kV breaker A729	40

Required IS Date: 6/1/2030

Projected IS Date: 6/1/2030



KQ, Q143, B-25, B-22, B-31, B-34, B-19, B-28, B-16, BK4, B-7, B-8, B-54, B-51

Process Stage: First Read

Criteria: Short Circuit (FERC 715 Criteria)

Assumption Reference: 2025 RTEP assumptions

Model Used for Analysis: 2030 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200kV

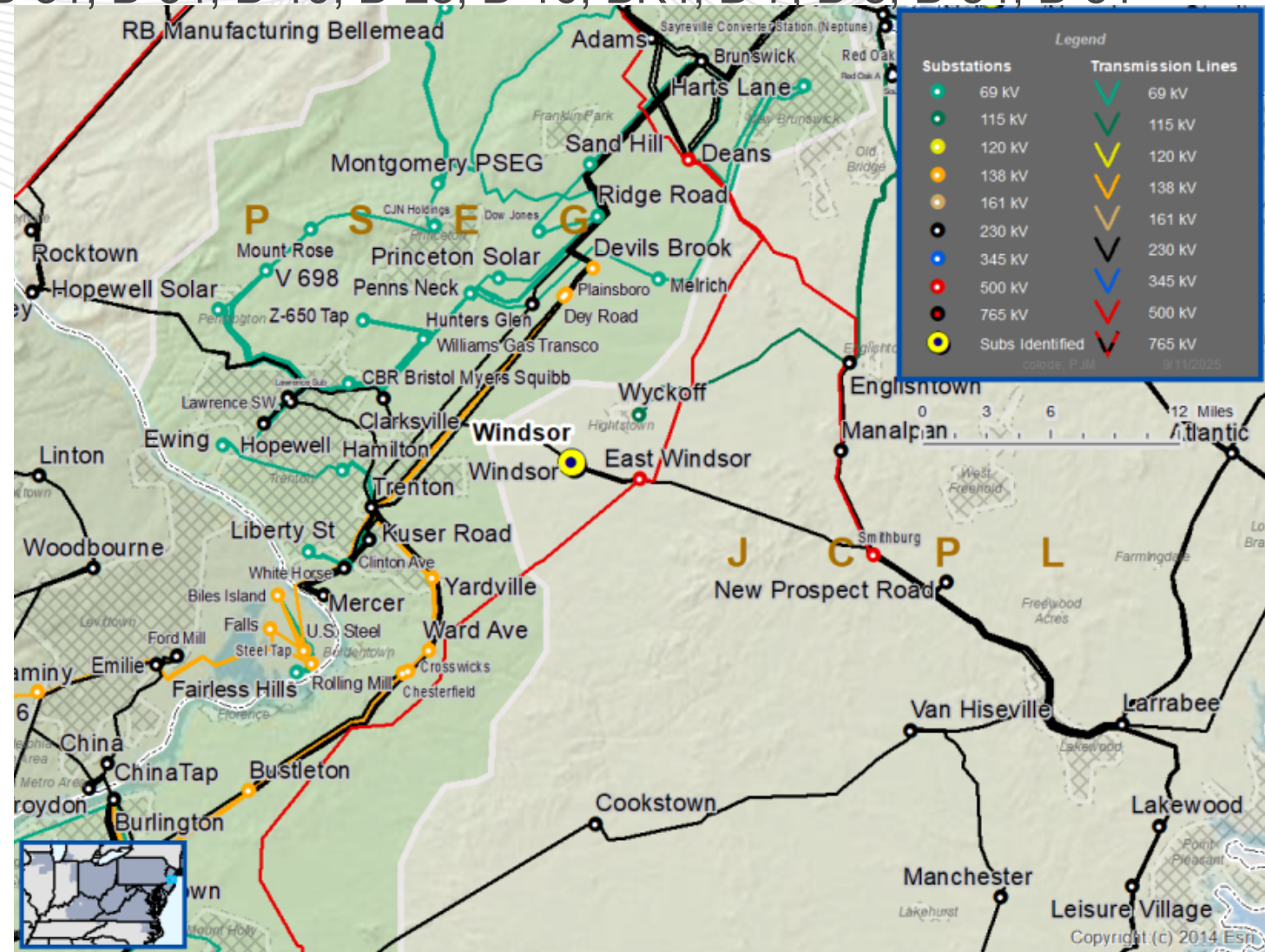
Flowgate: 2025-W1-JCPL-SC7 through -SC19

Problem Statement:

In the 5-year 2030 RTEP Short Circuit base case, the 14 Windsor 34.5kV breakers KQ, Q143, B-25, B-22, B-31, B-34, B-19, B-28, B-16, BK4, B-7, B-8, B-54, B-51 are identified under FERC Form 715 as being over duty.

Existing Facility Rating:

Breaker	Rating (kA)	Breaker	Rating (kA)	Breaker	Rating (kA)
KQ	40	B-34	40	B-7	40
Q143	40	B-19	40	B-8	40
B-25	40	B-28	40	B-54	40
B-22	40	B-16	40	B-51	40
B-31	40	BK4	40		



KQ, Q143, B-25, B-22, B-31, B-34, B-19, B-28, B-16, BK4, B-7, B-8, B-54, B-51

Proposed Solution:

Replace 14 Windsor 34.5kV breakers KQ, Q143, B-25, B-22, B-31, B-34, B-19, B-28, B-16, BK4, B-7, B-8, B-54, B-51 with an interrupting rating of 63 kA.

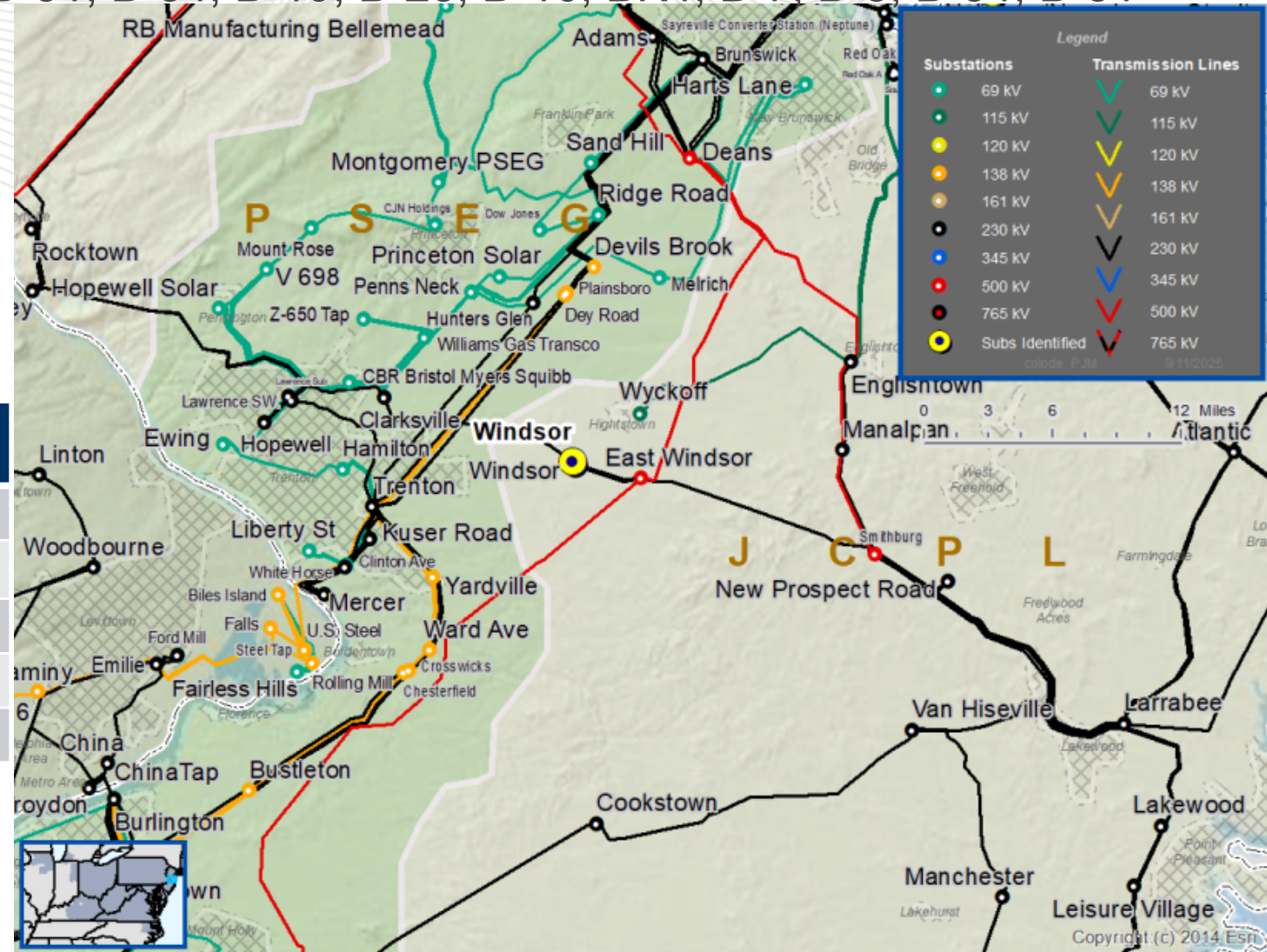
Estimated Cost: \$8.4M

Preliminary Facility Rating:

Breaker	Rating (kA)	Breaker	Rating (kA)	Breaker	Rating (kA)
KQ	63	B-34	63	B-7	63
Q143	63	B-19	63	B-8	63
B-25	63	B-28	63	B-54	63
B-22	63	B-16	63	B-51	63
B-31	63	BK4	63		

Required IS Date: 6/1/2030

Projected IS Date: 6/1/2030



Penelec Transmission Zone: Baseline Warren 115kV Breaker “NO.1 XFMR” Replacement

Process Stage: First Read

Criteria: Short Circuit

Assumption Reference: 2025 RTEP assumptions

Model Used for Analysis: 2030 RTEP Short Circuit base case

Proposal Window Exclusion: Below 200kV

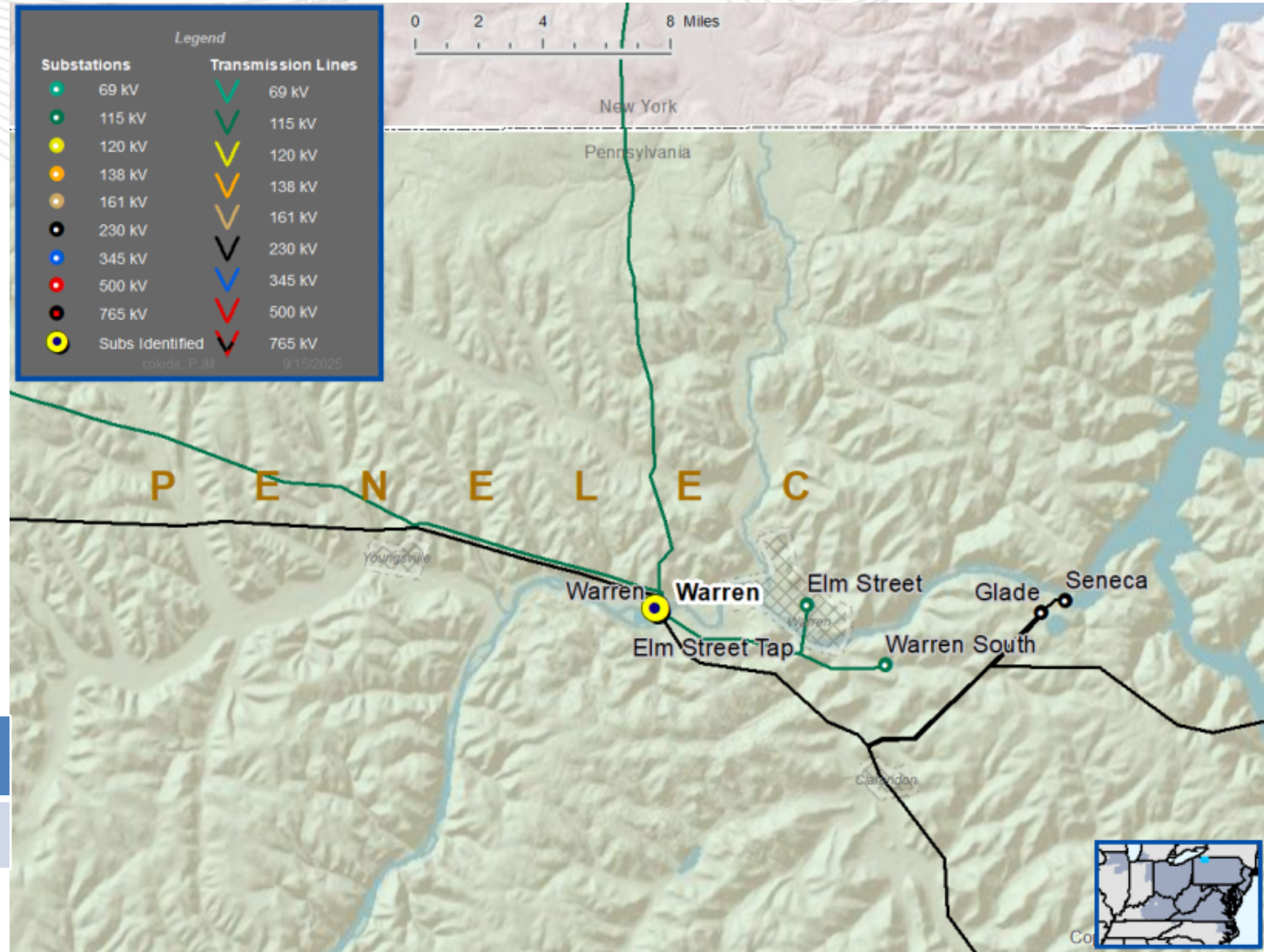
Problem Statement:

2025-W1-SC-98

In the 2030 RTEP Short Circuit base case, the Warren 115 kV breaker “NO.1 XFMR” is identified as over duty.

Existing Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Warren–115 kV breakers “NO.1 XFMR”	20





Penelec Transmission Zone: Baseline Warren 115kV Breaker “NO.1 XFMR” Replacement

Proposed Solution:

Replace the over dutied Warren 115 kV circuit breakers
“NO.1 XFMR” with a 40 kA circuit breaker.

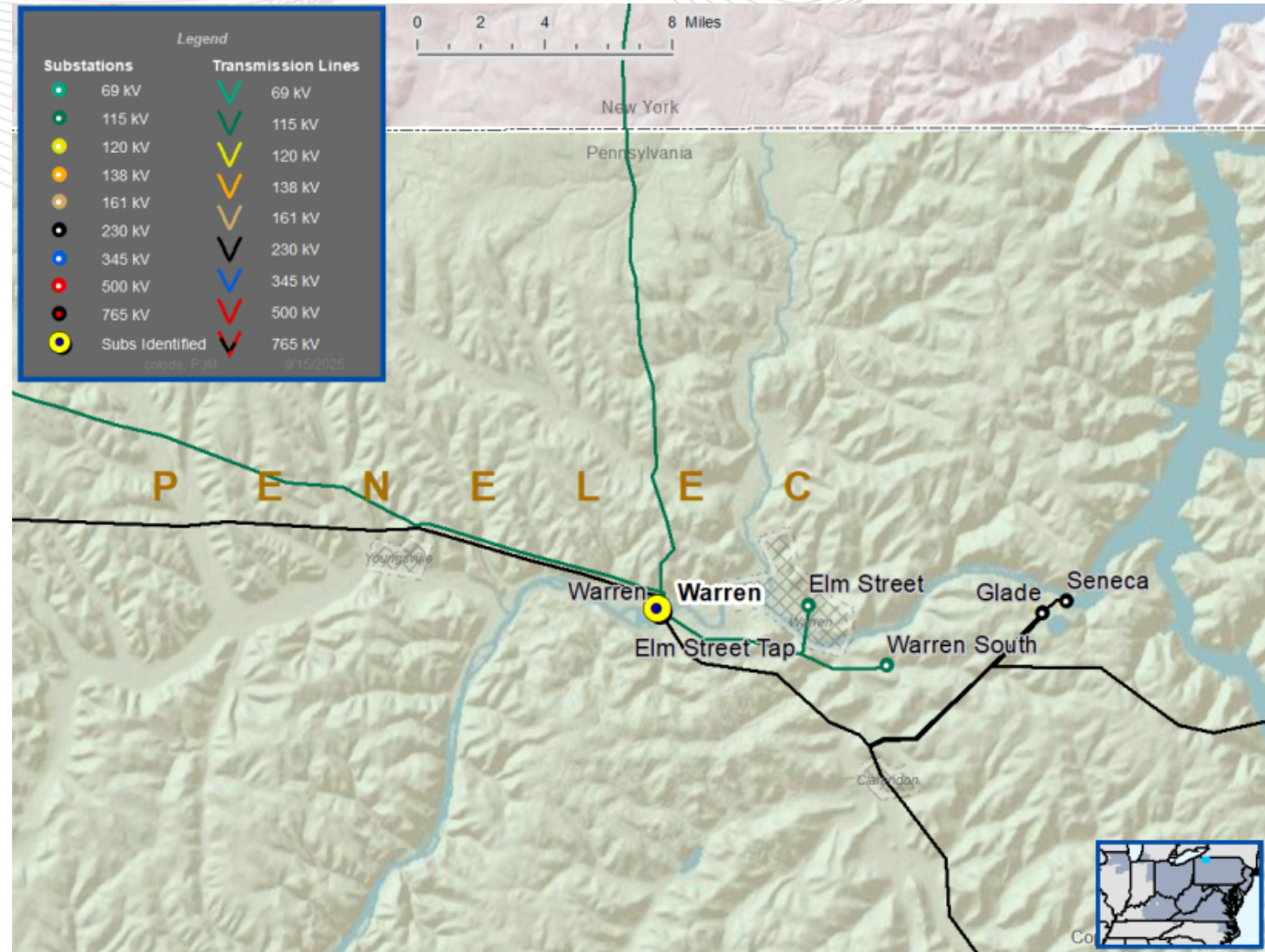
Estimated Cost: \$0.957M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
Warren 115 kV circuit breaker “NO.1 XFMR”	40

Required IS Date: 6/1/2030

Projected IS Date: 6/1/2030



Revisions to Existing Projects

Baseline Reliability Projects

Process Stage: Second Review

Criteria: Winter Baseline Spare Equipment

Assumption Reference: 2029 RTEP assumption

Model Used for Analysis: 2029 RTEP Winter

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement: For the outage of the Bergen series reactors, the normally open bypass switches have to be closed to keep the Bergen – Fairlawn and Bergen – East Rutherford 138 kV circuits operational. As a result, several thermal violations have been identified on the 138kV line from Bergen to Fairlawn (M-1339) and/or on the 138kV line from Bergen to East Rutherford resulting from several N-1 contingencies.

Violations were posted as part of the 2024 Window 1: FG# - 2024W1-SE-WT1, 2024W1-SE-WT2

Recommended Solution:

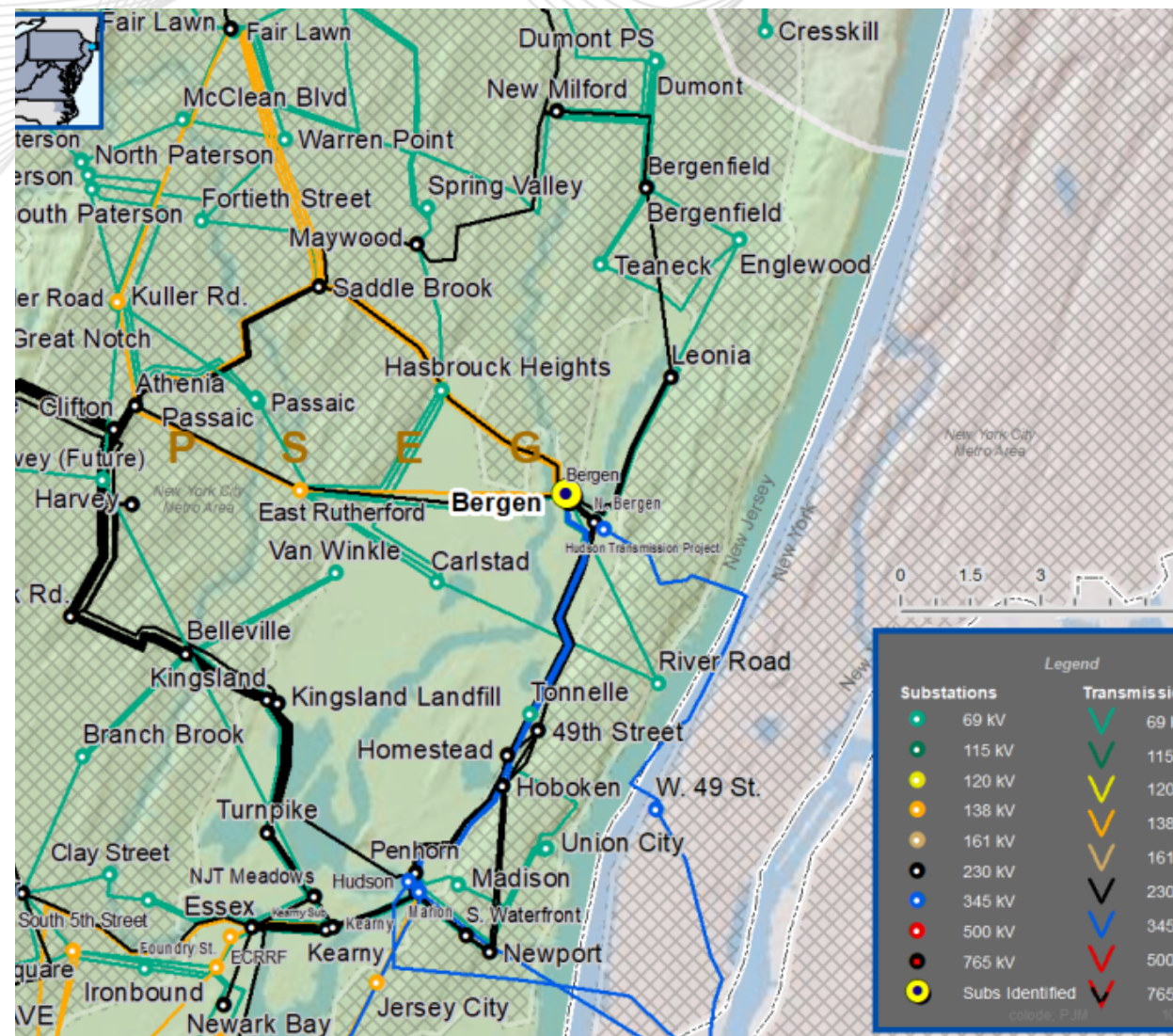
- Relocate the Bergen Gen #1 point of interconnection from Bergen 138kV to Bergen 345kV GIS through the existing 345/138kV transformer **(b3869.1)**
- Remove and retire the two (2) existing Bergen 138kV Series Reactors and associated ancillary equipment. **(b3869.2)**
- Replaced the two (2) Bergen 138kV Series Reactors with two (2) new dry type 138kV Series Reactors. **(b3869.3)**

Estimated Cost: \$12.5M **\$12.77M – (\$0.27M increase)**

Alternatives

N/A

Projected In-Service: 9/1/2027



Facilitator:

Matthew Wharton

Matthew.Warton@pjm.com

Secretary:

Katherine Graham

Katherine.Graham@pjm.com

SME/Presenter:

Matthew Wharton

Matthew.Warton@pjm.com

Reliability Analysis Update



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

Version No.	Date	Description
1	October 13, 2025	Original slides posted
2	October 14, 2025	Updated PSEG maps on slide 12/13 and corrected grammatical issues

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