

Appendix: Previously Reviewed Baseline Upgrade Recommendations for the July 2022 PJM Board Review

Note: Items presented at the June 2022 TEAC and SRRTEP meetings will also be recommended for Board approval.

Process Stage: Second Review

Criteria: PSEG FERC Form 715

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: None

Problem Statement:

The Lawrence 230/69 kV transformer # 220-4 has been identified for replacement based on equipment performance, condition assessment and system needs.

Violations were posted as part of the 2021 Window 3: FG# PSEG-01

Existing Facility Rating: 297SN/375SE, 344WN/464WE MVA

Proposed Facility Rating: 313SN/384SE, 369WN/454WE MVA

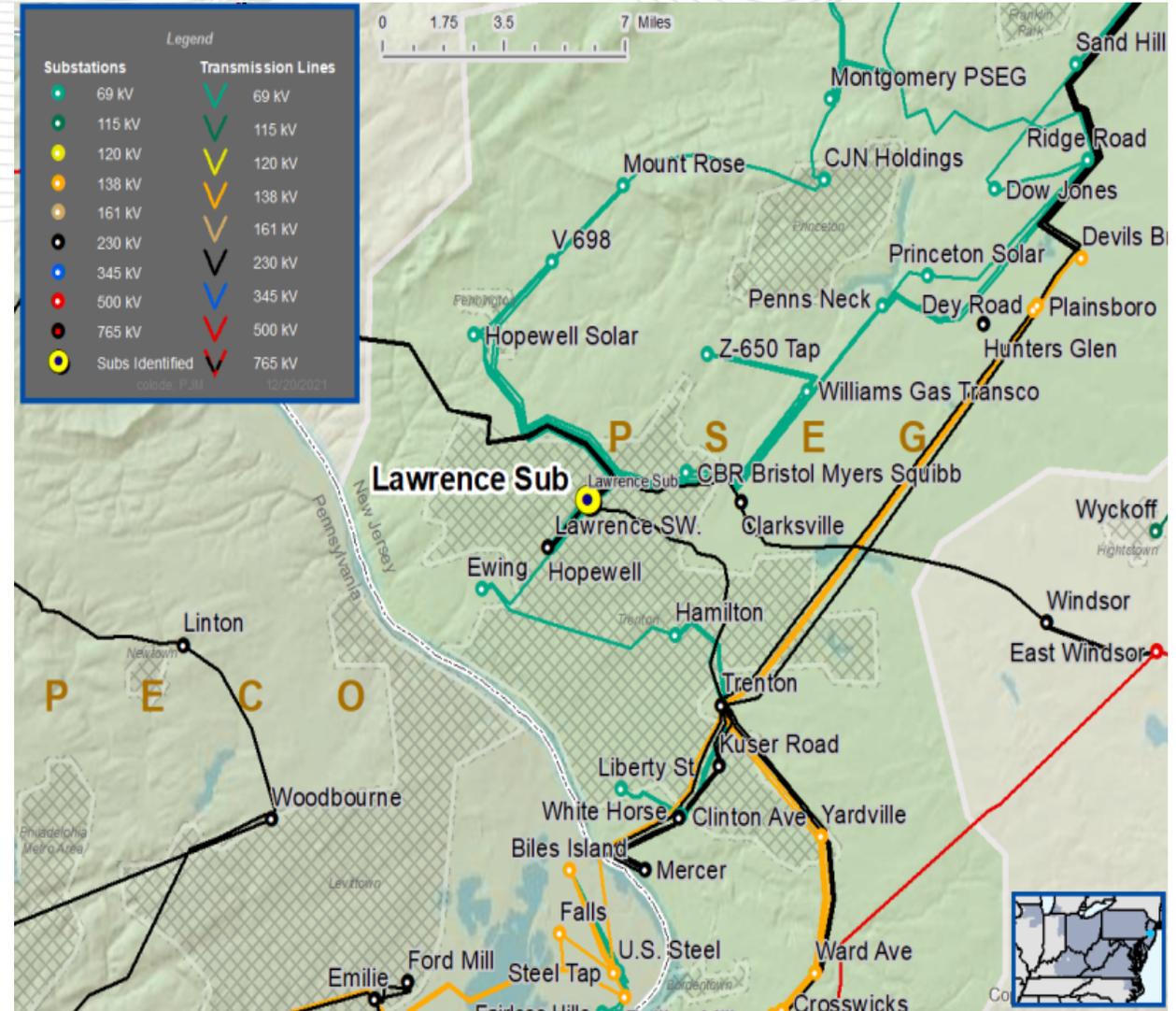
Recommended Solution:

Replace Lawrence Switching Station 230-69kV transformer 220-4 and its associated circuit switchers with a new larger capacity transformer with Load Tap Changer (LTC) and new dead tank circuit breaker. Install a new 230kV gas insulated breaker, associated disconnects, overhead bus, and other necessary equipment to complete the bay within the Lawrence 230kV Switchyard. (b3704)

Estimated Cost: \$13.36 M

Alternatives: N/A

Required In-Service: 6/1/2026



Process Stage: Second Review

Criteria: PSEG FERC Form 715

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: None

Problem Statement:

The Athenia 230/138 kV transformer # 220-1 autotransformer has been identified for replacement based on equipment performance, condition assessment and system needs. . The 220-1 Auto-Transformer at Athenia has been heavily gassing for many years. The transformer has been de-gassed multiple times due to high levels of combustible gas in the main tank.

Violations were posted as part of the 2021 Window 3: FG# PSEG-02

Existing Facility Rating: 606SN/807SE, 717WN/954WE MVA

Proposed Facility Rating: 606SN/807SE, 717WN/954WE MVA

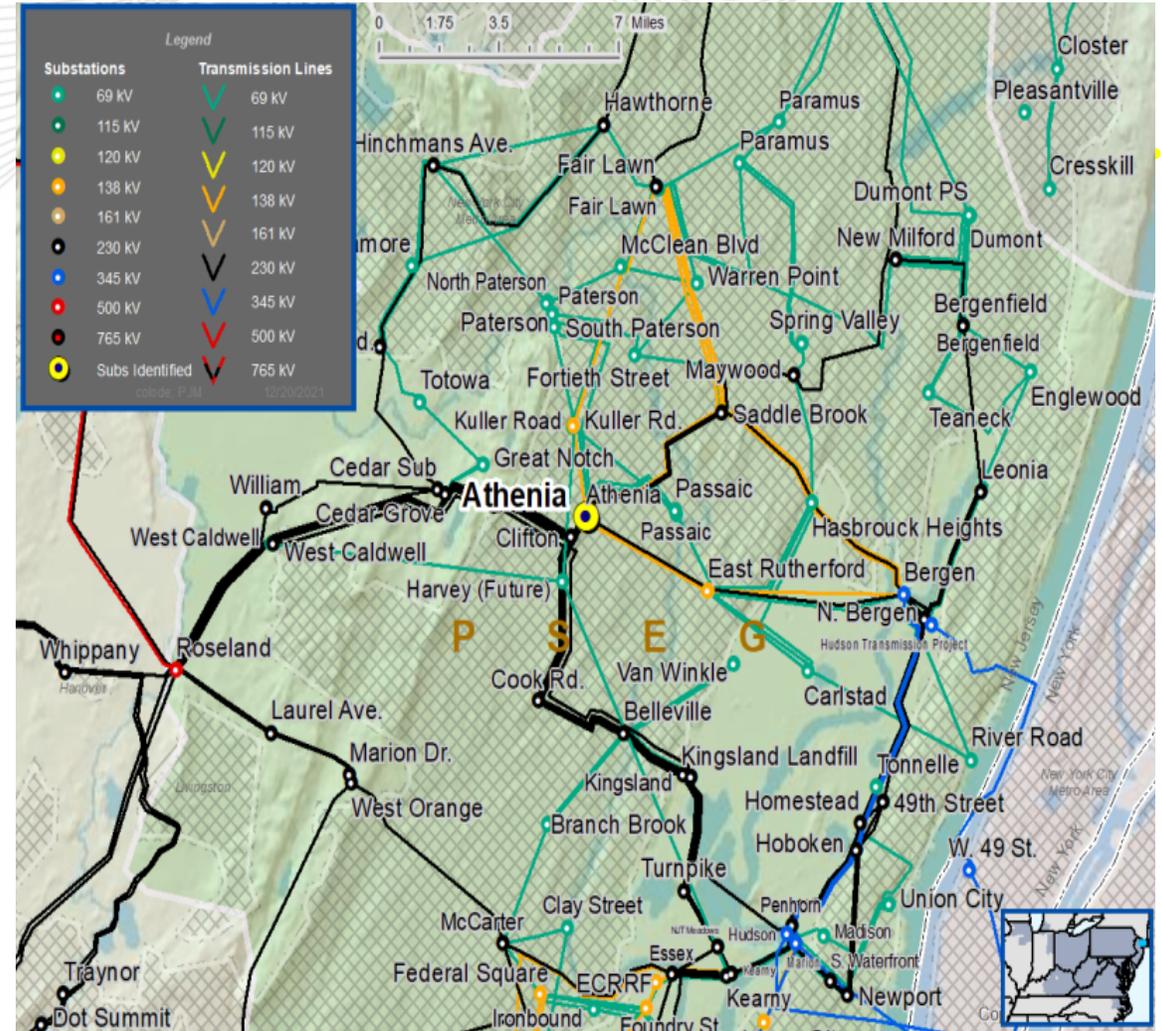
Recommended Solution :

Replace existing 230/138kV Athenia 220-1 transformer. (b3705)

Estimated Cost: \$13.04 M

Alternatives: N/A

Required In-Service: 6/1/2026



Process Stage: Second Review

Criteria: PSEG FERC Form 715

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: None

Problem Statement:

The Fair Lawn 230/138 kV #220-1 Auto-Transformer has been identified for replacement based on equipment performance, condition assessment and system needs. The transformer has been generating acetylene since 2015 along with other key combustible gasses.

Violations were posted as part of the 2021 Window 3: FG# PSEG-03

Existing Facility Rating: 596SN/808SE, 685WN/874WE MVA

Proposed Facility Rating: 470SN/674SE, 554WN/739WE MVA

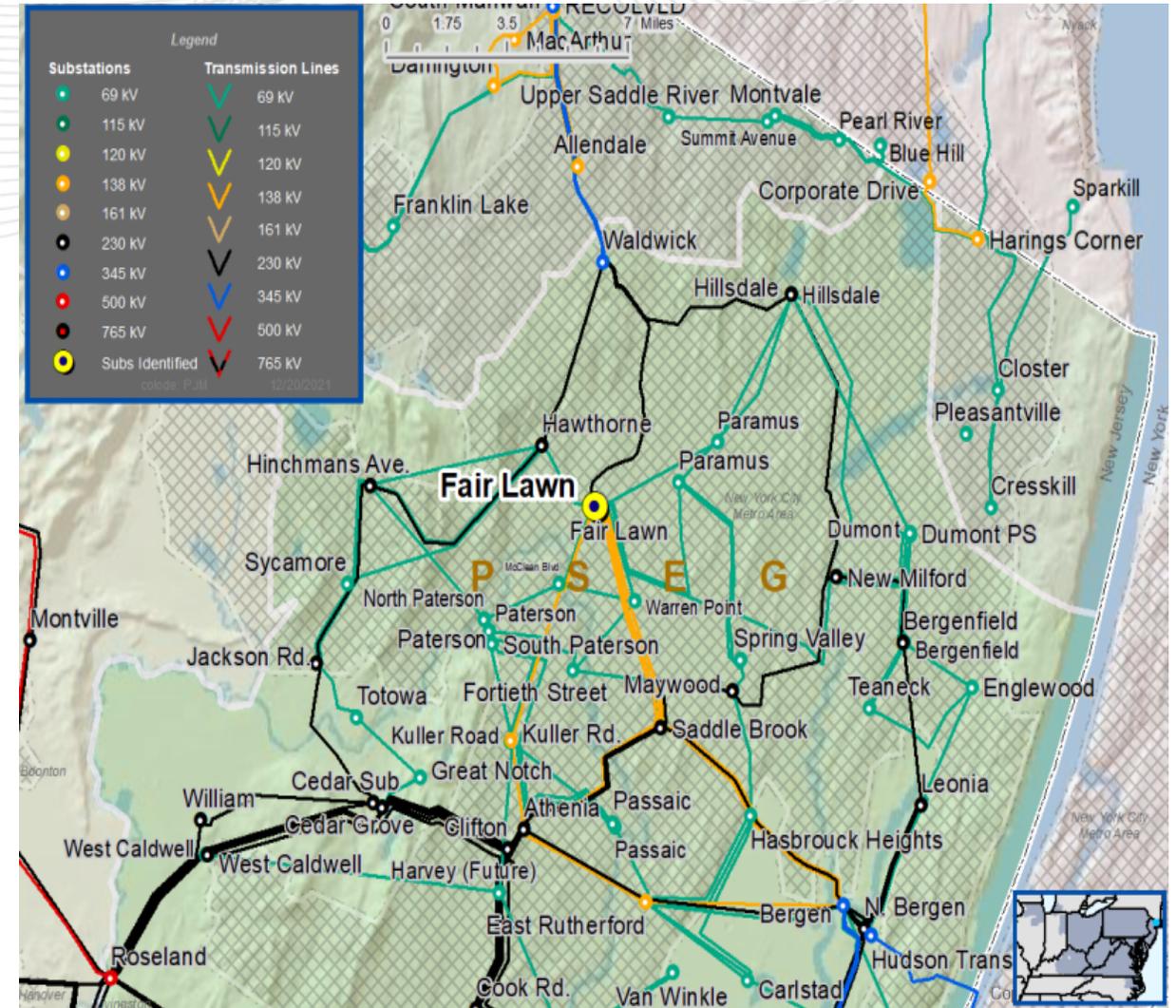
Recommended Solution:

Replace Fair Lawn 230-138kV transformer 220-1 with an existing O&M system spare at Burlington. (b3706)

Estimated Cost: \$4.454 M

Alternatives: N/A

Required In-Service: 6/1/2026



Process Stage: Second Review

Criteria: Light Load Generation Deliverability and N-1

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: None

Problem Statement:

The Shawville 230/115/17.2 kV transformer #2A is overloaded for multiple contingencies.

Violations were posted as part of the 2021 Window 1: FG# N1-LLT20, N1-LLT21, GD-LL45, GD-LL46

Existing Facility Rating: 114SN/149SE, 147WN/178WE MVA

Proposed Facility Rating: 422SN/471SE, 530WN/544WE MVA

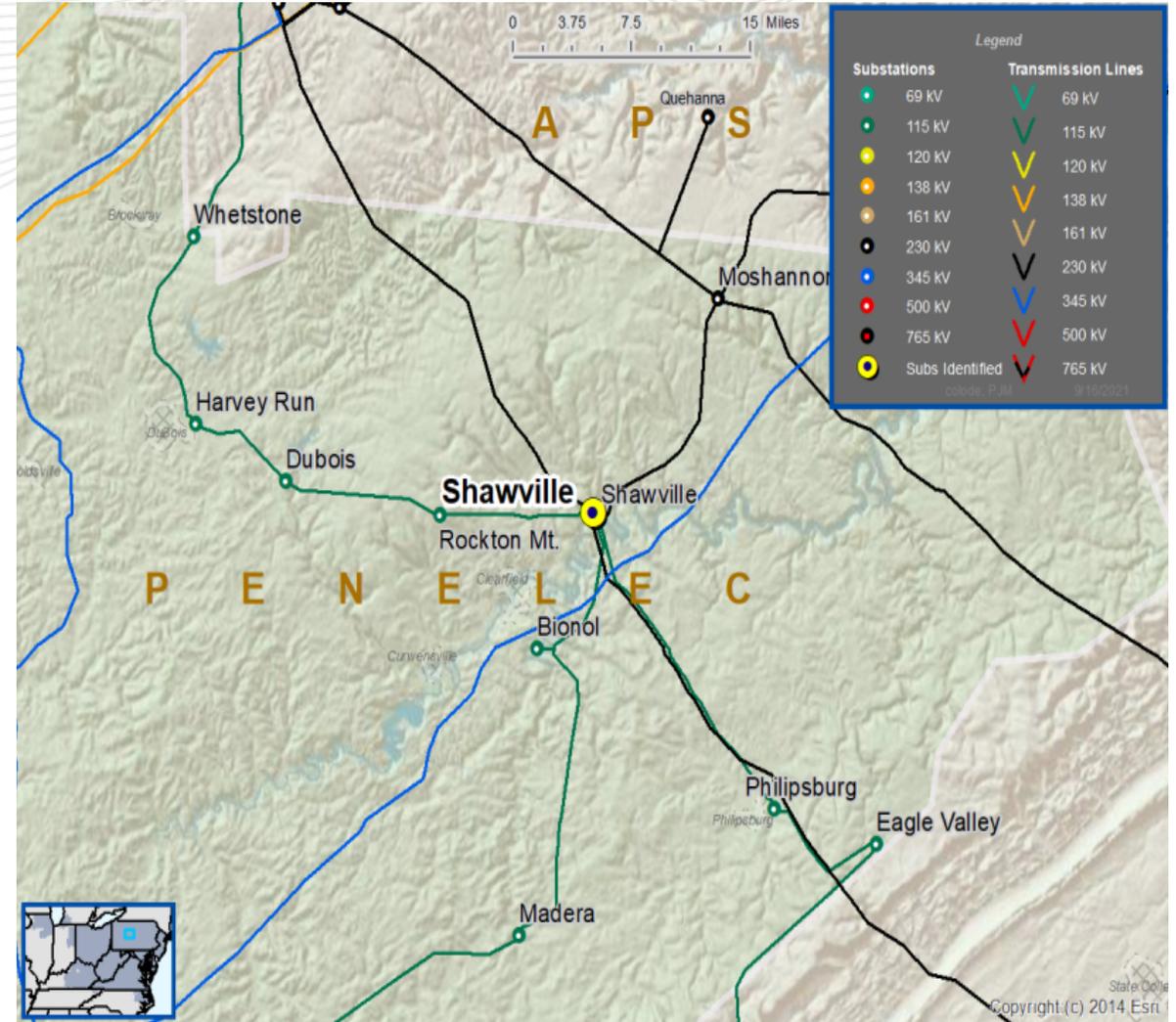
Recommended Solution:

Proposal ID 100 - Install a new 230/115 kV transformer and associated facilities. Replace the Plant's 2B 115-17.2 kV transformer with a larger 230/17.2 kV transformer. (B3708)

Estimated Cost: \$8.775 M

Alternatives: Proposal ID 306 - Replace the Shawville 2A 230/115-17.2 kV Transformer with a larger unit. (\$5.4 M)

Required In-Service: 6/1/2026



Process Stage: Second Review

Criteria: Winter Generation Deliverability

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Winter retool case

Proposal Window Exclusion: None

Problem Statement:

The Dresden 345/138 kV No. 81 transformer is overloaded for an N-2 outage. Violations were posted as part of the 2021 Window 2: FG# GD-W2-W211, GD-W2-W214

Existing Facility Rating: 403SN/442SE, 420WN480WE MVA

Proposed Facility Rating: No change to transformer rating, 63 kA circuit breaker

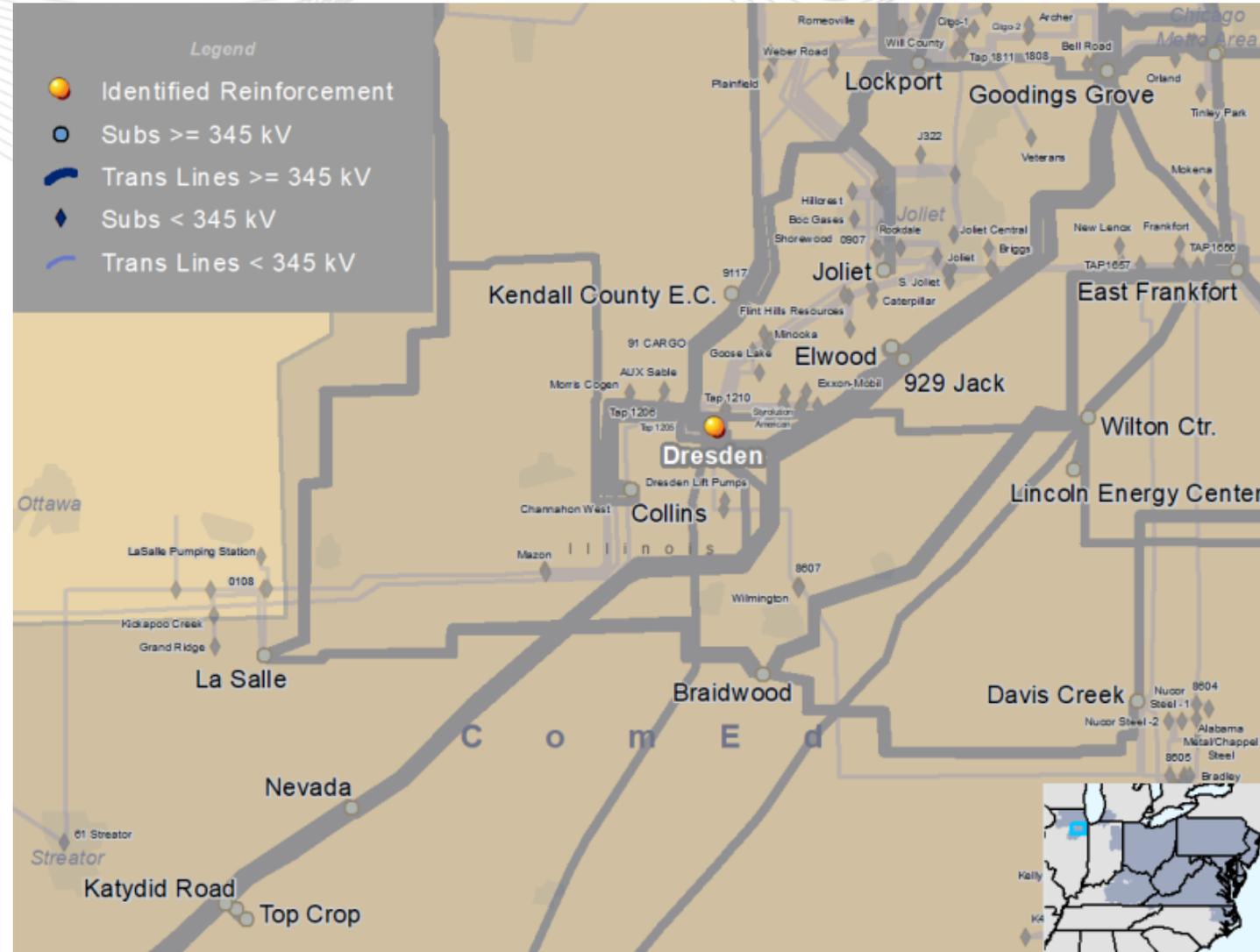
Proposed Solution:

Proposal ID 408 - Install 345 kV bus tie 5-20 circuit breaker in the ring at Dresden station in series with existing bus tie 5-6. **(b3711)**

Estimated Cost: \$4.26 M

Alternatives: Proposal ID 442 - Interconnect the Katydid Road-Goodings Grove Blue and AB1-122-Mole Creek 345 kV circuits at a new East Spring 345 kV substation. (\$10.4 M)

Required In-Service: 12/1/2026



Process Stage: Second Review

Criteria: Summer N-1-1 Voltage

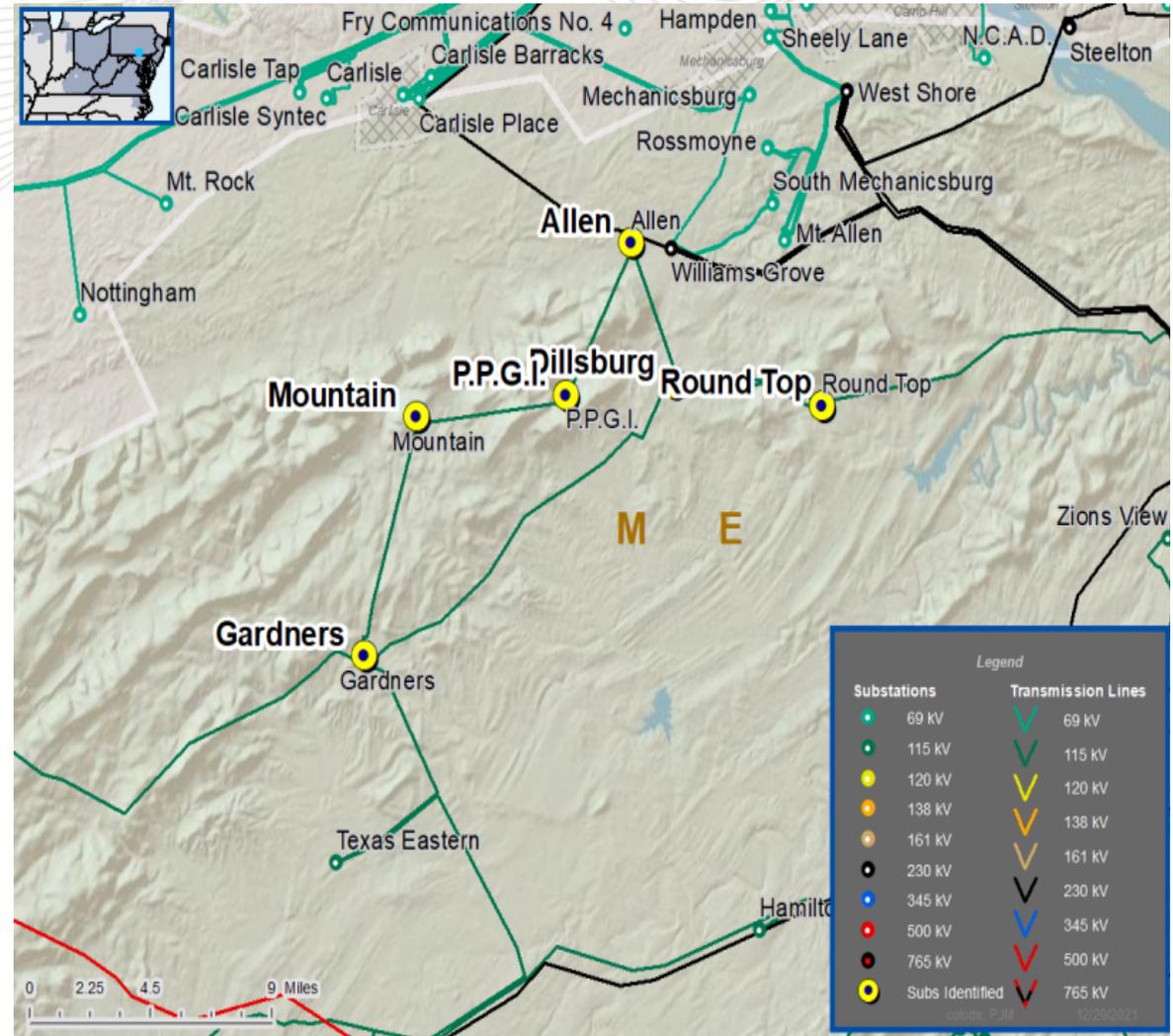
Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: None

Problem Statement:

Voltage magnitude and voltage drop violation at several 115 kV stations in the Allen (MetEd) vicinity for N-1-1 contingencies.



| | # of Flowgates |
|---|---|
| Violations were posted as part of the 2021 Window 1 | N2-SVM8, N2-SVM9, N2-SVM10, N2-SVM11, N2-SVM12, N2-SVM13, N2-SVM16, N2-SVM17, N2-SVM18, N2-SVM19, N2-SVM26, N2-SVM27, N2-SVD1, N2-SVD2, N2-SVD3, N2-SVD4, N2-SVD5, N2-SVD6, N2-SVD7, N2-SVD8, N2-SVD9, N2-SVD10, N2-SVD11, N2-SVD12, N2-SVD15, N2-SVD16 |

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| PJM Proposal ID | Project Description | Proposer Cost Estimate (\$M) Current-Year | Reliability Assessment | | Operational Flexibility | Market Efficiency | Detailed Constructability Performed | Comments |
|-----------------|--|---|--------------------------------|-----------------------------|--------------------------------|---------------------|-------------------------------------|--|
| | | | Addressed Identified Flowgates | Did the solution cause harm | Operational Flexibility Impact | Provides ME Benefit | | |
| 292 | Dogwood Run 115/230kV Transmission Project | \$15.10 | Yes | No | Medium | Negligible | Yes | Does not enhance operational flexibility, as the Allen 115 kV configuration remains the same - The Allen substation will be dropped for faults on terminating lines (Tapped Sub) |
| 582 | Dogwood Sprint 115/500kV Transmission Project | \$21.58 | Yes | No | Medium | N/A | Yes | Does not enhance operational flexibility, as the Allen 115 kV configuration remains the same - The Allen substation will be dropped for faults on terminating lines (Tapped Sub) |
| 561 | Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 69 kV bus (PPL-Allen Switchyard) | \$15.62 | Yes | No | Medium | N/A | | This project is similar to ID 457, with the exception of the new 115 kV substation will be constructed by PPL. The additional feed to Allen 115 kV is from 69 kV PPL system. |
| 992 | Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 230 kV bus (PPL-Allen Switchyard) | \$18.57 | Yes | No | High | N/A | | The project is similar to ID 99, with the exception of the new 115 kV substation will be constructed by PPL (additional greenfield) |
| 386 | Multi-Driver Project: Allen-Williams Grove Greenfield Line & Reconductor | \$20.25 | Yes | No | Low | N/A | | This project is similar to ID 113 (lacks operational flexibility), with additional work to solve Market Efficiency need. The ME need is already addressed independently. |
| 113 | Allen-Williams Grove Greenfield Line | \$12.03 | Yes | No | Low | N/A | | The project doesn't enhance operational flexibility due to the proposed configuration (single breaker connection) at Allen 115 kV |
| 789 | New Allen 115 kV Source | \$28.54 | Yes | Yes | High | N/A | | The project causes a new violation. |
| 477 | Northern Loop STATCOM | \$32.16 | Yes | No | Low | N/A | | The project doesn't enhance operational flexibility. |
| 457 | Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 69 kV bus (FE-Allen Switchyard) | \$15.27 | Yes | No | Medium | N/A | | The additional feed to Allen 115 kV is from 69 kV PPL system |
| 99 | Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 230 kV bus (FE-Allen Switchyard) | \$17.82 | Yes | No | High | Negligible | Yes | Provides the most operational flexibility due to the Allen 115 kV proposed configuration |



Independent Cost and Constructability review was performed for the following projects.

| PJM Proposal ID | Project Description | Proposer Total * Project Cost (\$M) | Proposer Project * Cost Cap (\$M) | Cost Cap Exclusions | Independent Total* Project Cost (\$M) | Independent Cost* Overrun Scenario (\$M) | Quality of Proposal | Proposal Completeness | Environmental & Siting / Permitting Risks | Project Development Risk | Independent Constructability Findings |
|-----------------|---|-------------------------------------|-----------------------------------|--|---------------------------------------|--|---------------------|-----------------------|---|--------------------------|---|
| 292 | Dogwood Run 115/230kV Transmission Project | \$17.08 ¹ | \$19.00 | 1. Scope of Work change 2. Uncontrollable Force 3. O&M costs 4. Capital upgrades occurring after Project is initially placed in service | \$18.80 | \$21.20 | Low | No | Medium | Medium | > Line: Uses Greenfield > Substation: Greenfield > Didn't include remote end relay and interconnection metering consideration. > Proposal Deficiency: > No High side transformer protection (breaker) |
| 582 | Dogwood Sprint 115/500kV Transmission Project | \$24.44 ² | \$27.30 | 1. Scope of Work change 2. Uncontrollable Force 3. O&M costs 4. Capital upgrades occurring after Project is initially placed in service | \$33.52 | \$33.40 | Low | Yes | Medium | High | > Line: Uses Greenfield > Substation: Greenfield > Didn't include remote end relay and interconnection metering consideration. > Project utilizes First Energy ROW for substation siting. > Least detailed proposal |
| 99 | Williams Grove - Allen 115 kV line upgrade sourced from Williams Grove 230 kV bus (FE-Allen Switchyard) | \$19.76 ³ | \$12.65 | 1. Change in law. 2. Change in ISO req'ts 3. Force Majeure 4. Legal Fees & Expenses 5. Charges associated with acceleration of work before commercial ops. | \$21.81 | \$23.30 | High | Yes | Low | Low | > Line: Uses Greenfield > Substation: Upgrade Construction > Most detailed proposal and accounts for existing substation design/expansion requirements |

- Notes:** *All costs in In-Service Year \$
1. Project 292 Capped Component Costs are \$15.07M
 2. Project 582 Capped Component Costs are \$22.60M
 3. Project 99 Capped Component Costs are \$12.65M

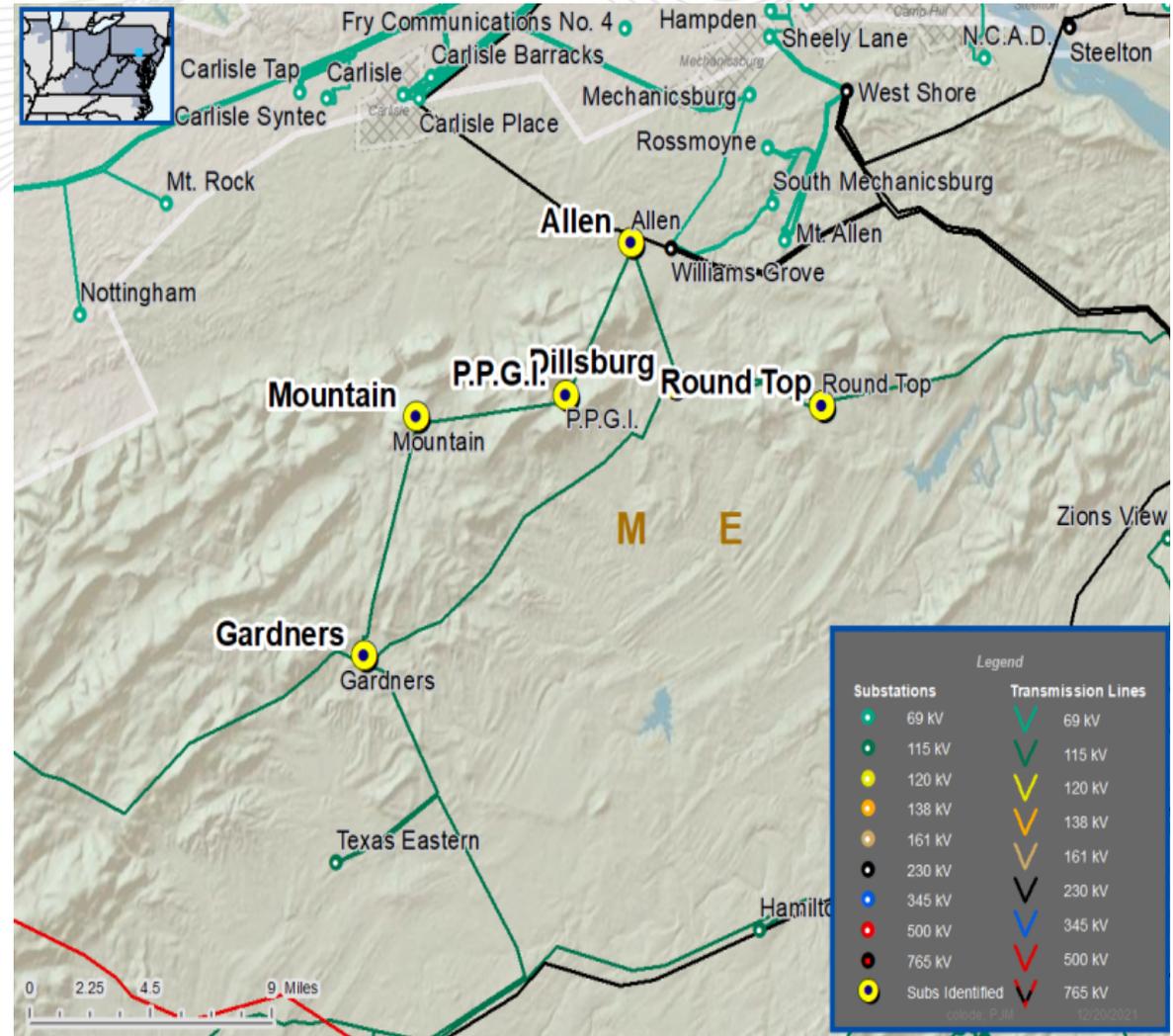
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Recommended Solution:

Proposal ID 99 : At the existing PPL Williams Grove Substation, install a new 300 MVA 230/115 kV transformer. Construct a new ~3.4 mile 115 kV single circuit transmission line from Williams Grove to Allen Substation. Install a new Allen four breaker ring bus Switchyard near the existing METED Allen Substation on adjacent property presently owned by FE. Terminate the Round Top - Allen and the Allen-PPGI 115 kV lines into the new switchyard. (B3715)

Estimated Cost: \$17.82 M

Required In-Service: 6/1/2026



Process Stage: Recommended Solution

Criteria: AEP 715 Criteria

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2023 short circuit RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion and Immediate Need Exclusion

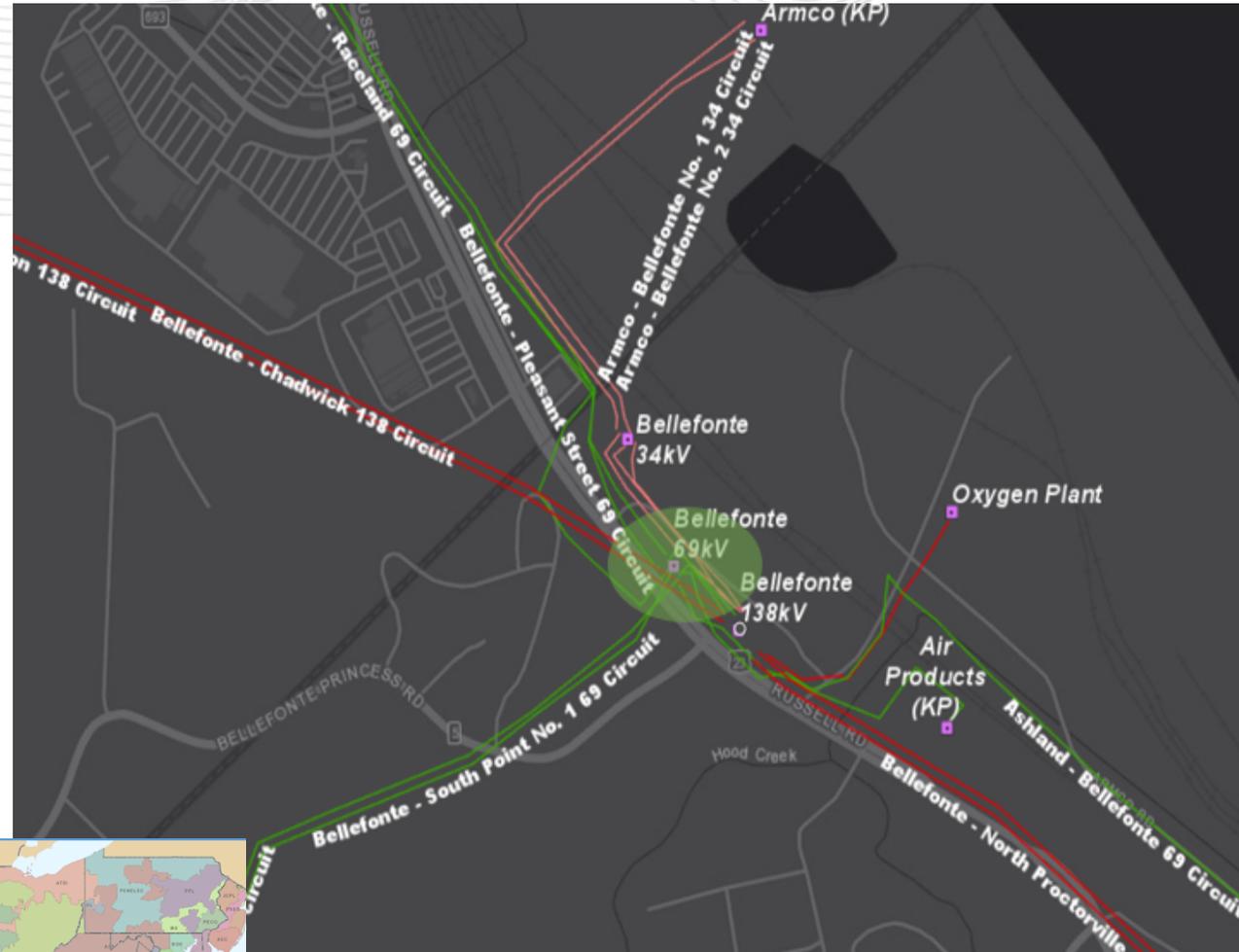
Problem Statement:

FG: AEP-SC1, AEP-SC2, AEP-SC3, AEP-SC4, AEP-SC5, AEP-SC6

In 2023 RTEP short circuit case, Bellefonte 69kV breakers JJ, C, I, AB, Z and G are overdutied.

Existing Facility Rating:

| Breaker | KA |
|---|----|
| BELLEFNT 69kV Breakers: C, G, I, JJ, I, AB, Z | 27 |





AEP Transmission Zone: Baseline Bellefonte 69kV breakers

Recommended Solution:

Replace overdutied 69kV breakers C, G, I, Z, AB and JJ in place. The new 69kV breakers to be rated at 3000 A 40kA breakers. (B3350.1)

Transmission Estimated Cost: \$2.0M

Remote end relaying at Point Pleasant, Coalton and South Point 69KV substations (B3350.2)

Transmission Estimated Cost: \$0M

Distribution Estimated Cost: \$1.52M

Preliminary Facility Rating:

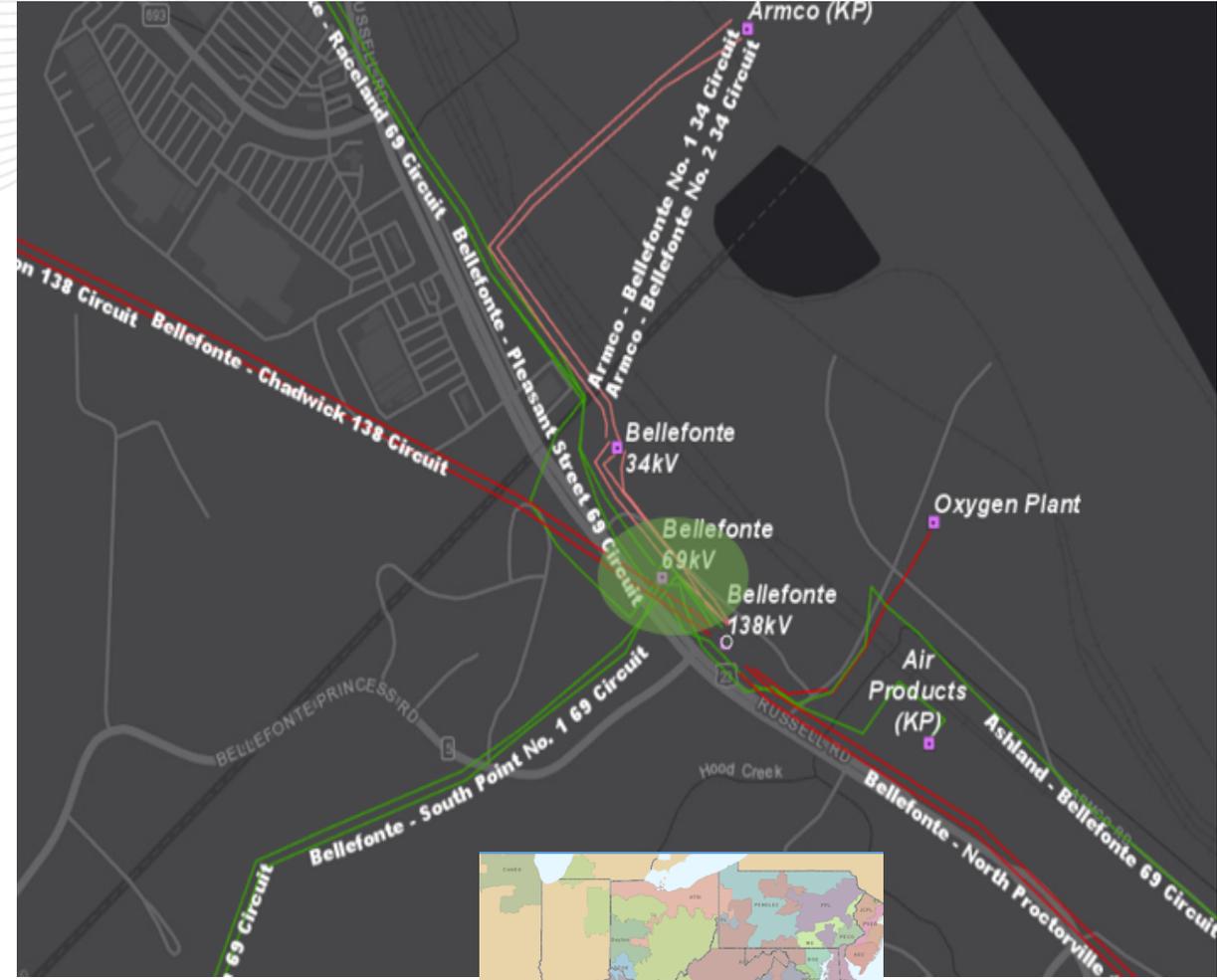
| Breaker | KA |
|---|----|
| BELLEFNT 69kV Breakers: C, G, I, JJ, I, AB, Z | 40 |

Ancillary Benefits: Breakers C, G, I, Z, AB and JJ are Oil Circuit Breakers without oil containment. Oil filled breakers have much more maintenance required due to oil handling that their modern, SF6 counterparts do not require. Spare parts for these units are difficult to impossible to procure, and this model type is no longer vendor supported.

Required IS date: 6/1/2023

Projected IS date: 6/1/2023

Previously Presented: 12/17/2021



Process Stage: Recommended Solution

Criteria: AEP 715 Criteria

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2023 short circuit RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion and Immediate Need Exclusion

Problem Statement:

FG: AEP-SC7, AEP-SC8

In 2023 RTEP short circuit case, 40 kV circuit breakers '42' and '43' at Bexley station are overdutied.

Existing Facility Rating:

| Breaker | KA |
|------------------------------|----|
| Bexley 40kV Breakers: 42, 43 | 10 |



Recommended Solution:

Replace circuit breakers '42' and '43' at Bexley station with 3000A, 40 kA 69 kV breakers (operated at 40 kV), slab, control cables, jumpers. (B3354)

Transmission Estimated Cost: \$1.0M

Preliminary Facility Rating:

| Breaker | KA |
|------------------------------|----|
| Bexley 40kV Breakers: 42, 43 | 40 |

Ancillary Benefits: Bexley 40kV breakers 42 and 43 are 1970's vintage Oil type Circuit Breakers without oil containment. Oil filled breakers have much more maintenance required due to oil handling that their modern, SF6 counterparts do not require. Spare parts for these units are difficult to impossible to procure, and this model type is no longer vendor supported.

Required IS date: 6/1/2023

Projected IS date: 6/1/2023

Previously Presented: 12/17/2021



Process Stage: Recommended Solution

Criteria: AEP 715 Criteria

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2023 short circuit RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion and Immediate Need Exclusion

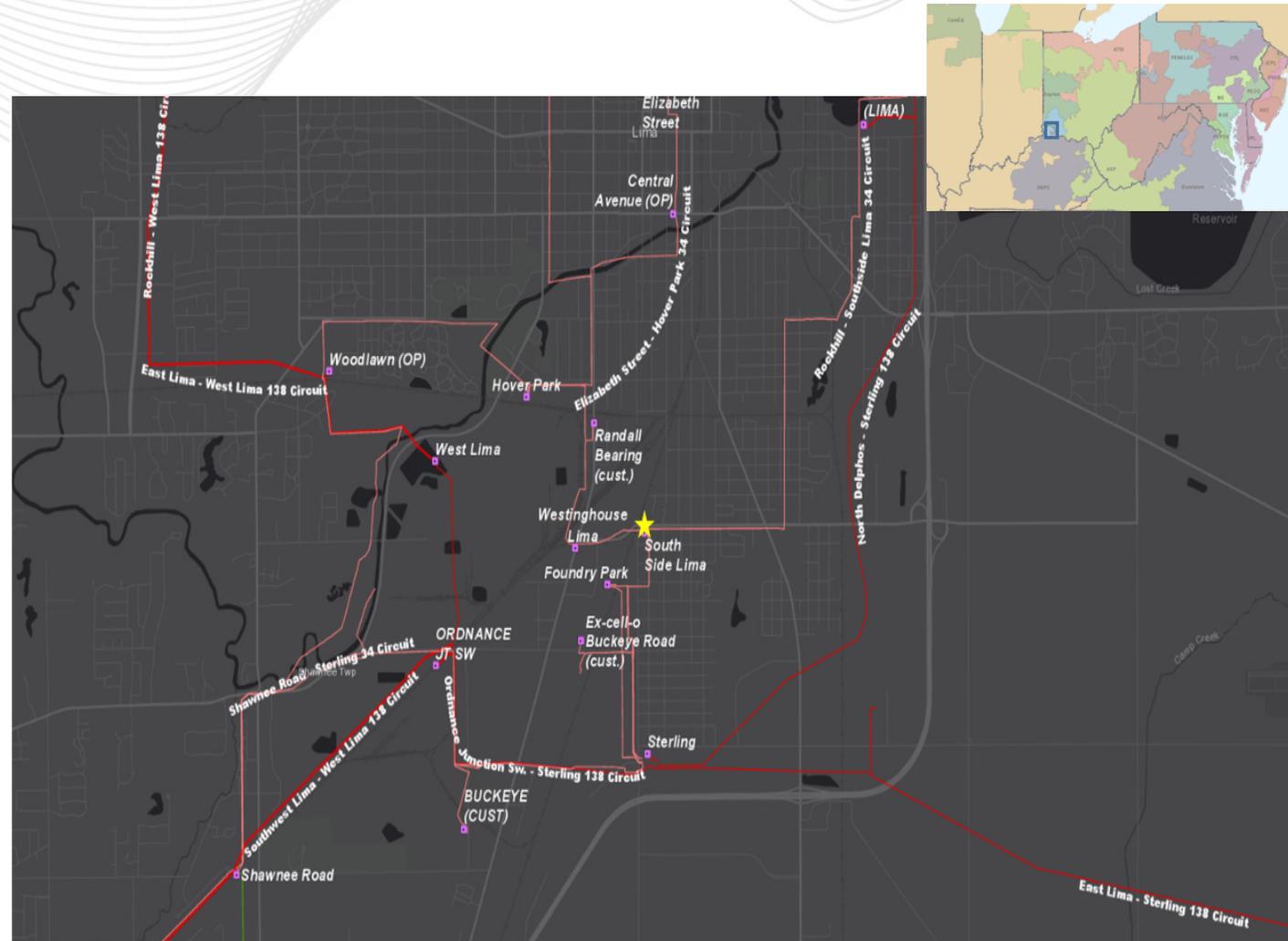
Problem Statement:

FG: AEP-SC13, AEP-SC14

In 2023 RTEP short circuit case, 34.5 kV circuit breakers 'A' and 'B' at South Side Lima station are overdutied.

Existing Facility Rating:

| Breaker | KA |
|---------------------------------------|------|
| South Side Lima 34.5kV Breakers: A, B | 14.2 |





AEP Transmission Zone: Baseline South Side Lima Breaker Replacement

Recommended Solution:

Replace 34.5kV circuit breakers 'A' and 'B' at South Side Lima station with 1200A, 25 kA 34.5 kV breakers , slab, control cables, jumpers. (B3355)

Transmission Estimated Cost: \$0.75M

Preliminary Facility Rating:

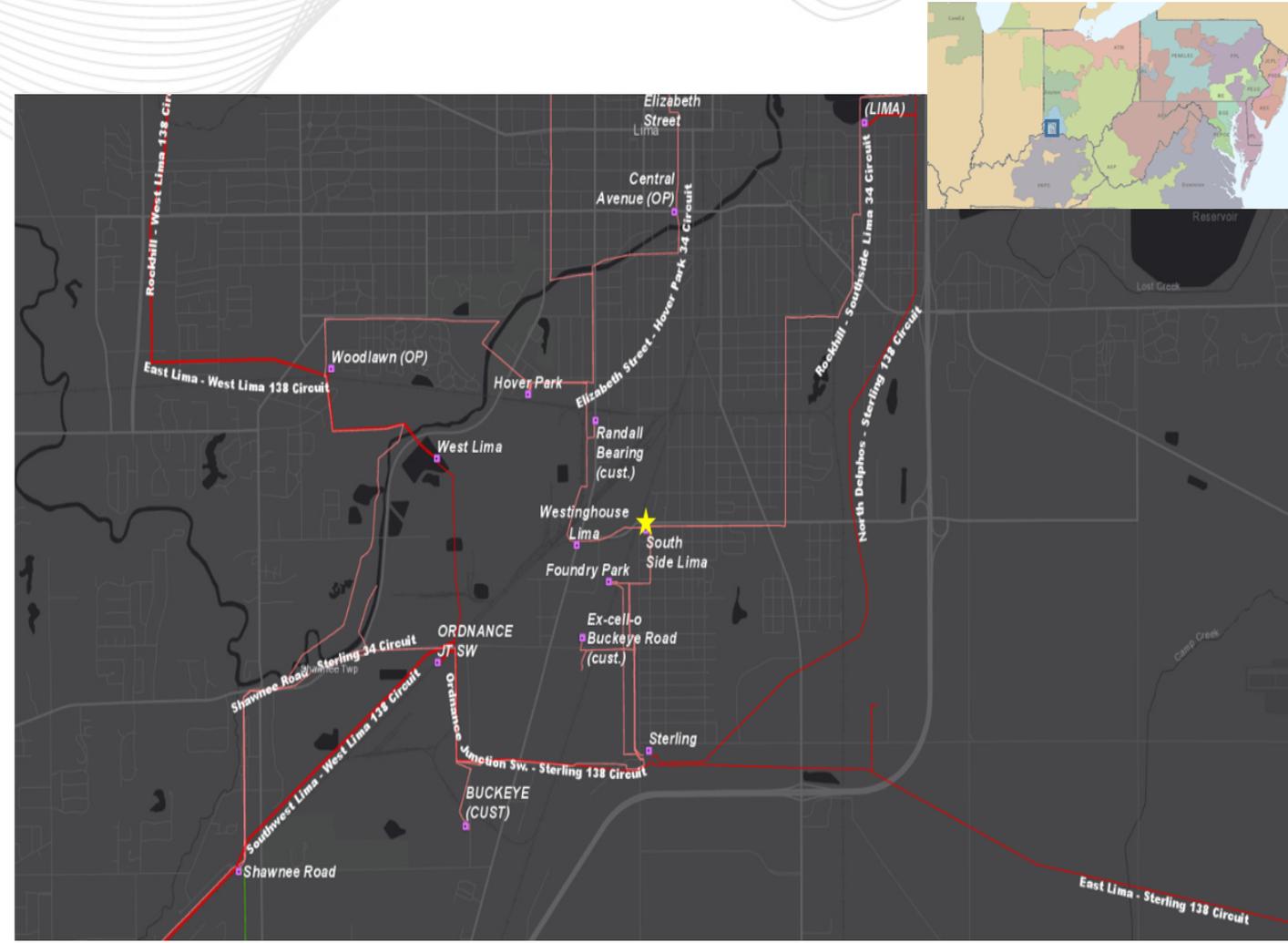
| Breaker | KA |
|---------------------------------------|----|
| South Side Lime 34.5kV Breakers: A, B | 25 |

Ancillary Benefits: South Side Lima 34.5kV breakers A and B are 1950's vintage Oil type Circuit Breakers without oil containment. Oil filled breakers have much more maintenance required due to oil handling that their modern, SF6 counterparts do not require. Spare parts for these units are difficult to impossible to procure, and this model type is no longer vendor supported.

Required IS date: 6/1/2023

Projected IS date: 6/1/2023

Previously Presented: 12/17/2021



Process Stage: Recommended Solution

Criteria: AEP 715 Criteria

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2023 short circuit RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion and Immediate Need Exclusion

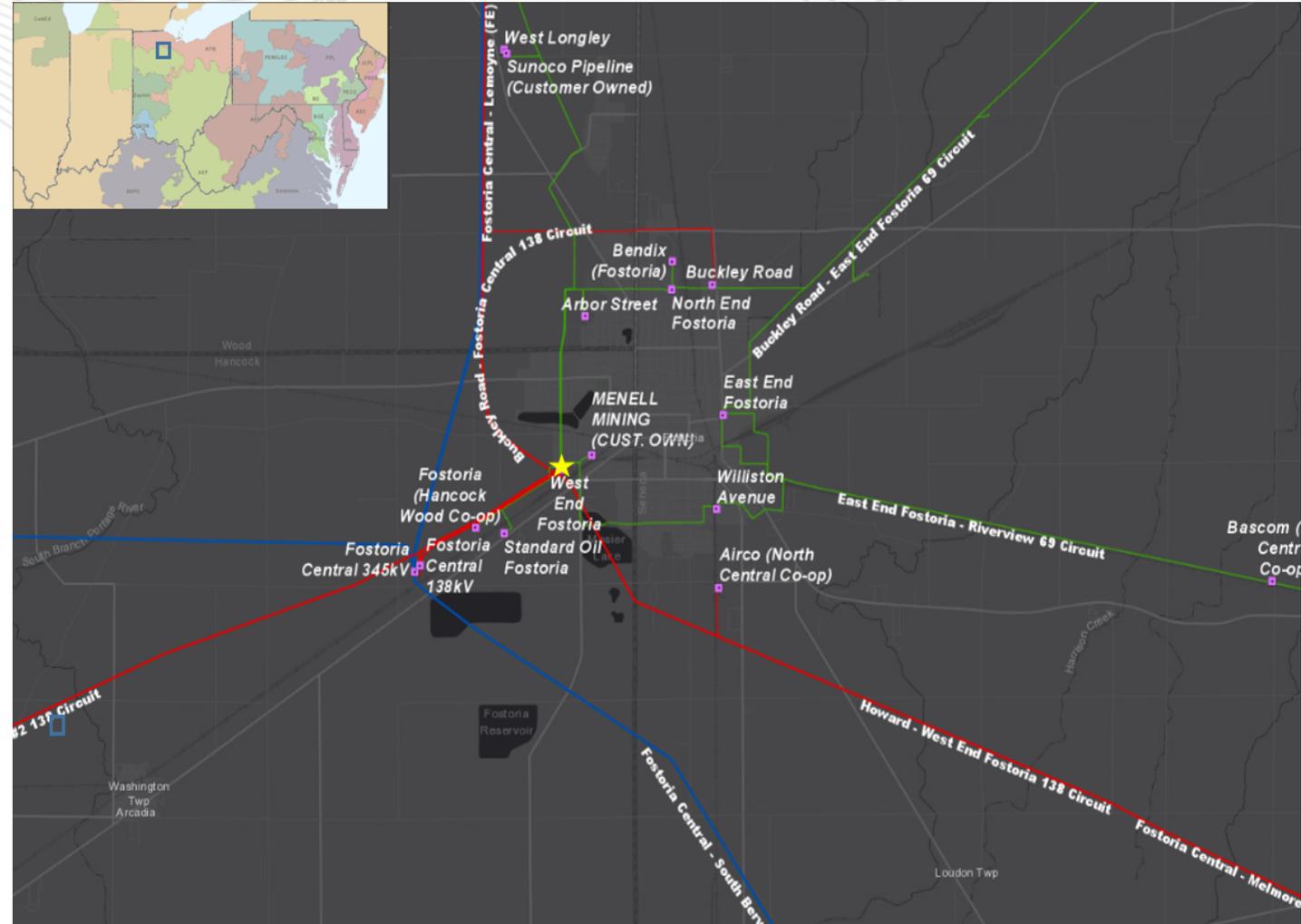
Problem Statement:

FG: AEP-SC15

In 2023 RTEP short circuit case, 69 kV circuit breaker 'H' at West End Fostoria station is overdutied.

Existing Facility Rating:

| Breaker | KA |
|------------------------------------|----|
| West End Fostoria 69kV Breakers: H | 20 |





AEP Transmission Zone: Baseline West End Fostoria Breaker Replacement

Recommended Solution:

Replace circuit breaker 'H' at West End Fostoria station with 3000A, 40 kA 69 kV breaker , slab, control cables, jumpers. (B3356)

Transmission Estimated Cost: \$0.5M

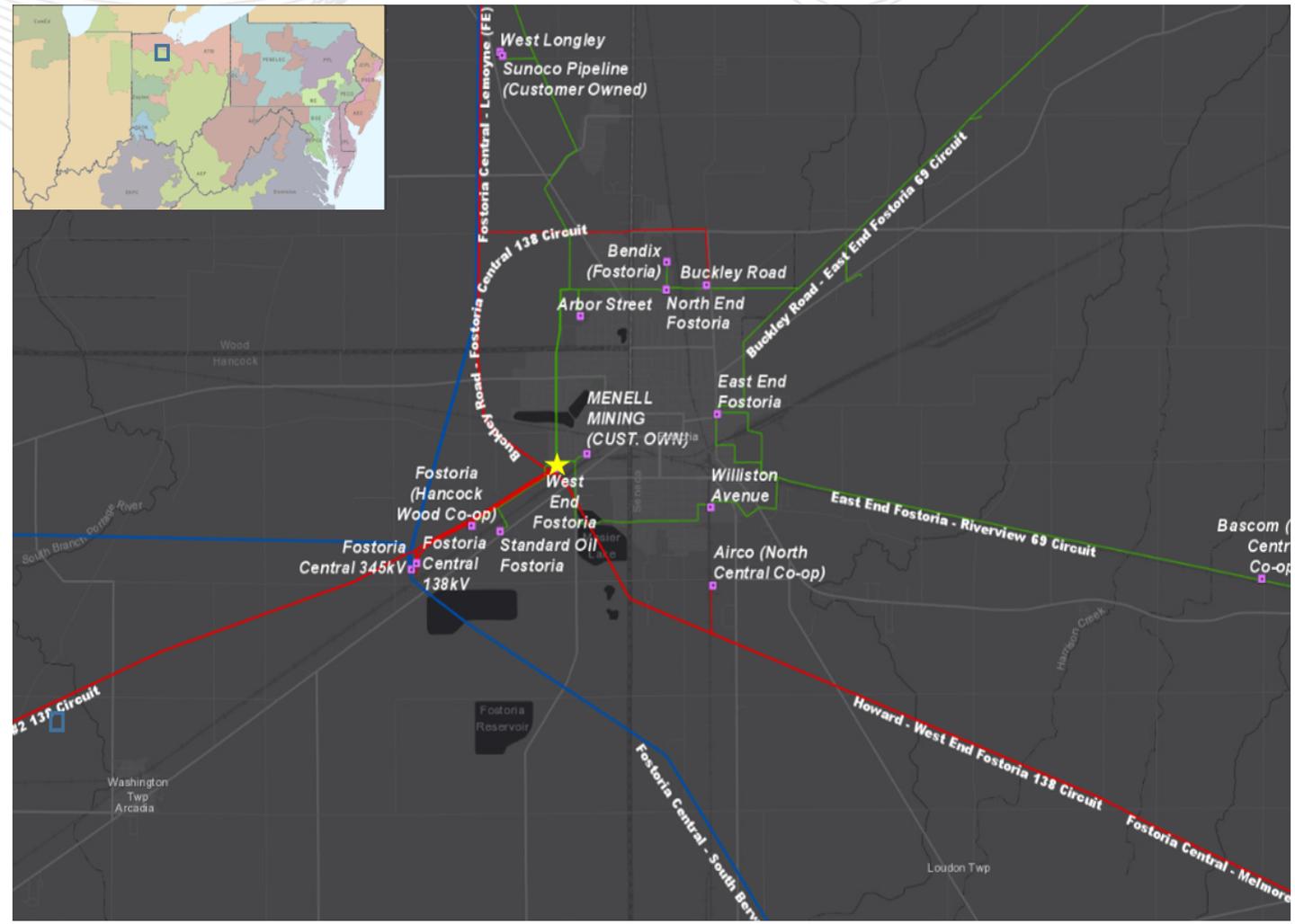
Preliminary Facility Rating:

| Breaker | KA |
|------------------------------------|----|
| West End Fostoria 69kV Breakers: H | 40 |

Required IS date: 6/1/2023

Projected IS date: 6/1/2023

Previously Presented: 12/17/2021





AEP Transmission Zone: Baseline Natrium Breaker Replacement

Process Stage: Recommended Solution

Criteria: AEP 715 Criteria

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2023 short circuit RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion and Immediate Need Exclusion

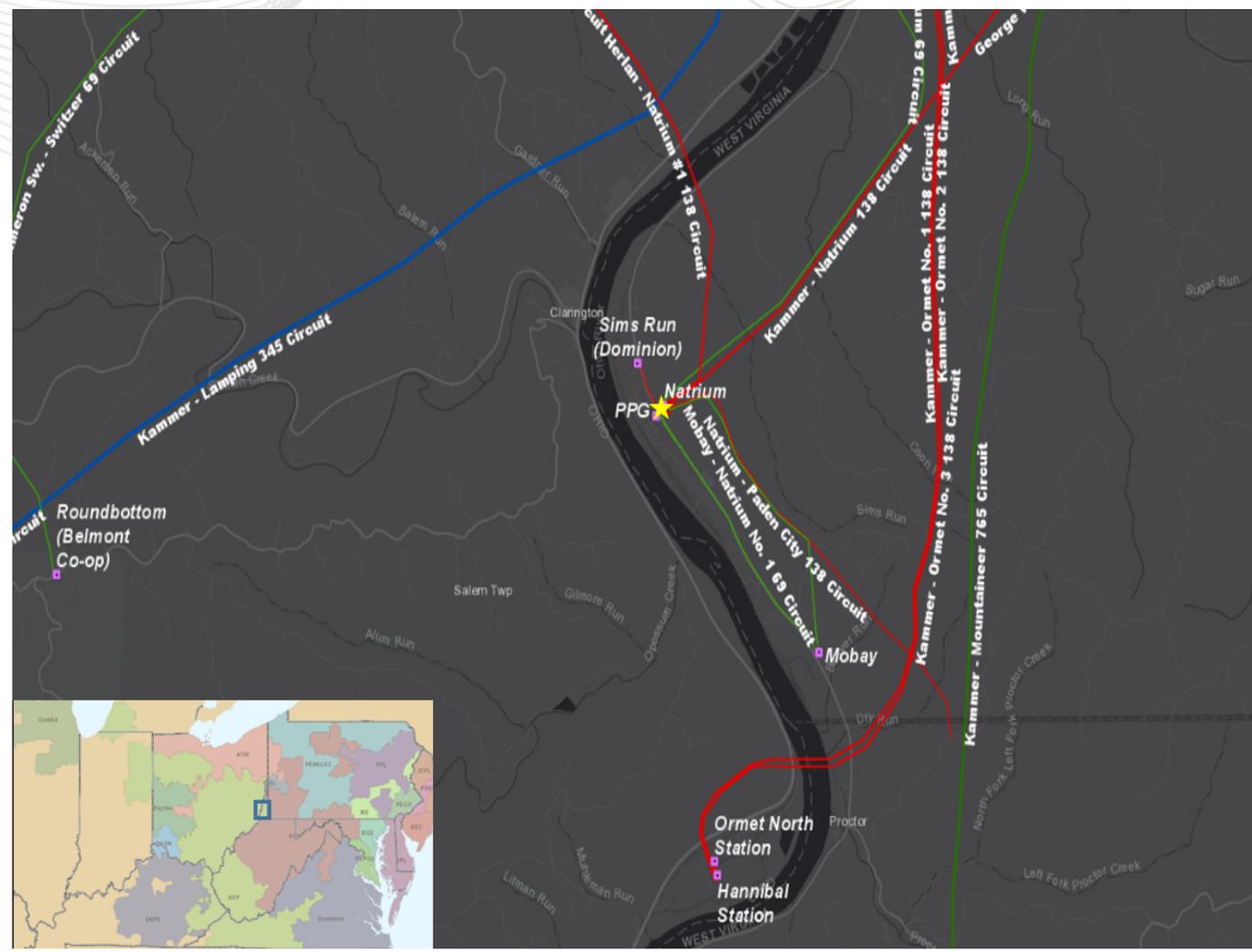
Problem Statement:

FG: AEP-SC10, AEP-SC11, AEP-SC12

In 2023 RTEP short circuit case, 69 kV circuit breakers 'C', 'E', and 'L' at Natrium station are overdutied.

Existing Facility Rating:

| Breaker | KA |
|--------------------------------|----|
| Natrium 69kV Breakers: C, E, L | 21 |





AEP Transmission Zone: Baseline Natrium Breaker Replacement

Recommended Solution:

Replace circuit breakers 'C', 'E', and 'L' at Natrium station with 3000A, 40 kA 69 kV breakers, slab, control cables, jumpers. (B3357)

Transmission Estimated Cost: \$1.5M

Preliminary Facility Rating:

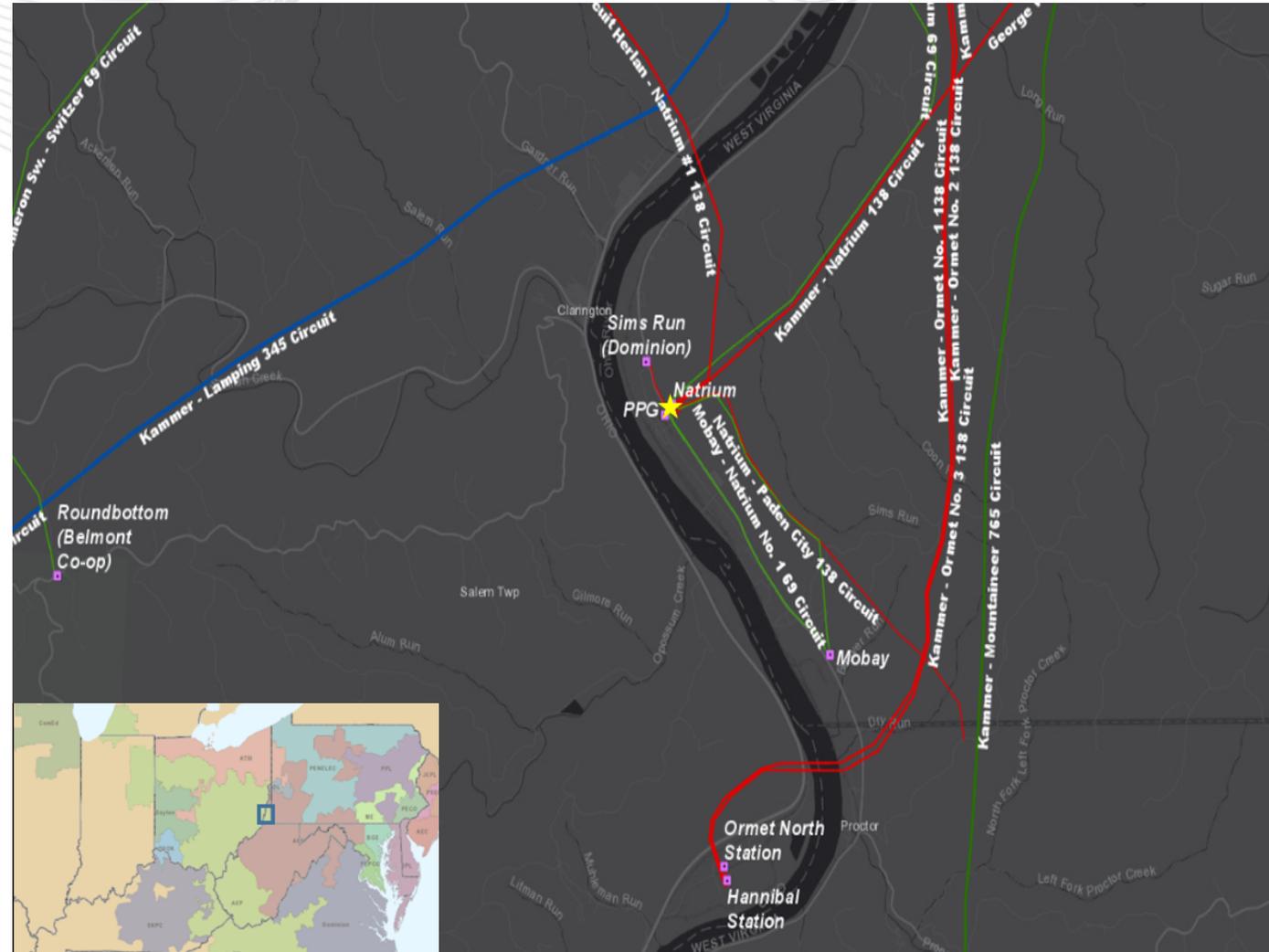
| Breaker | KA |
|--------------------------------|----|
| Natrium 69kV Breakers: C, E, L | 40 |

Ancillary Benefits: Natrium 69kV breakers C, E and L are Oil Circuit Breakers without oil containment. Oil filled breakers have much more maintenance required due to oil handling that their modern, SF6 counterparts do not require. Spare parts for these units are difficult to impossible to procure, and this model type is no longer vendor supported.

Required IS date: 6/1/2023

Projected IS date: 6/1/2022

Previously Presented: 12/17/2021





EKPC Transmission Zone: Baseline Summer Shade-West Columbia 69 kV Rebuild

Process Stage: Recommended Solution

Criteria: EKPC 715 Criteria

Assumption Reference: EKPC Assumptions Presentation Slide 3-10

Model Used for Analysis: EKPC's internal models representing 2024/25 winter peak conditions that were used for EKPC's annual system screening analysis for 2021 planning cycle. Includes Cooper Units 1 and 2 off with replacement generation imported from south of EKPC system.

Proposal Window Exclusion: Below 200 kV Exclusion

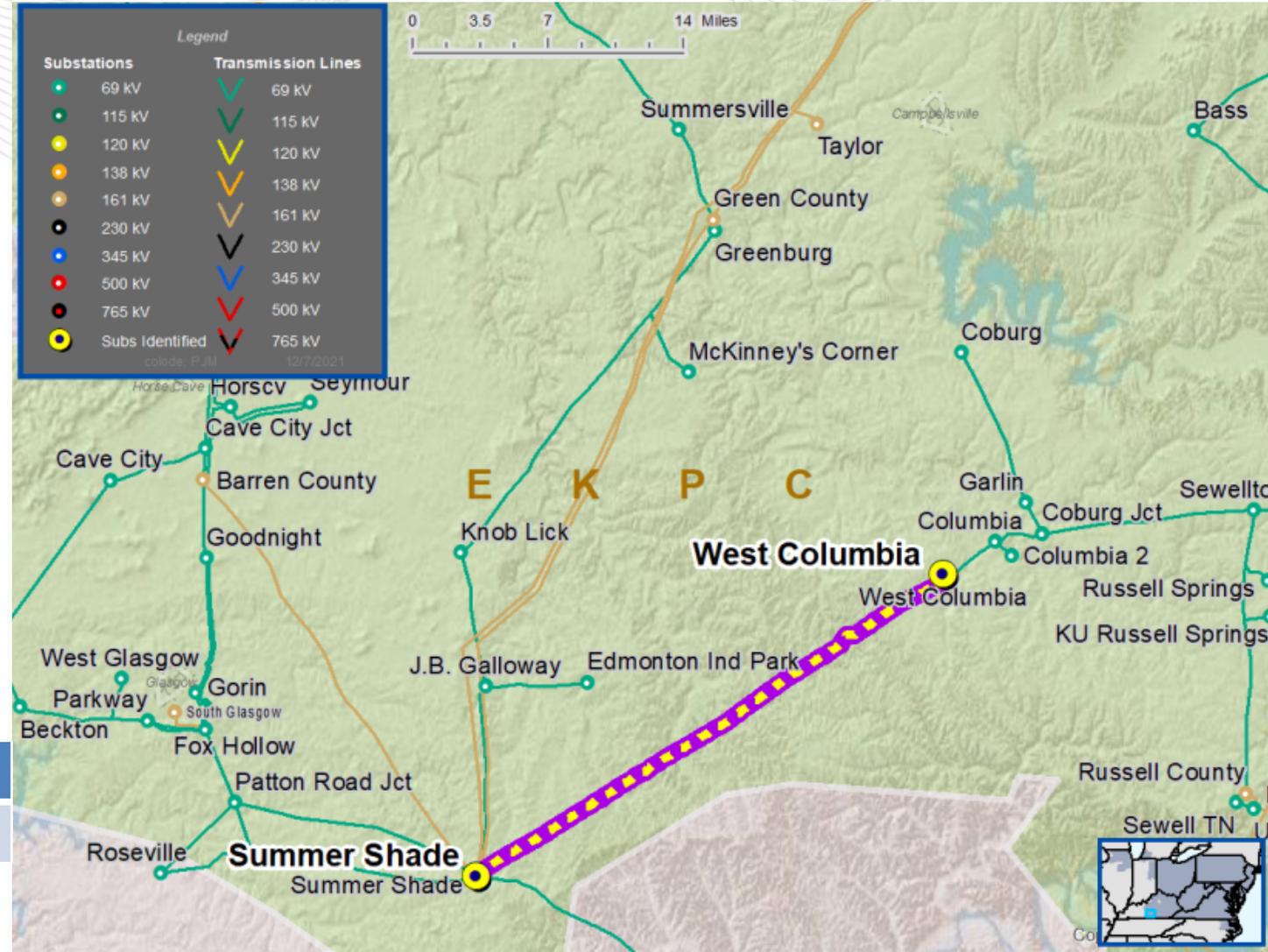
Problem Statement:

FG: EKPC-T1

The Summer Shade-West Columbia 69 kV line section is overloaded for a N-1 outage.

Existing Facility Rating:

| Branch | SN/SE/WN/WE (MVA) |
|--------------------------------|-------------------|
| 2SUMM SHADE-2W COLUMBI T 69 kV | 57/63/82/86 |





EKPC Transmission Zone: Baseline Summer Shade-West Columbia 69 kV Rebuild

Recommended Solution:

Rebuild the Summer Shade-West Columbia 69 kV 0.19 miles of 266 conductor double circuit to 556 conductor. **(b3709)**

Total Estimated Cost: \$0.191 M

Preliminary Facility Rating:

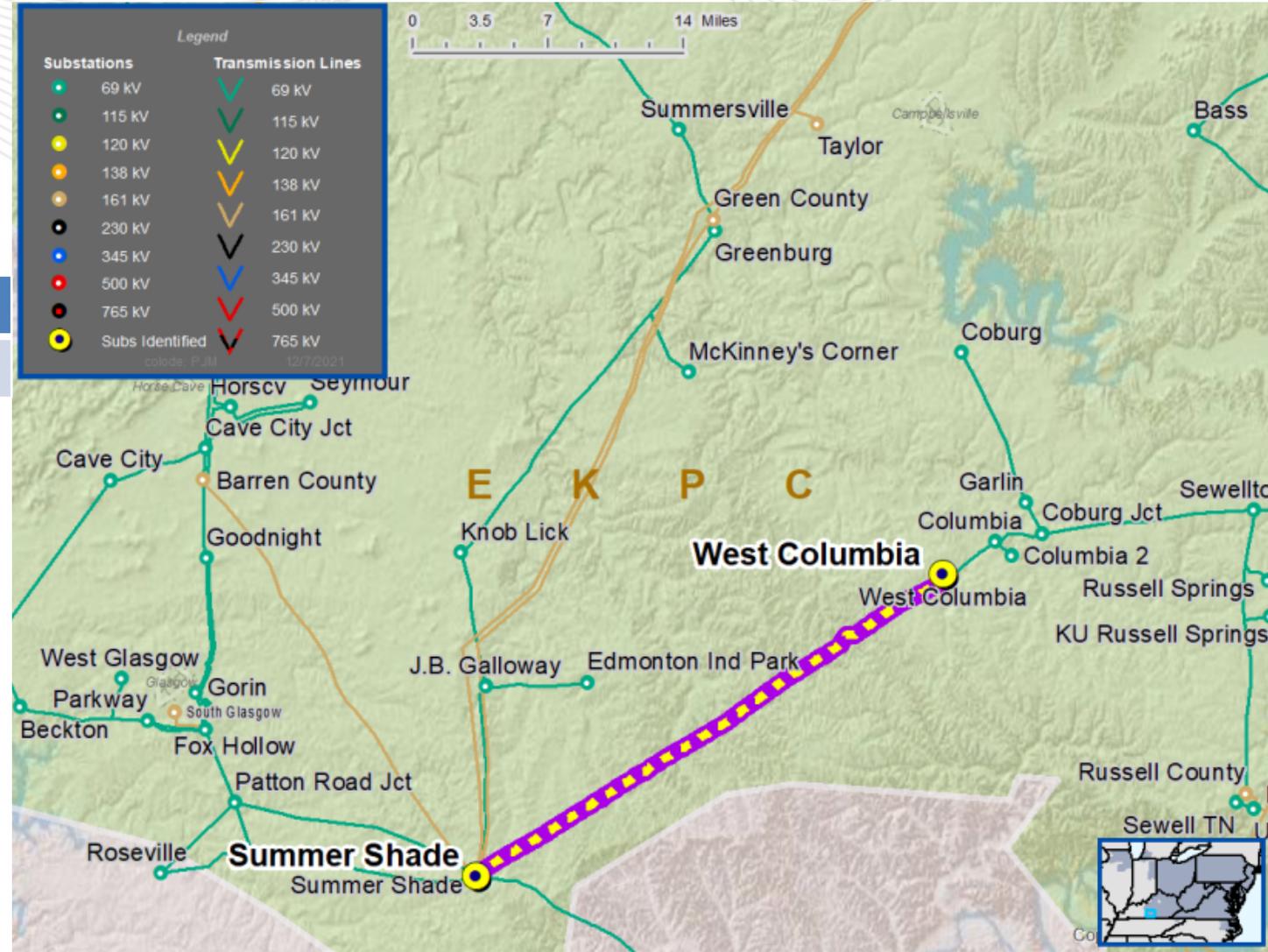
| Branch | SN/SE/WN/WE (MVA) |
|--------------------------------|-------------------|
| 2SUMM SHADE-2W COLUMBI T 69 kV | 73/76/86/89 |

Ancillary Benefits:

Minimizes maintenance costs and increases operational flexibility over a MOT increase.

Required IS date: 12/1/2025

Projected IS date: 12/1/2025



Process Stage: Recommended Solution

Criteria: Generation Deliverability

Assumption Reference: 2026 RTEP assumption

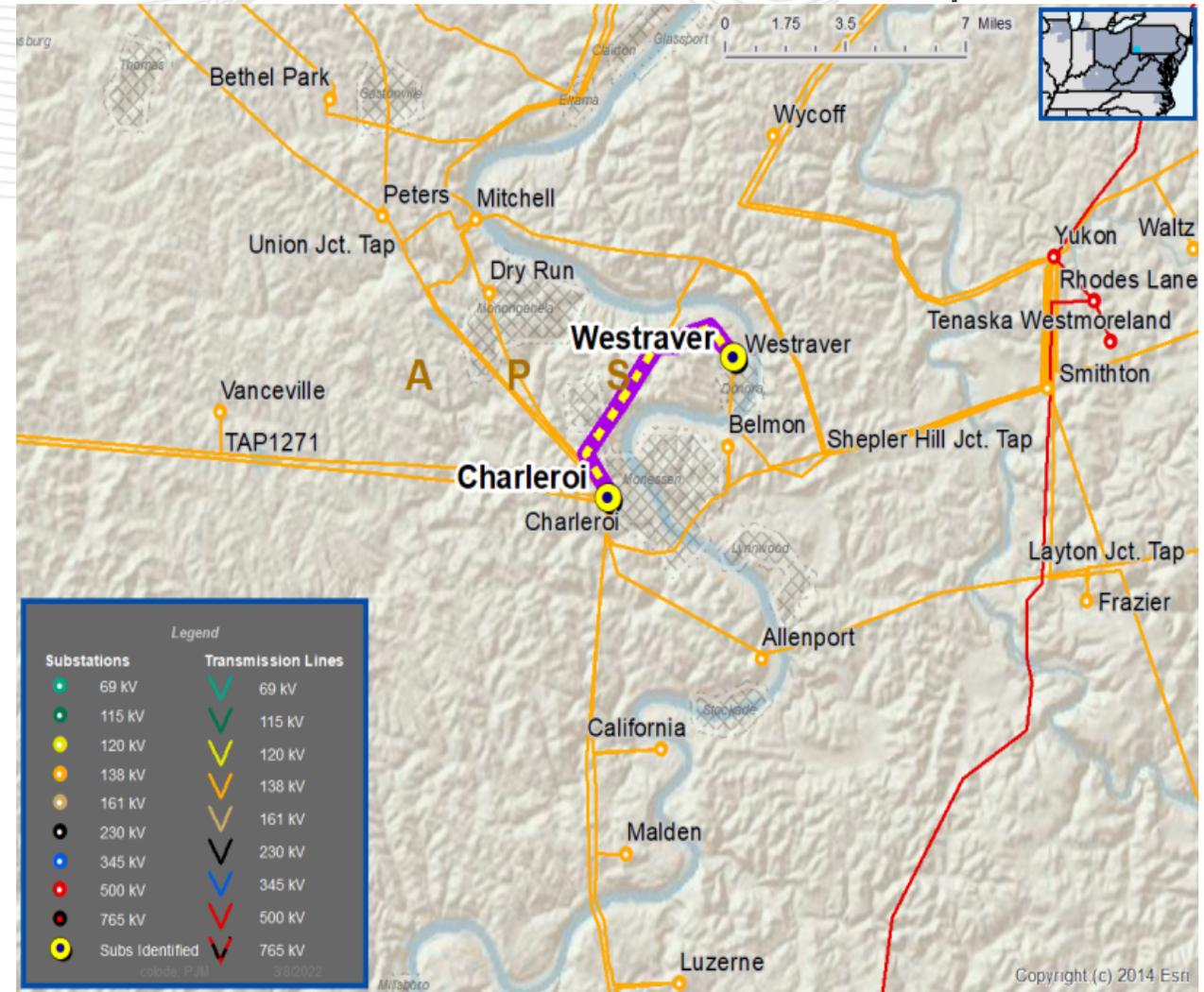
Model Used for Analysis: 2026 Summer RTEP case

Proposal Window Exclusion: Below 200 kV Exclusion

Problem Statement: GD-S24 & GD-S29

In 2026 RTEP Summer case, Yukon to AA2-161 Tap 138 kV lines are overloaded due to single contingencies.

| Branch | SN/SE/WN/WE (MVA) |
|-------------------------------|-------------------|
| Yukon to Westraver 138 kV | 308/376/349/445 |
| Westraver to Charleroi 138 kV | 274/342/345/382 |



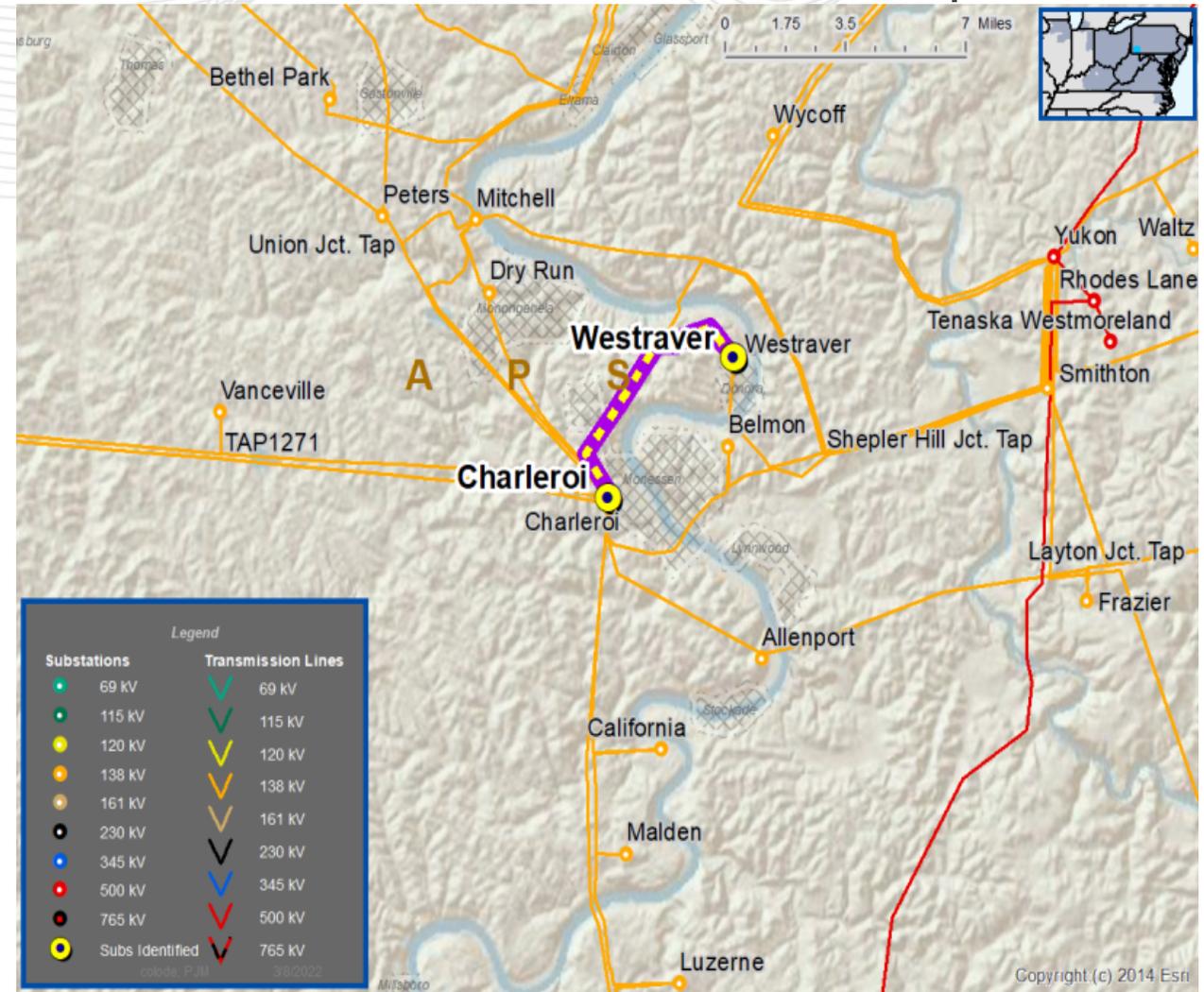
Recommended Solution:

Expand the future AA2-161 138 kV six (6) breaker ring bus into an eleven (11) breaker substation with a breaker-and-a-half layout by constructing five (5) additional breakers and expanding the bus. Loop the Yukon - Charleroi #2 138 kV line into the future AA2-161 substation. Relocate terminals as necessary at AA2-161. Upgrade terminal equipment (wavetrap, substation conductor) and relays at Yukon, Huntingdon, Springdale, Charleroi, and the AA2-161 substation. (b3710)

Transmission Estimated Cost: \$14.37M

Preliminary Facility Rating:

| Branch | SN/SE/WN/WE (MVA) |
|-----------------------------|-------------------|
| Yukon to Westraver 138 kV | 308/376/349/445 |
| Westraver to AA2-161 138 kV | 308/376/349/445 |
| AA2-161 to Charleroi 138 kV | 297/365/345/441 |



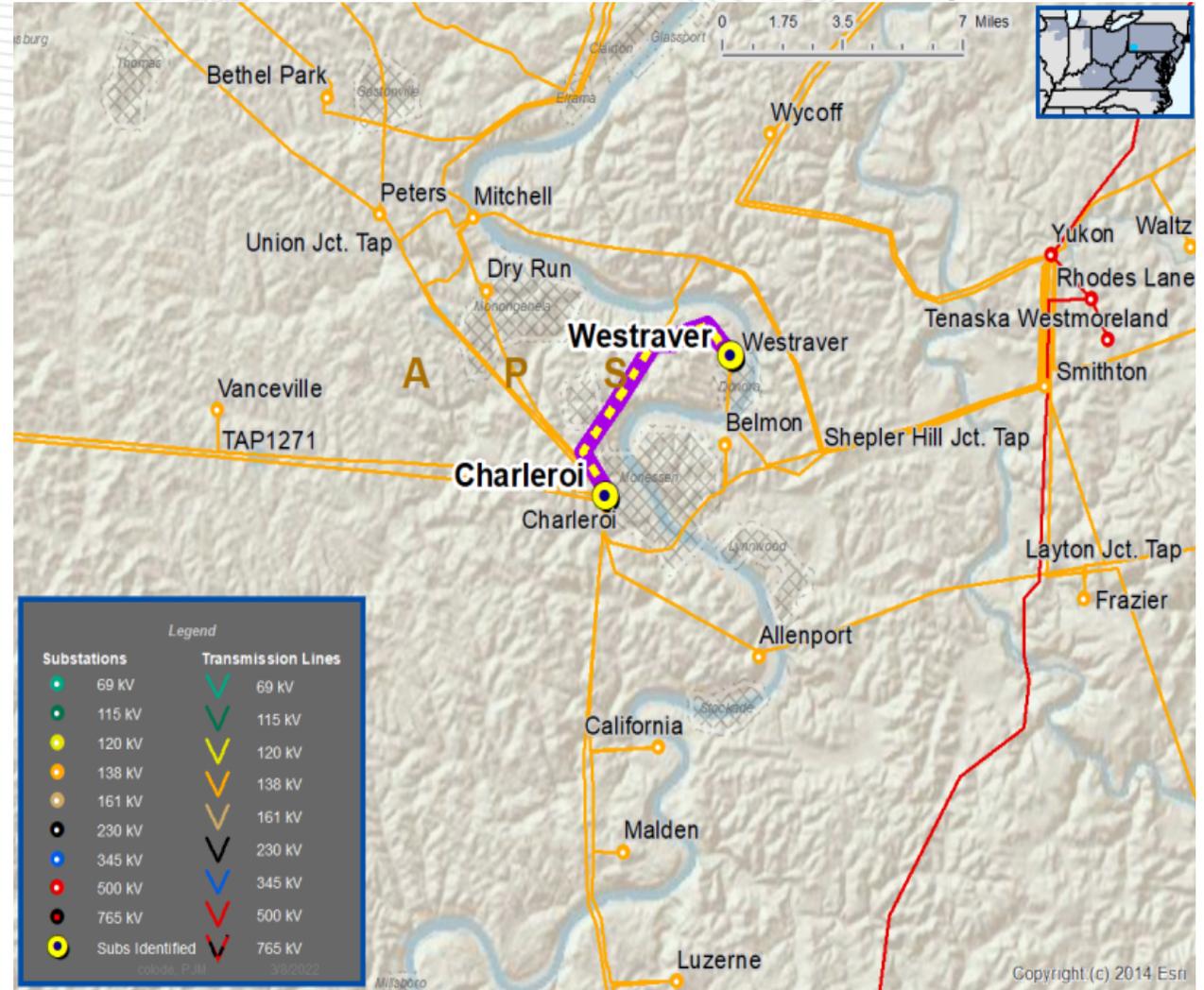
APS Transmission Zone: Baseline Yukon to AA2-161 Tap 138 kV

Alternatives: Reconductor both Yukon - AA2-161 138 kV lines. This alternative would cost \$15.1 million.

Ancillary Benefits: Looping the Yukon - Charleroi #2 138 kV line into the future AA2-161 substation would alleviate the thermal overload violations. This project will also provide an additional network path from Yukon to Springdale, which is currently unavailable for multiple P4, P6, & P7 contingencies.

Required IS date: 6/1/2026

Projected IS date: 6/1/2026



Alternatives:

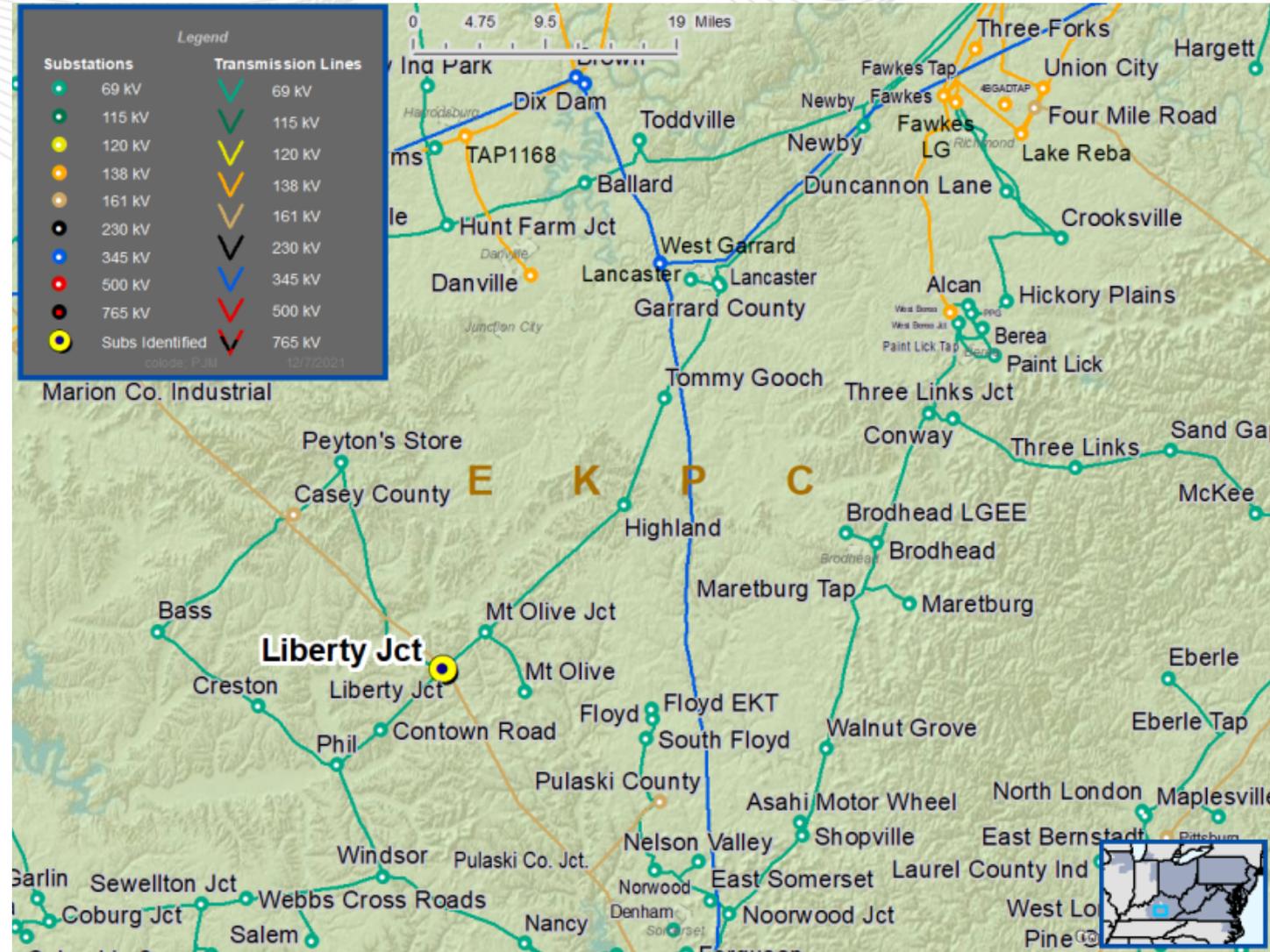
1. Build KU Stanford-Tommy Gooch normally-open connection using 556 ACSR (3.4 miles).
2. Build second line from Garrard Co-Tommy Gooch using 556 ACSR (7.3 miles) with Tommy Gooch served radially.
3. Build Brodhead-Broughtontown normally-open using 556 ACSR (8 miles).
4. Build Three Links Jct-Tommy Gooch normally-closed line using 556 ACSR (16.67 miles).

Ancillary Benefits:

Provides voltage support for the Oakhill area without need for future projects as compared to other alternatives.

Required IS date: 12/1/2022

Projected IS date: 12/1/2022



Process Stage: Second Review

Criteria: Winter Generator Deliverability

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Winter case

Proposal Window Exclusion: Substation Equipment and Below 200 kV exclusion

Problem Statement: The Preston - Todd 69 kV circuit is overloaded for line fault stuck breaker contingency.

Violations were posted as part of the 2021 Window 1: (FG# GD-W30)

Existing Facility Rating: 82SN/93SE, 96N/105WE MVA

Proposed Facility Rating: 95SN/130SE, 125WN/162WE MVA

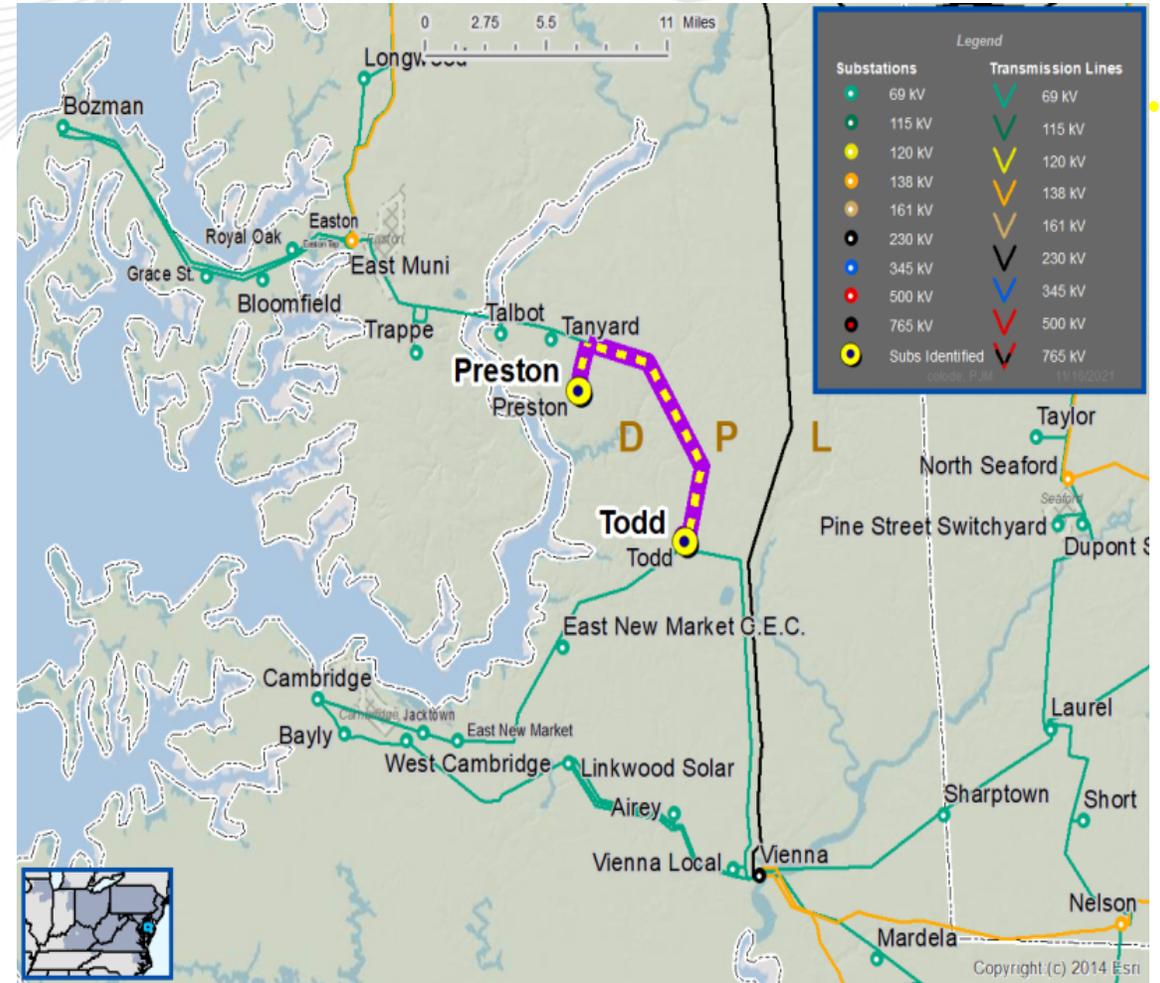
Recommended Solution:

Replace the 4/0 SDCU stranded bus with 954 ACSR and a 600 A disconnect switch with a 1200 A disconnect switch on the 6716 line terminal inside Todd substation (on the Preston – Todd 69 kV circuit). (B3688)

Estimated Cost: \$0.75 M

Alternatives N/A

Required In-Service: 6/1/2026



Process Stage: Second Review

Criteria: PSEG FERC Form 715

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: Immediate Need/ Below 200 kV

Problem Statement:

A large customer located in the Princeton Area is increasing peak load to 44MW. Per PSE&G's FERC Form 715 criteria, if load exceeds 20 MW and an N-1-1 event would result in a complete loss of electric supply for more than 24 hours, a third source is required.

Recommended Solution:

Construct a third 69kV supply line from Penns Neck substation to the West Windsor substation. (B3703)

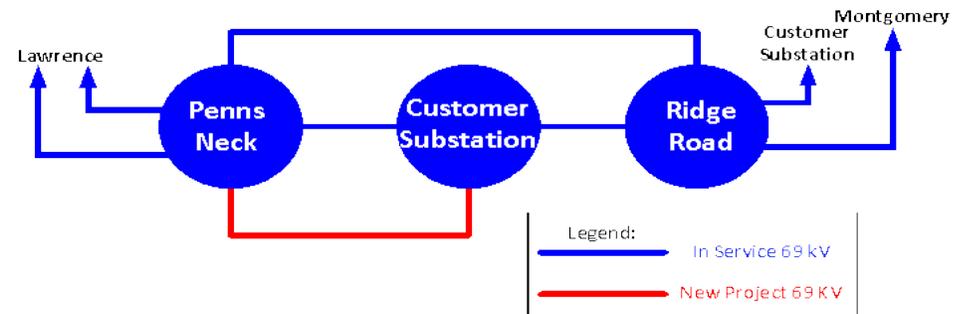
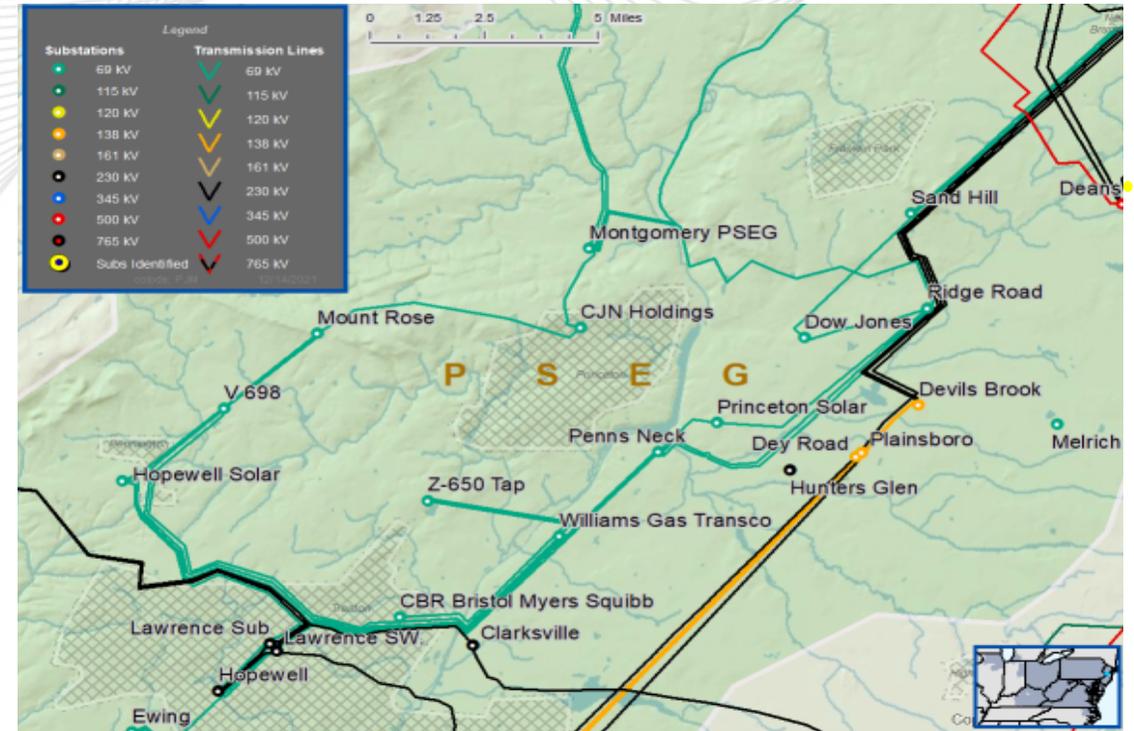
New Rating: 95SN/131SE, 126WN/154WE MVA

Estimated Cost: \$1.05 M

Alternatives:

- A third 69kV supply from Ridge Road would be considerably longer with routing challenges.
- There is no transmission in the area for a potential alternate supply.

Required In-Service: 1/1/2023



B3674, B3675 and B3676 Upgrades Change

The B3674, B3675 and B3676 upgrades were identified as part of the 2021 RTEP Window 1 to resolve a First Energy FERC FORM 715 criteria.

- B3674 - Replace Five Atlantic 34.5 kV breakers (J36, BK1A, BK1B, BK3A and BK3B) with 63kA rated breakers and associated equipment
- B3675 - Replace Six Werner 34.5 kV breakers (E31A_Prelim, E31B_Prelim, V48 future, W101, M39 and U99) with 40 kA rated breakers and associated equipment
- B3676 - Replace One Freneau 34.5 kV breaker (BK6) with 63 kA rated breakers and associated equipment

Based on the latest First Energy analysis, it was determined that the B3674 and B3675 upgrades are driven by the B3130 (the MCRP replacement projects). As a result the baseline upgrade # for the B3674 and B3675 will be replaced by the following.

- B3130.11 - Replace four Atlantic 34.5 kV breakers (BK1A, BK1B, BK3A and BK3B) with 63kA rated breakers and associated equipment
- B3130.12 - Replace Six Werner 34.5 kV breakers (E31A_Prelim, E31B_Prelim, V48 future, W101, M39 and U99) with 40 kA rated breakers and associated equipment.

The B3676 will be canceled, the Freneau 34.5 kV breaker BK6 is no longer over-dutied.

The Atlantic J36 breaker replacement will be canceled, the breaker is no longer over-dutied.