Sub Regional RTEP Committee
PJM Mid-Atlantic

September 24, 2019

- The following definitions explain the basis for excluding flowgates and/or projects from the competitive planning process and designating projects to the incumbent Transmission Owner.
- Flowgates/projects excluded from competition will include the underlined language on the corresponding slide.

  - Immediate Need Exclusion: Due to the immediate need of the violation (3 years or less), the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity. - Operating Agreement, Schedule 6 § 1.5.8(m)
  - Below 200kV Exclusion: Due to the lower voltage level of the identified violation(s), the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(n)
  - Substation Equipment Exclusion: Due to identification of the limiting element(s) as substation equipment, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(p)

Second Review

Baseline Reliability Projects

ODEC Transmission Zone: Baseline

Process Stage: Second Review
Previously Presented: 5/31/2019

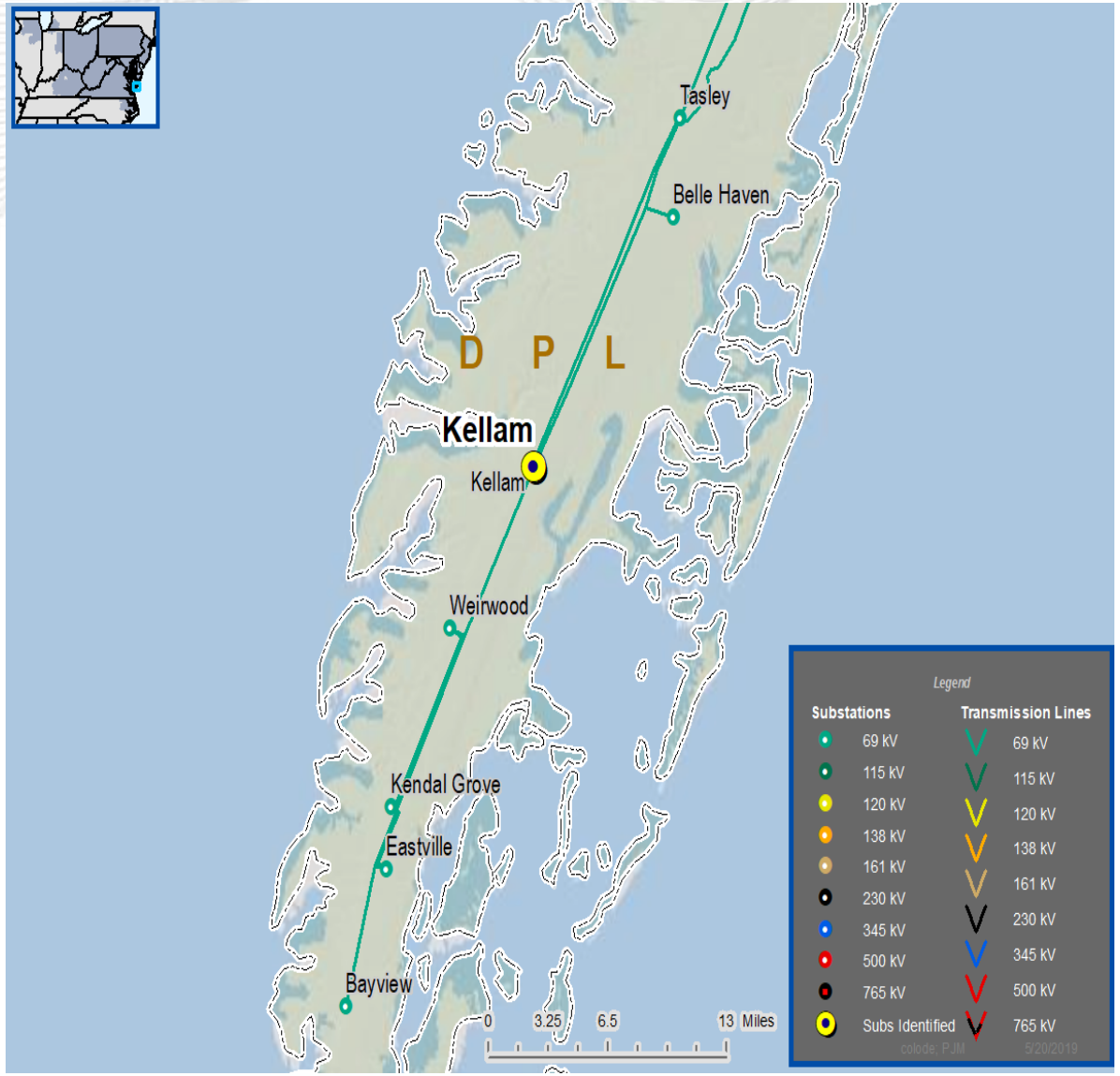
Criteria: ODEC Planning Criteria Violation

Assumption Reference: ODEC Planning Criteria 6/14/2018

- A radial 69 kV transmission line shall feed no more than 10,000 consumers, 50 megawatts of load, or have more than 700 MW-Miles of exposure (MW-Mile = Peak MW X Radial Line Length) Once a radial loading limit exceeds any of these thresholds, an additional transmission source is required. This may be a separate source, or it may be a loop back to the source of the original radial line

Proposal Window Exclusion: Below 200 kV

Problem Statement:
The load south of Kellam Substation violates the MW-Mile criteria. 21 Miles x 37.2 MW = 781.2 MW-Miles



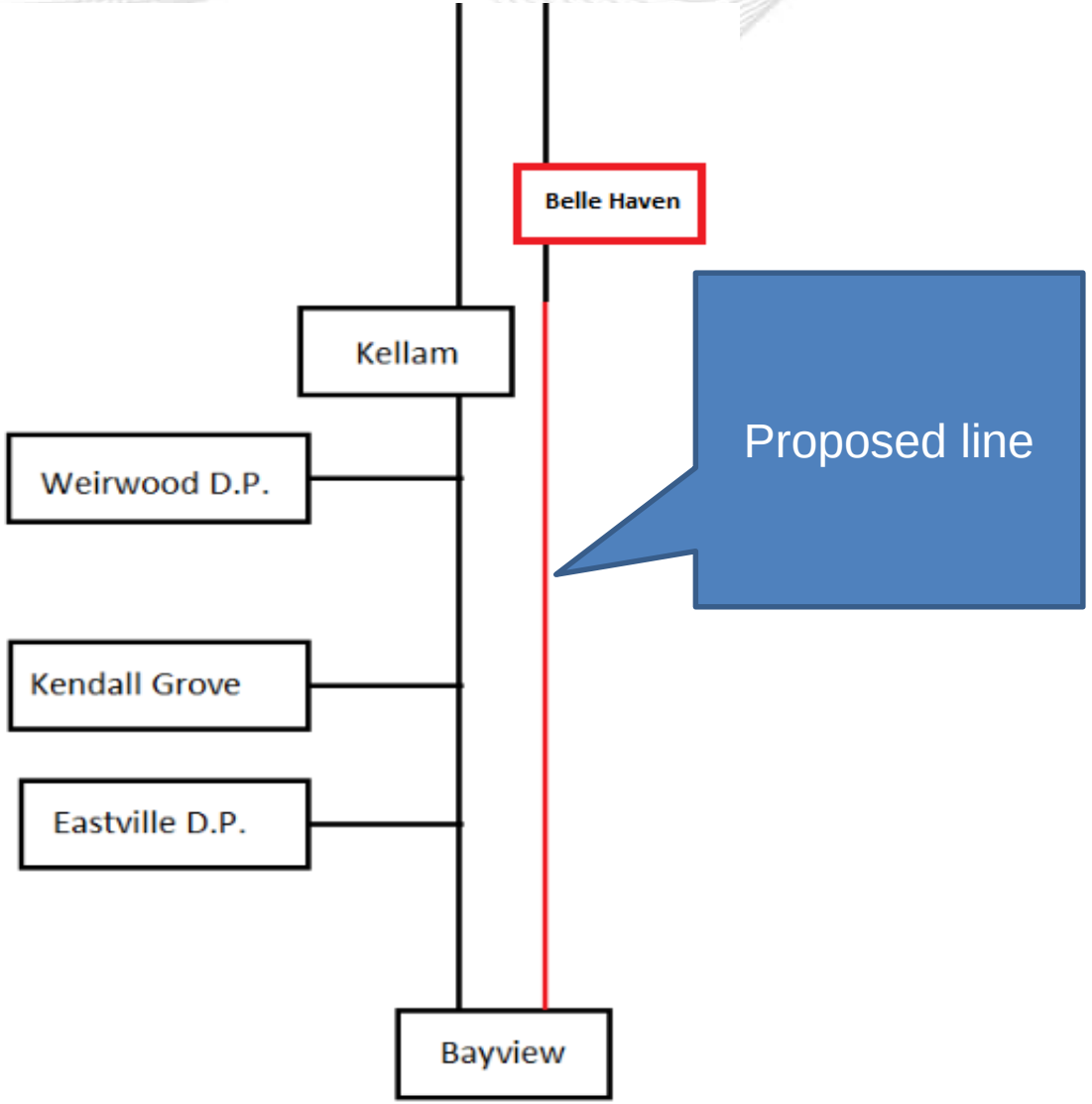
Proposed Solution:

- Create a line terminal at Belle Haven Delivery Point (three-breaker ring bus) and install a new single circuit 69kV overhead from Kellam sub to new Bayview Substation (21 miles)
- Converting Belle Haven to a terminal substation eliminates sequential tripping for faults near Kellam, and increases system reliability and resilience by avoiding loss of service to points south for a destructive physical event (e.g. fire or tornado) at Kellam.

Estimated Cost: $22 M

Alternative: Rearrange the bus at Kellam and use that substation as the northern terminal for a similar cost.

Required IS date: Immediate
Expected IS date: 6/1/2022
Status : Conceptual



First Review

Baseline Reliability Projects

Summer and Light Load: (N1-ST17, N1-ST30, N1-ST42), (N1-SVM1 to N1-SVM19), (N1-SVD3, N1-SVD4, N1-SVD29 to N1-SVD48), (N1-LLVD1 to N1-LLVD15)

Problem Statement:

Thermal and Low voltage violation at several 138 kV and 69 kV stations in the Atlantic Electric area for loss of Corson 138 kV station due to fault on a line and failure of relay. The violation is identified on Light Load and Summer studies.

Proposal Window Exclusion: Immediate Need

Proposed Solution:

Install back-up relaying on the 138 kV bus at Corson substation

Alternatives Considered:

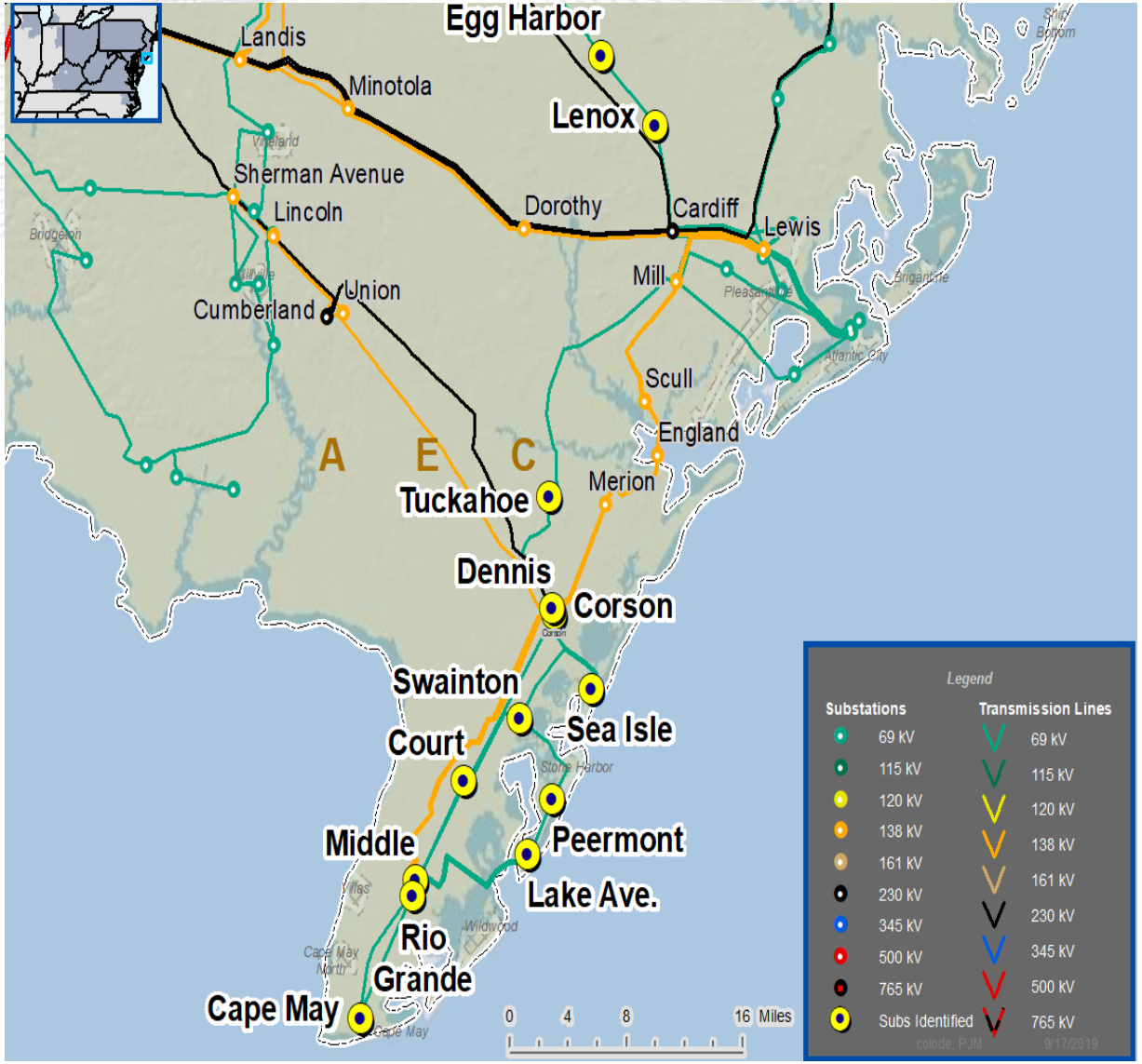
None

Estimated Project Cost : $0.3M

Required IS Date: 6/1/2019

Projected IS date: 6/1/2022

Status: Conceptual



Summer: N2-ST59 and N2-ST60

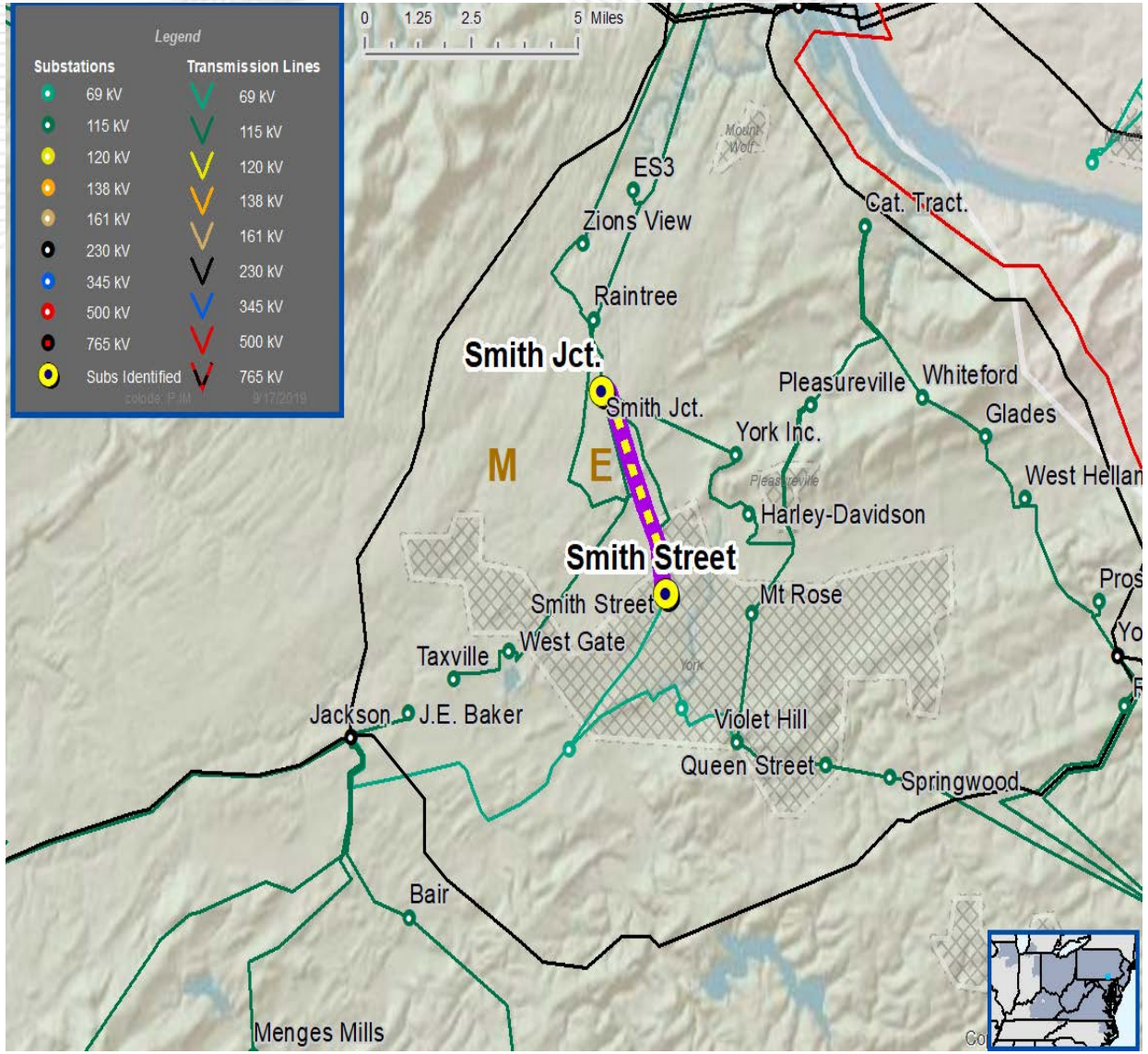
Problem Statement:
The Smith Tap – Smith St. 115 kV circuit is overloaded for N-1-1 contingency loss of the Middletown Junction 230/115 kV transformer #2 and #5 in the Summer N-1-1 thermal study. The circuit is rated at 118N/152E summer and 168N/189E Winter.

Proposal Window Exclusion: Substation Equipment

Proposed Solution:
Upgrade limiting bus conductor at the Smith St 115 kV Substation

Alternatives Considered:
None

Estimated Project Cost : $0.153 M
Required IS Date: 6/1/2024
Projected IS date: 6/1/2024
Status: Conceptual



Summer: [N1-ST50 and N1-ST51], [GD-S315 and GD-S316]

Problem Statement:

The Master – Westmoreland East – Pencoyd 69 kV is overloaded for line fault stuck breaker contingency loss of Roxborough 230/69 kV transformer and Roxborough – Westmoreland West 69 kV circuit in the summer baseline and generation deliverability studies. The line is rated at 103N/103E Summer and 102N/103E Winter.

Proposal Window Exclusion: Below 200 kV

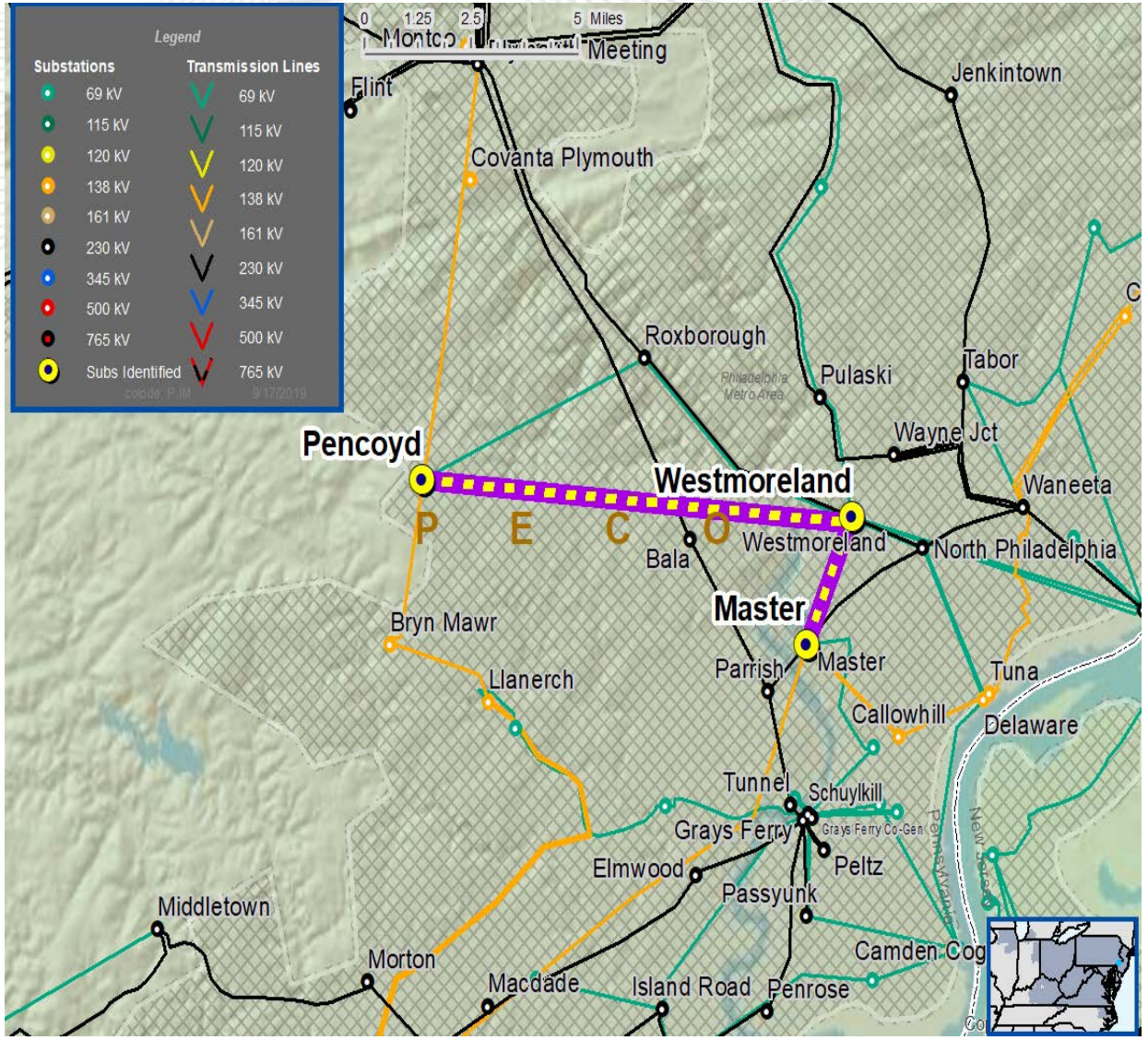
Proposed Solution:

Move 2 MVA load from the Roxborough to Bala substation. Adjust the tap setting on the Master 138/69 kV transformer #2.

Alternatives Considered:

None

Estimated Project Cost : $0.015 M
Required IS Date: 6/1/2024
Projected IS date: 6/1/2024
Status: Conceptual



Winter: GD-W18

Problem Statement:

The Towanda – North Meshoppen 115 kV circuit is overloaded for single contingency the loss of the East Towanda – Canyon – North Meshoppen 230 kV circuit in the Winter generation deliverability study. The circuit is rated at 167N/202E Summer and 188N/239W Winter.

Proposal Window Exclusion: Below 200 kV

Proposed Solution:

Rebuild ~20 miles of the East Towanda - North Meshoppen 115 kV line and adjust relay settings at East Towanda and North Meshppen 115 kV

Alternatives Considered:

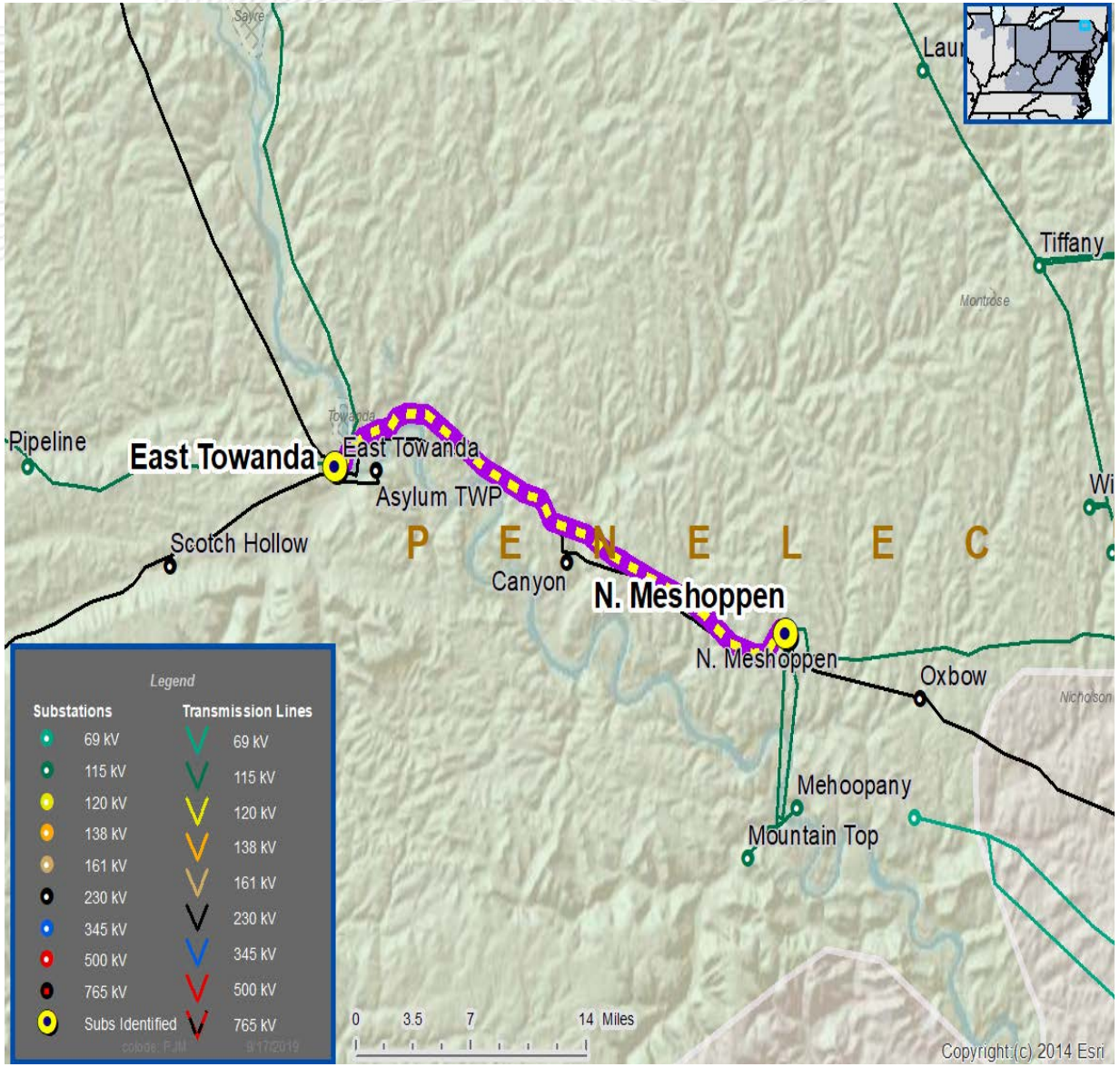
None

Estimated Project Cost : $58.6 M

Required IS Date: 6/1/2024

Projected IS date: 6/1/2024

Status: Conceptual



Process Stage: First Review

Criteria: First Energy Planning Criteria Violation

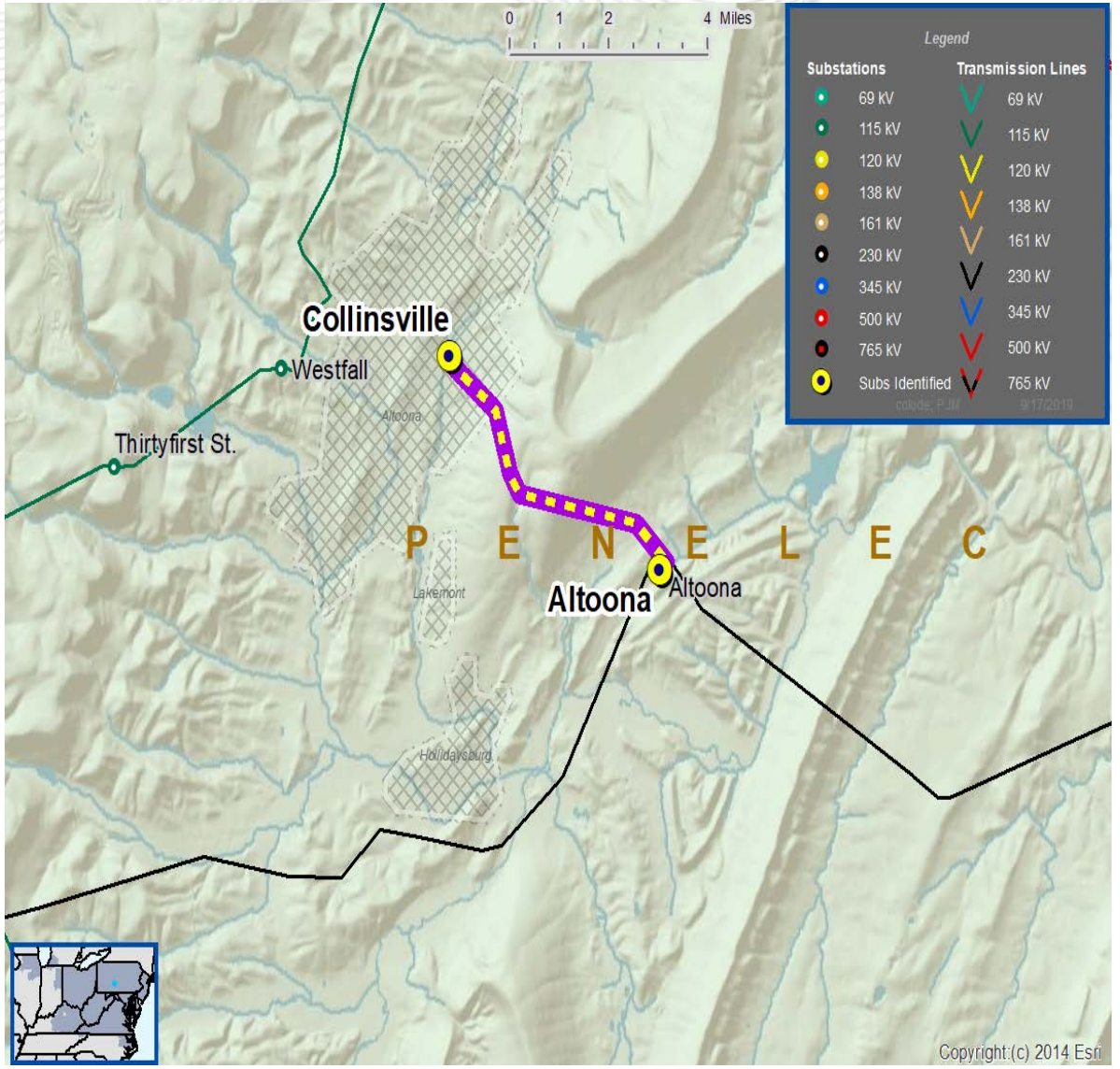
Assumption Reference: FERC 715

Model Used for Analysis: 2019 Series 2024 Summer RTEP

Proposal Window Exclusion: Below 200 kV

Problem Statement:

The Altoona – Collinsville 46 kV circuit #AG is overloaded pre-contingency, as well as post-contingency for the loss of several single contingencies, in both the Summer and Winter studies. The line is rated at 38N/49E MVA Summers and 54N/61E MVA Winter. The highest loading is 137% of the 49 MVA emergency Summer rating for the loss of the Altoona – Raystown 230 kV circuit..



Process Stage: First Review

Criteria: First Energy Planning Criteria Violation

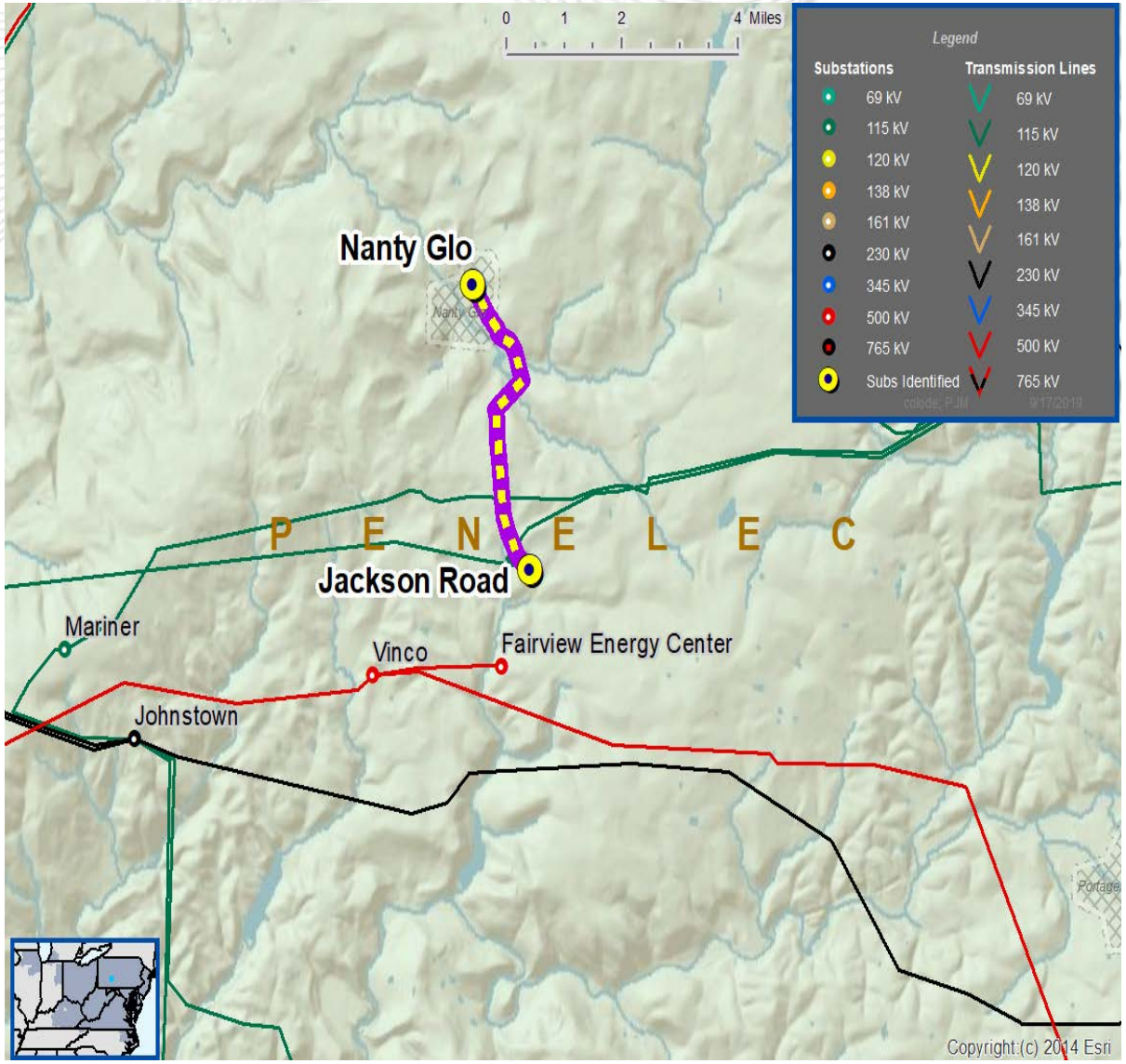
Assumption Reference: FERC 715

Model Used for Analysis: 2019 Series 2024 Summer RTEP

Proposal Window Exclusion: Below 200 kV

Problem Statement:

The Jackson Rd. – Nanty GL 46 kV circuit is overloaded for the loss of the parallel Jackson Rd – Nanty 46 kV line, in both Summer and Winter studies. The line is rated at 25N/25E Summer and Winter. The circuit is loaded to 108% of 25 MVA Summer emergency rating and 102.8% of 25 MVA Winter emergency rating.



Penelc Transmission Zone: Baseline

Process Stage: First Review

Criteria: First Energy Planning Criteria Violation

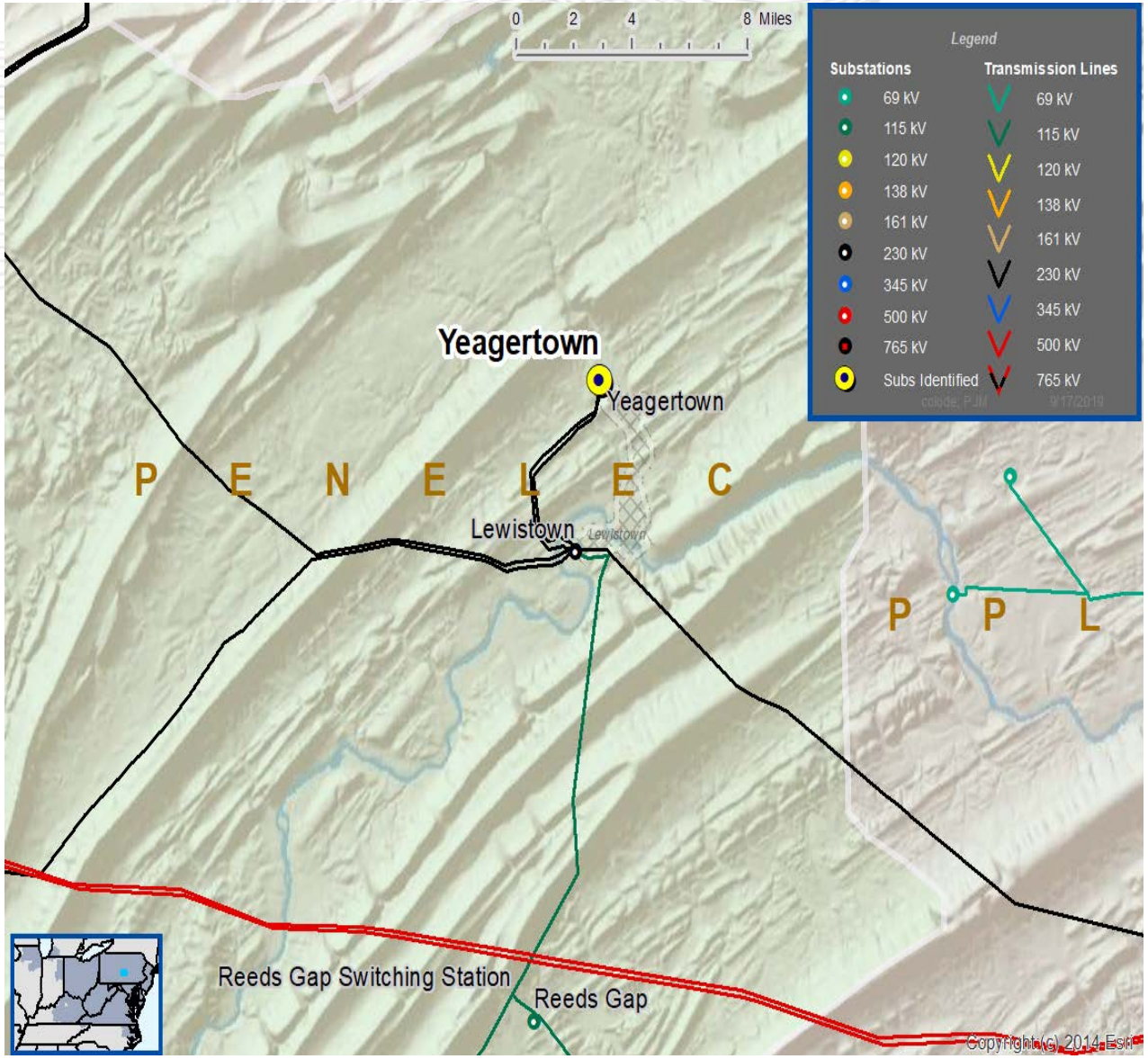
Assumption Reference: FERC 715

Model Used for Analysis: 2019 Series 2024 Summer RTEP

Proposal Window Exclusion: Below 200 kV

Problem Statement:

The loss of the Yeagertown 230/46 kV transformer #4 causes low voltage violations at Yeagertown, Logan, Mcveytwn, Maitland, and Atknson 46 kV stations, in the Winter study.



Next Steps

Upcoming Mid-Atlantic SRRTEP Meetings

Mid-Atlantic	Start	End
10/21/2019	12:00	4:00
11/18/2019	12:00	4:00
12/16/2019	12:00	4:00

Questions?

Revision History

9/17/2019 – V1 – Original version posted to pjm.com

9/19/2019 – V2 – Slide #7, changed the required in-service date.

- Slide # 9 changed FG # from N1-ST5 to N1-ST51. Modified the proposed solution. Fixed a couple of spelling errors.