



# Sub Regional RTEP Committee PJM Mid-Atlantic Reliability Update

October 13, 2022

# First Review

## Baseline Reliability Projects

**Process Stage:** First Review

**Criteria:** Summer Generation Deliverability

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer case

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** The New Church – Piney 138 kV circuit overloaded for line fault stuck breaker contingency

Violations were posted as part of the 2022 Window 1: FG# GD-S626

**Existing Facility Rating:** 172SN/226E, 198WN/255WE MVA

**Proposed Facility Rating:** 392SN/485SE, 452WN/546WE

**Proposed Solution:**

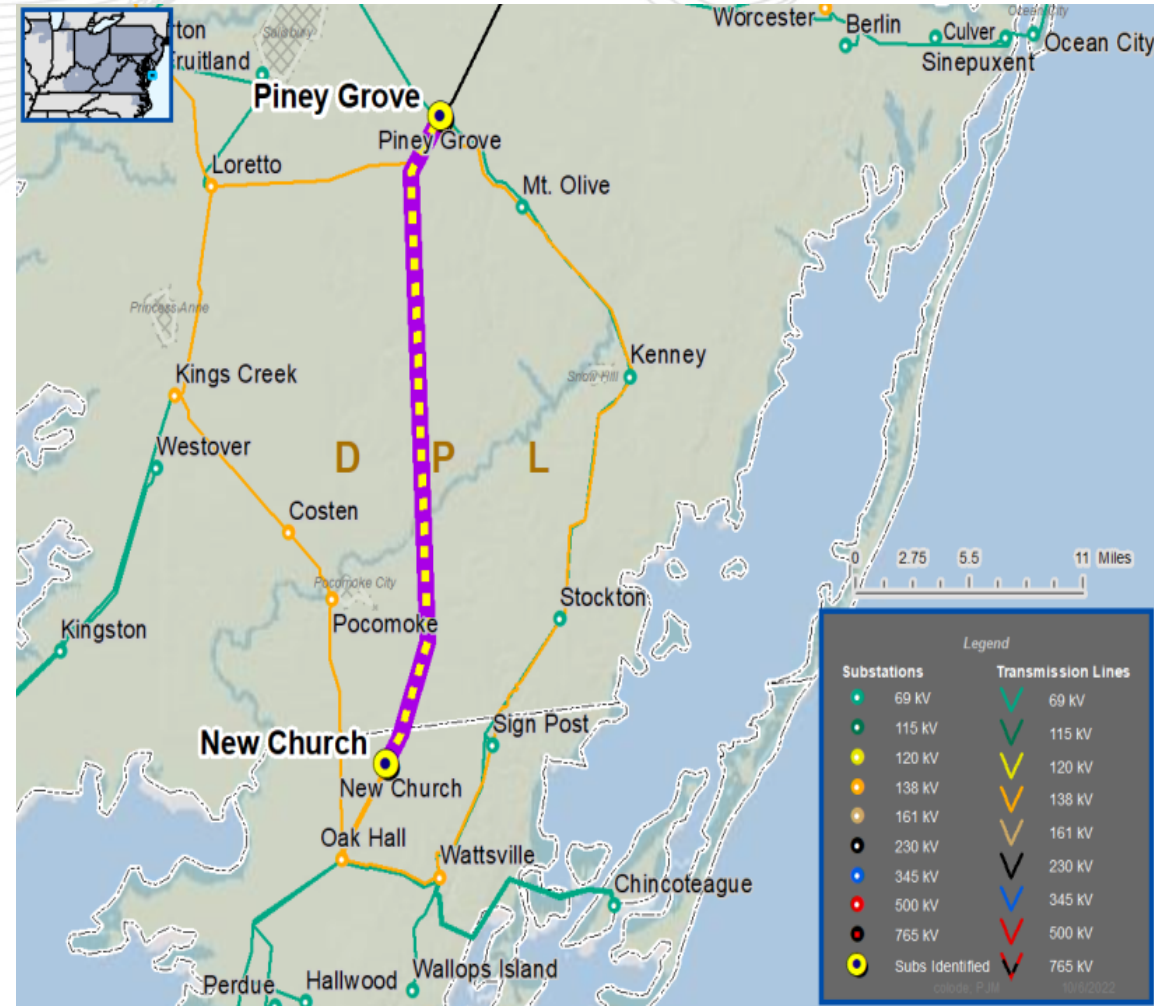
Rebuild the New Church - Piney Grove 138 kV line

**Estimated Cost:** \$63 M

### Alternatives

- Operate at higher conductor temperature (and perform clearance mitigations if necessary) – [Option not viable per DPL T&S due to age and condition of the line]
- Reconductor New Church - Piney Grove (21.78 mi) – [Option not viable per DPL T&S due to age and condition of the line]
- Add a 2nd breaker next to existing Loretto 130 CB to eliminate contingency issue [overcrowding at Loretto substation, this would require significant reconfiguration in the yard]

**Required In-Service:** 6/1/2027



**Process Stage:** First Review

**Criteria:** Summer and Light Load Generation Deliverability

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Light Load cases

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** The Seward – Florence 115 kV is overloaded for multiple contingencies.

Violations were posted as part of the 2022 Window 1: FG# -GD-LL25, FG# - GD-S535, FG# - GD-S537 and FG# - GD-S536

**Existing Facility Rating:** 137SN/172E, 180WN/206WE MVA

**Proposed Facility Rating:** 232SN/282SE, 263WN/334WE

**Proposed Solution:**

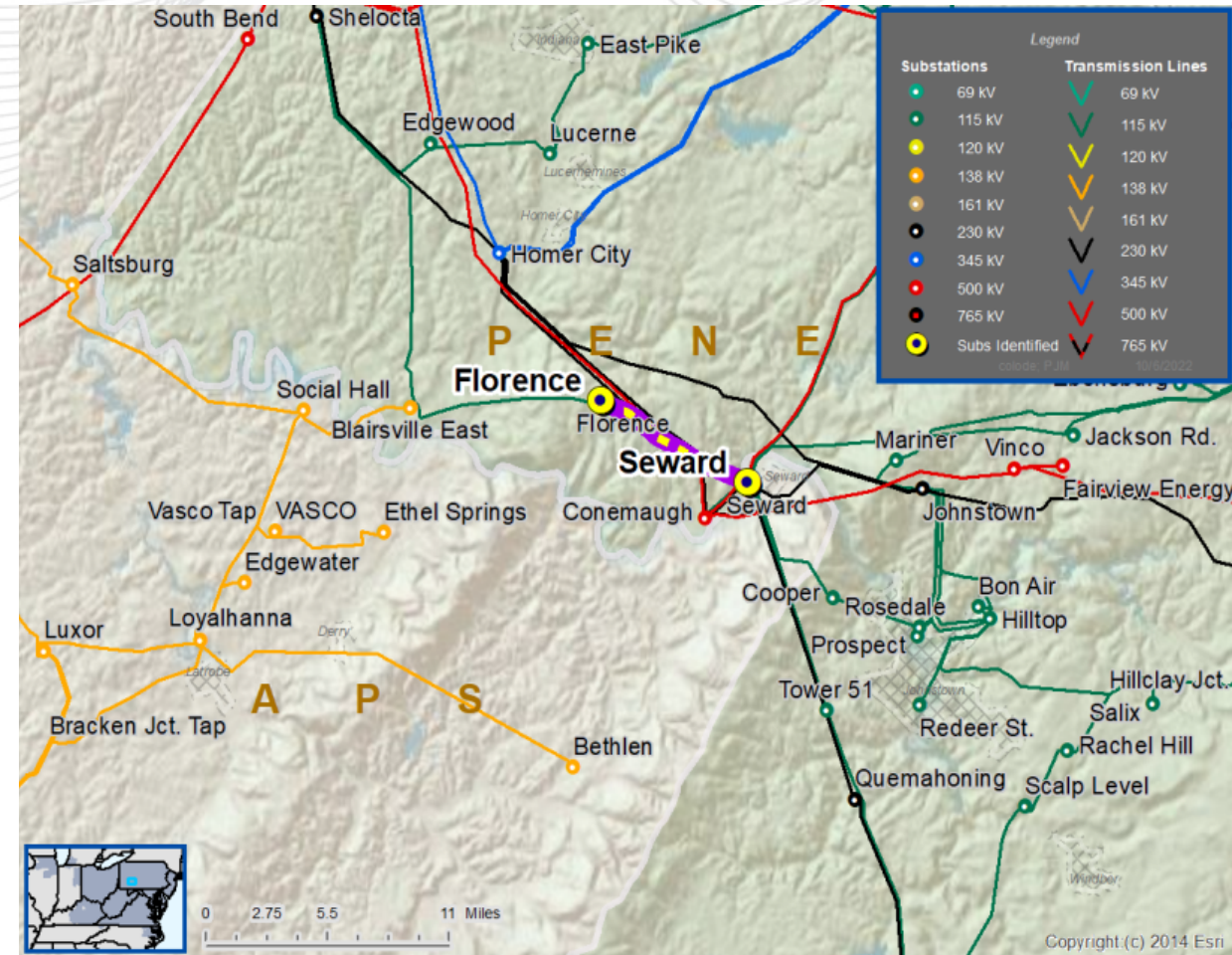
Upgrade Seward Terminal Equipment of the Seward-Blairsville 115 kV Line to increase the line rating such that the Transmission Line conductor is the limiting component.

**Estimated Cost:** \$0.43 M

**Alternatives**

N/A

**Required In-Service:** 6/1/2027





**Process Stage:** First Review

**Criteria:** Summer and Winter Generation Deliverability

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Winter cases

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** the Roxbury – AE1-071 115 kV line is overloaded for several contingencies.

Violations were posted as part of the 2022 Window 1:

FG# - 22 Summer flowgates,

FG# - 50 Winter flowgates,

**Existing Facility Rating:** 133SN/160E, 150WN/190WE MVA

**Proposed Facility Rating:** 273SN/333SE, 309WN/395WE MVA

**Proposed Solution:**

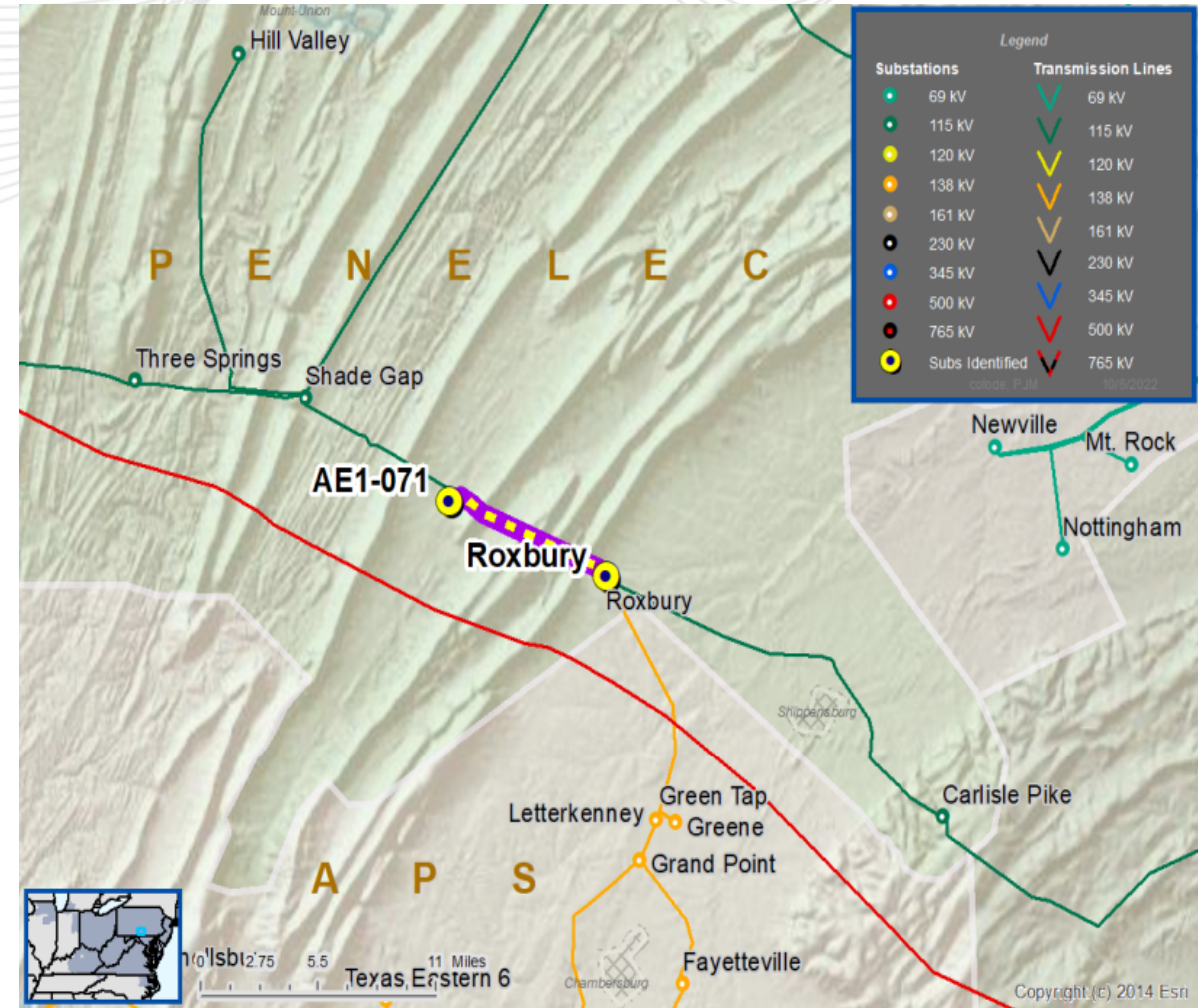
Rebuild 6.4 miles of the Roxbury - Shade Gap 115 kV line from Roxbury to the AE1-071 115 kV ring bus with single circuit 115 kV construction.

**Estimated Cost:** \$15.03 M

**Alternatives**

N/A

**Required In-Service:** 6/1/2027



**Process Stage:** First Review

**Criteria:** Summer and Winter Generation Deliverability

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Winter cases

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** the AE1-071 - Shade Gap 115 kV line is overloaded several contingencies.

Violations were posted as part of the 2022 Window 1:

FG# - 2 Summer flowgates,

FG# - 38 Winter flowgates,

**Existing Facility Rating:** 133SN/160E, 150WN/190WE MVA

**Proposed Facility Rating:** 273SN/333SE, 309WN/395WE MVA

**Proposed Solution:**

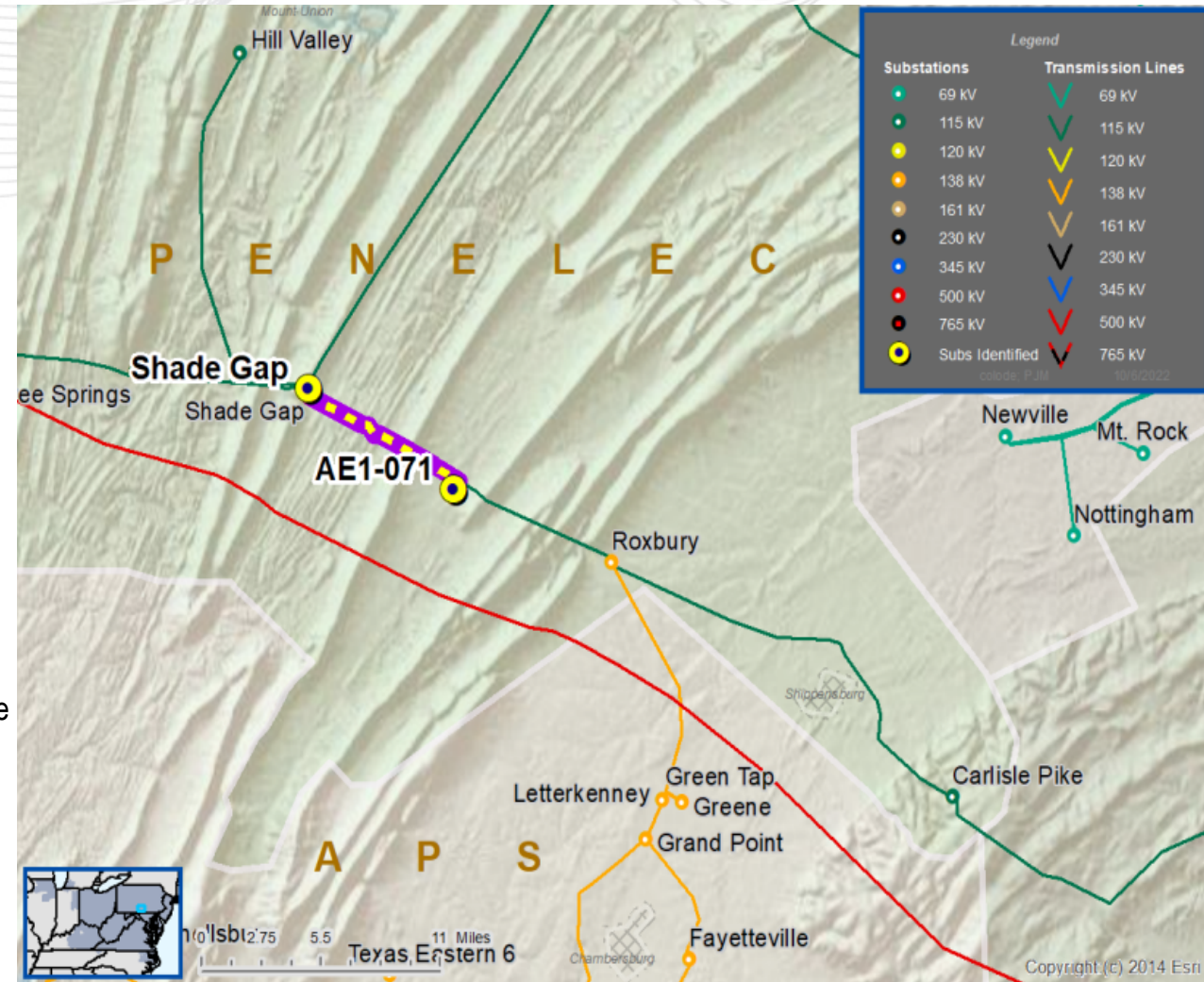
Rebuild 7.2 miles of the Shade Gap - AE1-071 115 kV line section of the Roxbury - Shade Gap 115 kV line.

**Estimated Cost:** \$17.43 M

**Alternatives**

N/A

**Required In-Service:** 6/1/2027





**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** The Tyrone North 115/46 kV transformer #2 is overloaded for breaker outage.

Violations were posted as part of the 2022 Window 1: FG# PN-T2

**Proposed Solution:**

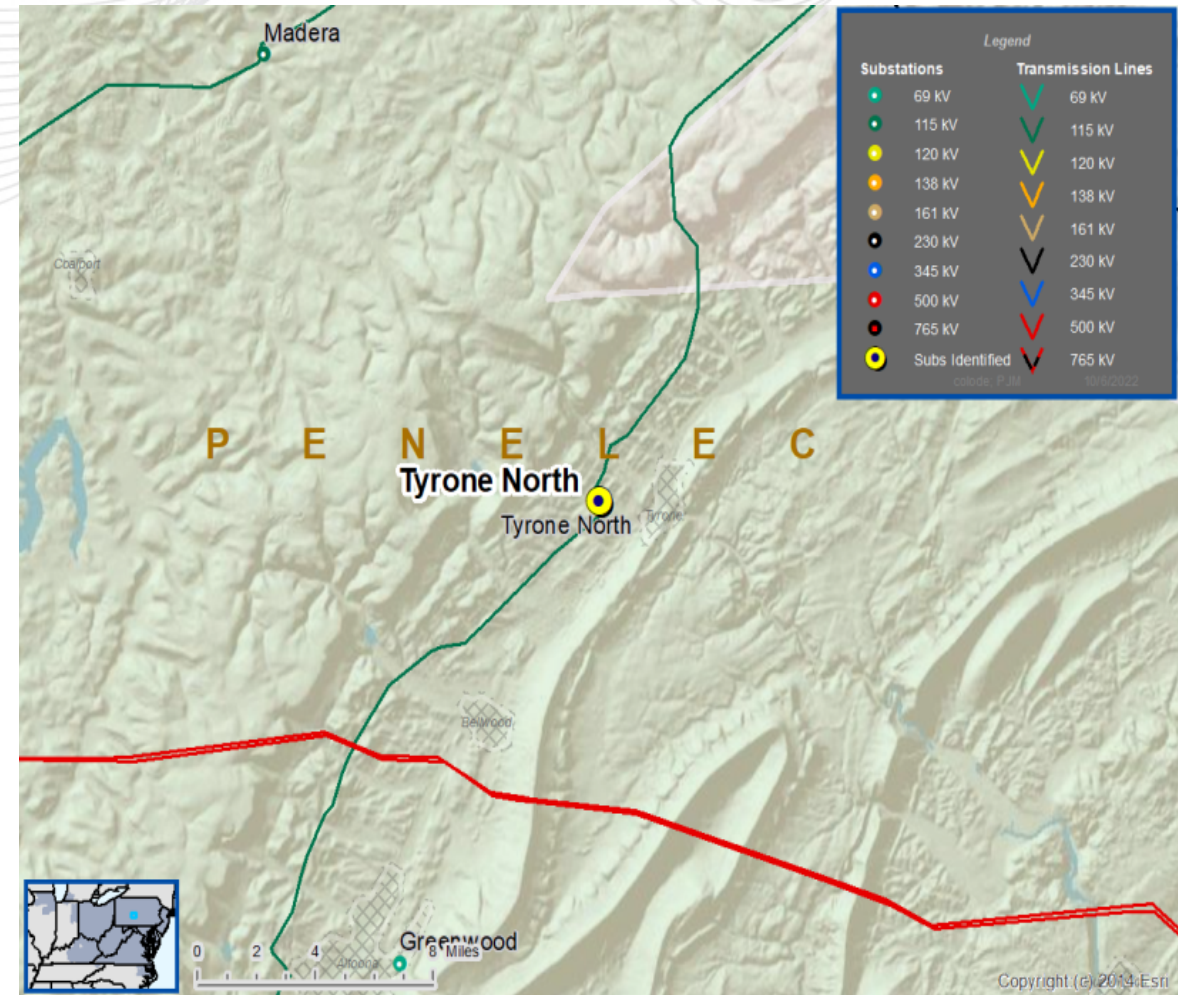
Replace the Tyrone North 115 /46 kV transformer with a new standard 75 MVA top rated bank and upgrade the entire terminal to minimum 100 MVA capability for both SN and SE rating.

**Estimated Cost:** \$2.82 M

**Alternatives**

N/A

**Required In-Service:** 6/1/2027



**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** Low voltage violation in the Belleville 46 kV vicinity for multiple single contingencies.

Violations were posted as part of the 2022 Window 1: FG# PN-VM1, FG# PN-VM2, FG# PN-VM3, FG# PN-VM4, FG# PN-VM5 and FG# PN-VM6

**Proposed Solution:**

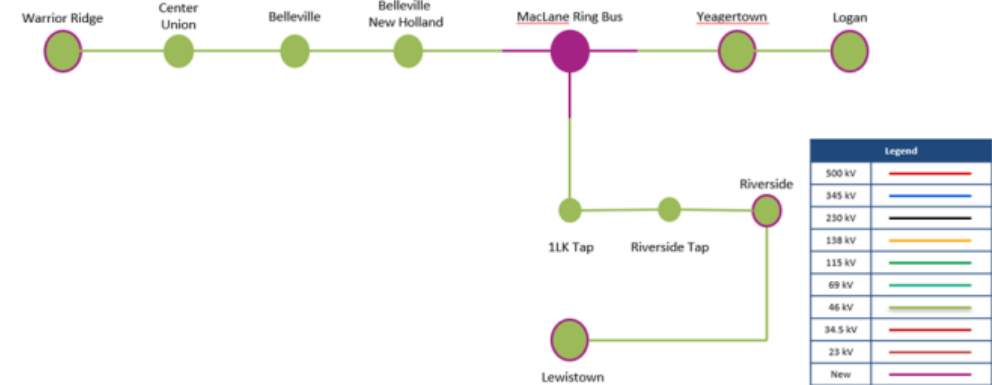
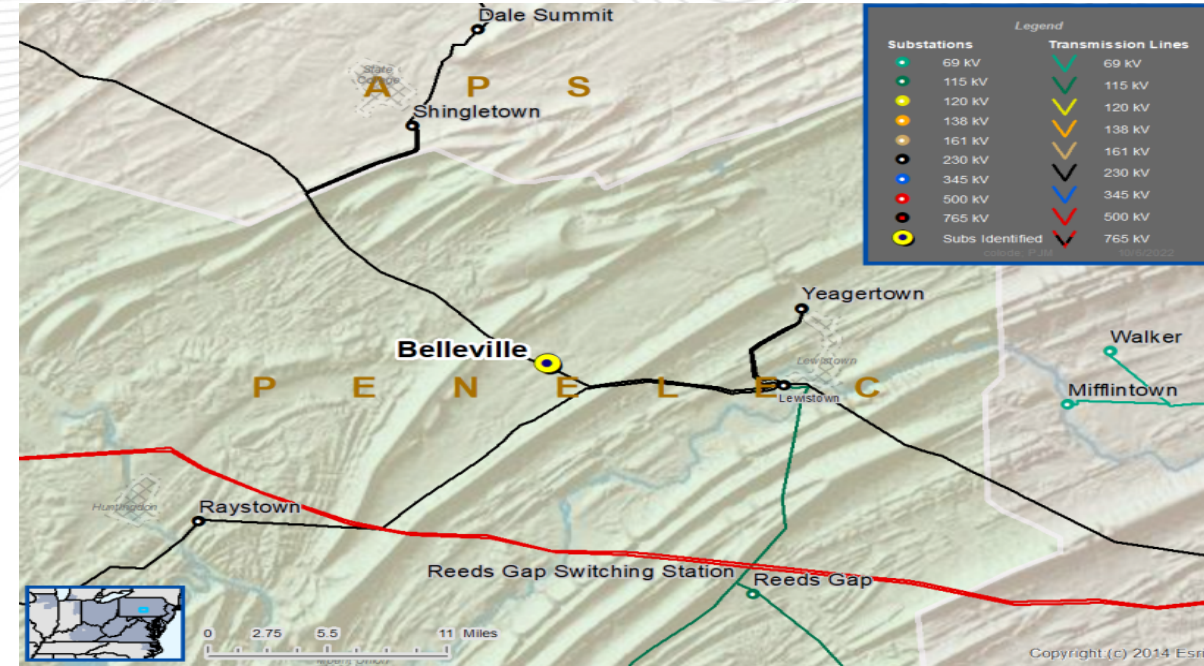
At Maclane tap: Construct a new three breaker ring bus to tie into the Warrior Ridge - Belleville 46 kV D line and the 1LK line

**Estimated Cost:** \$10.09 M

**Alternatives**

-Construct/Build a new 2 mile 46 kV line section to make a Lewistown - Warrior Ridge 46 kV line but it did not resolve all of the issues.

**Required In-Service:** 6/1/2027





**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Winter

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** Low voltage and voltage drop violation at Locust 69 kV station for a bus contingency.

Violations were posted as part of the 2022 Window 1: FG# PSEG-VM1, FG# PSEG-VD3 and FG# PSEG-VD13

**Proposed Solution:**

Convert Locust Street 69kV from a Straight Bus to a Ring Bus.

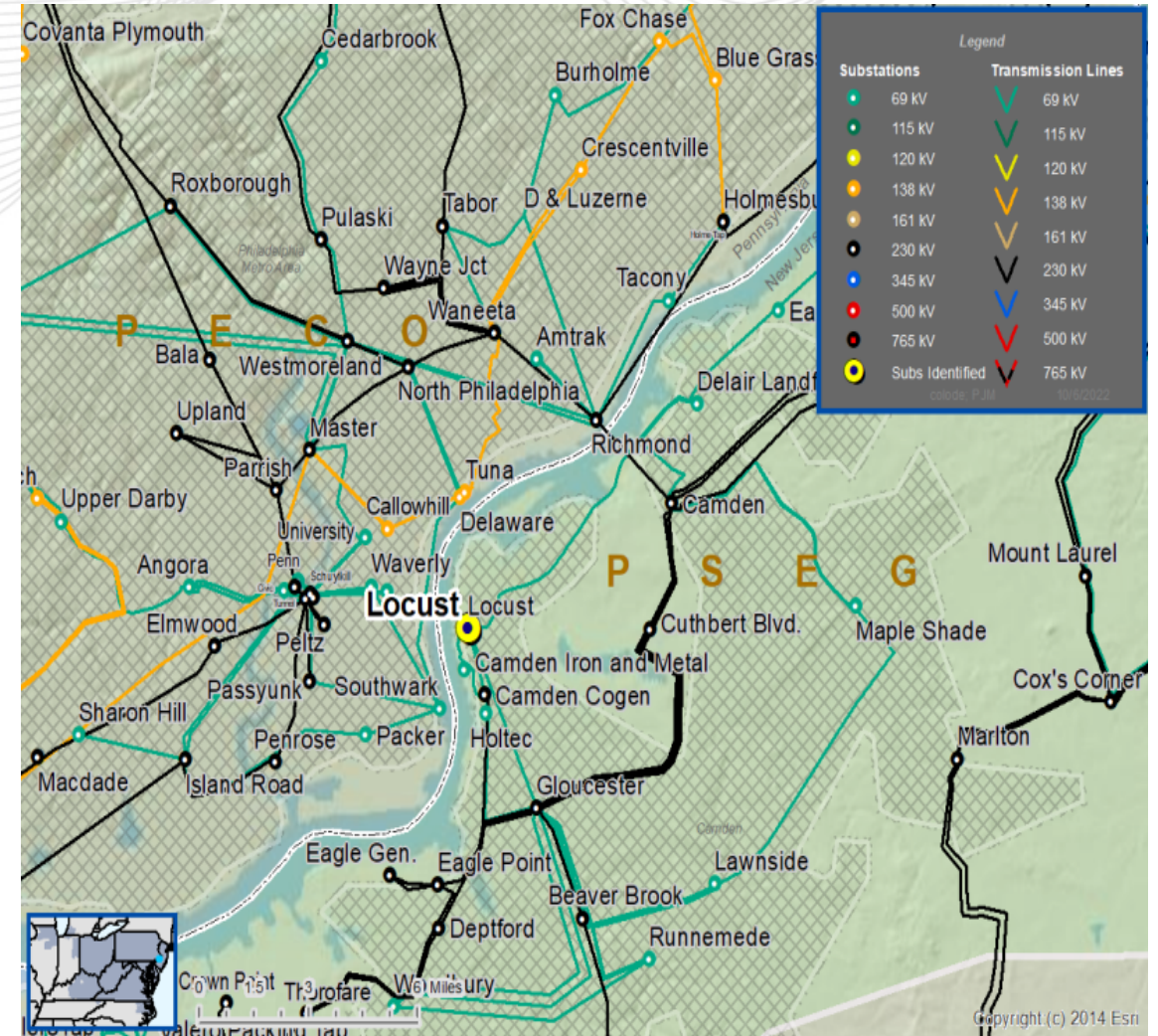
**Estimated Cost:** \$30 M

**Alternatives**

Adding Capacitor banks at Locust station:

- Current straight bus design cannot accommodate connection of capacitor banks in the appropriate locations to address all contingencies.
- Modification of existing bus to a ring requires significant underground modification. Temporary construction contingencies are required to maintain system reliability.

**Required In-Service:** 6/1/2027





**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Winter

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** Voltage drop violation at Maple Shade 69 kV station for multiple line fault stuck breaker contingencies.

Violations were posted as part of the 2022 Window 1: FG# PSEG-VD1,

FG# PSEG-VD2 and FG# PSEG-VD1

**Proposed Solution:**

Convert Maple Shade 69kV from a Straight Bus to a Ring Bus

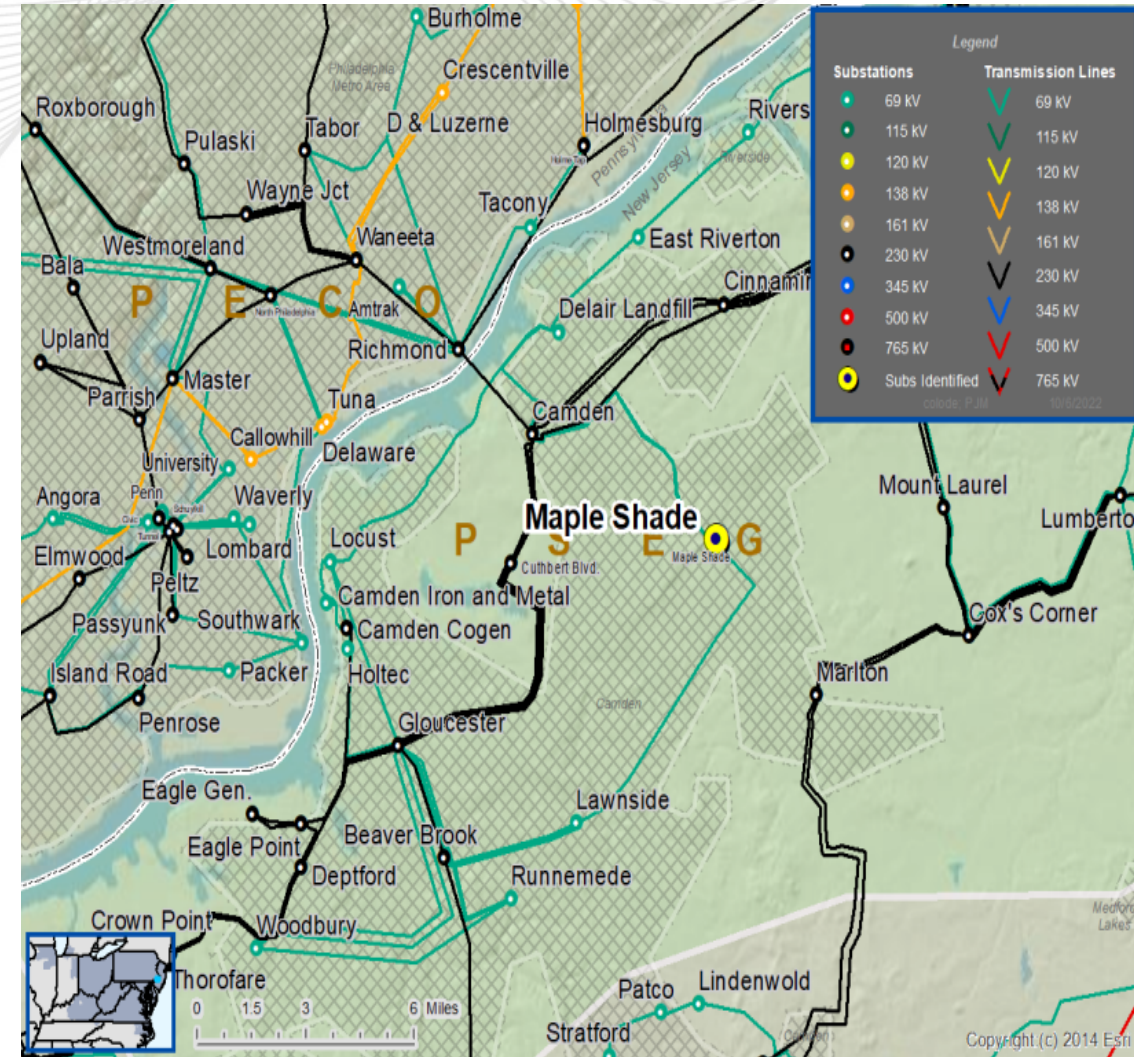
**Estimated Cost:** \$33.9 M

**Alternatives**

-Adding capacitor banks at Maple Shade:

- Current straight bus design cannot accommodate connection of capacitor banks in the appropriate locations to address all contingencies.
- Modification of existing bus to a ring requires significant underground circuit reconfiguration to provide ample space. Temporary construction contingencies are required to maintain system reliability.

**Required In-Service:** 6/1/2027





**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer and Winter

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** Voltage drop violation at Medford and South Hampton 69 kV stations for several N-1-1 contingencies.

Violations were posted as part of the 2022 Window 1:

FG# PSEG-VD4	FG# PSEG-VD8	FG# PSEG-VD17
FG# PSEG-VD5	FG# PSEG-VD9	FG# PSEG-VD18
FG# PSEG-VD6	FG# PSEG-VD15	FG# PSEG-VD19
FG# PSEG-VD7	FG# PSEG-VD16	FG# PSEG-VD20

**Proposed Solution:**

Convert existing Medford 69kV Straight bus to Seven breaker ring bus, construct a new 69kV line from Medford to the Mount Holly station, and install a capacitor bank at Medford.

**Estimated Cost:** \$78.7 M

**Alternatives**

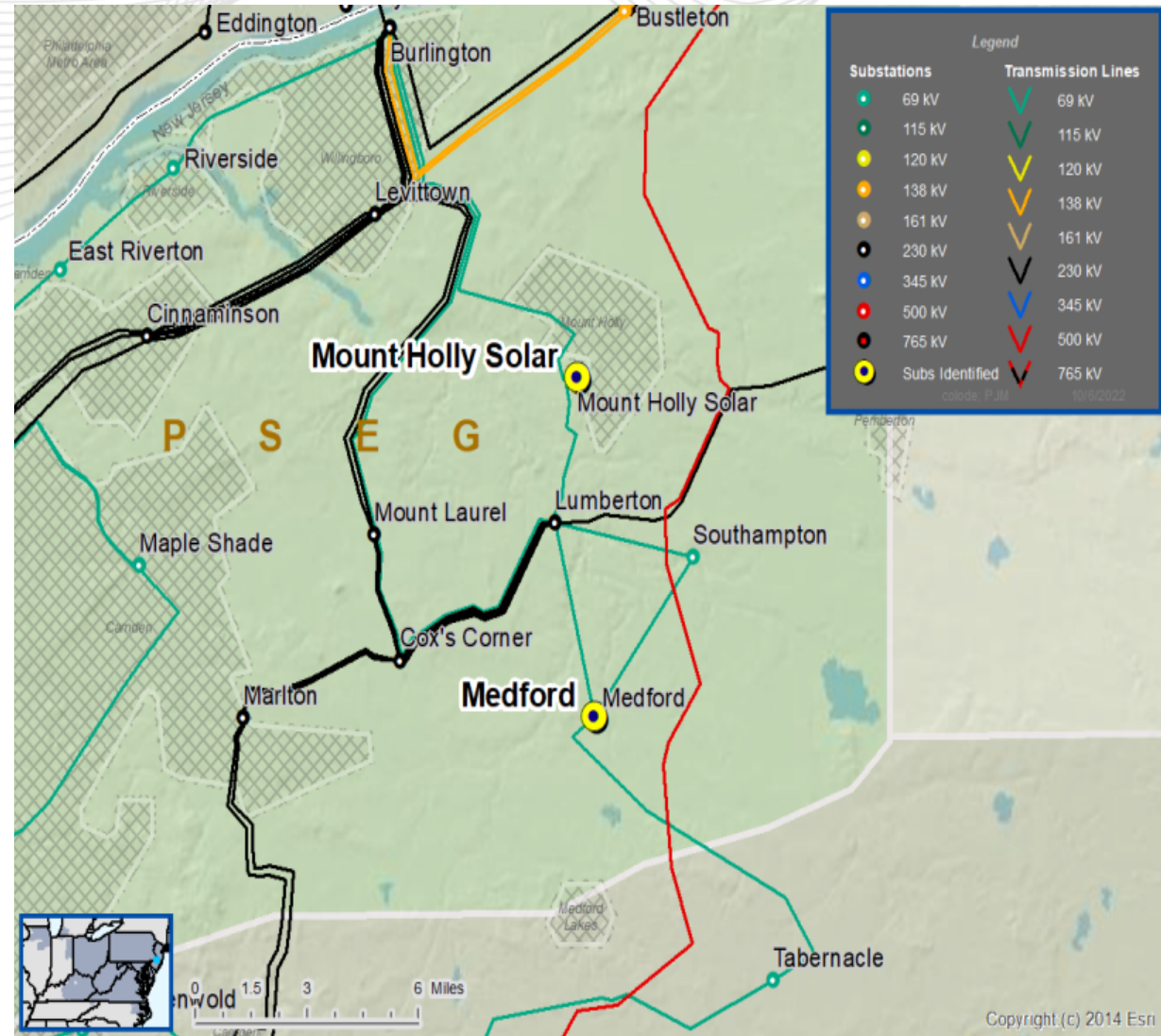
-Capacitor banks at Medford and Mount Holly:

- Current straight bus design at both stations cannot accommodate connection of capacitor banks in the appropriate locations to address all contingencies. Reported voltage drop is too great for capacitor banks at each location to be an effective solution.

-Convert existing Medford 69kV Straight bus to Seven breaker ring bus, construct a new 69kV line from Medford to the Maple Shade station

- circuit to Maple Shade has approximately two extra miles and an additional highway crossing.

**Required In-Service:** 6/1/2027



**Process Stage:** First Review

**Criteria:** FERC Form 715

**Assumption Reference:** 2027 RTEP assumption

**Model Used for Analysis:** 2027 RTEP Summer

**Proposal Window Exclusion:** Below 200 kV Exclusion

**Problem Statement:** Voltage drop violation at Harts Lane station for several multiple N-1-1 contingencies.

Violations were posted as part of the 2022 Window 1: FG# PSEG-VD10 and FG# PSEG-VD11

**Proposed Solution:**

Construct a new 69kV line from 14th Street to Harts Lane.

**Estimated Cost:** \$34.4 M

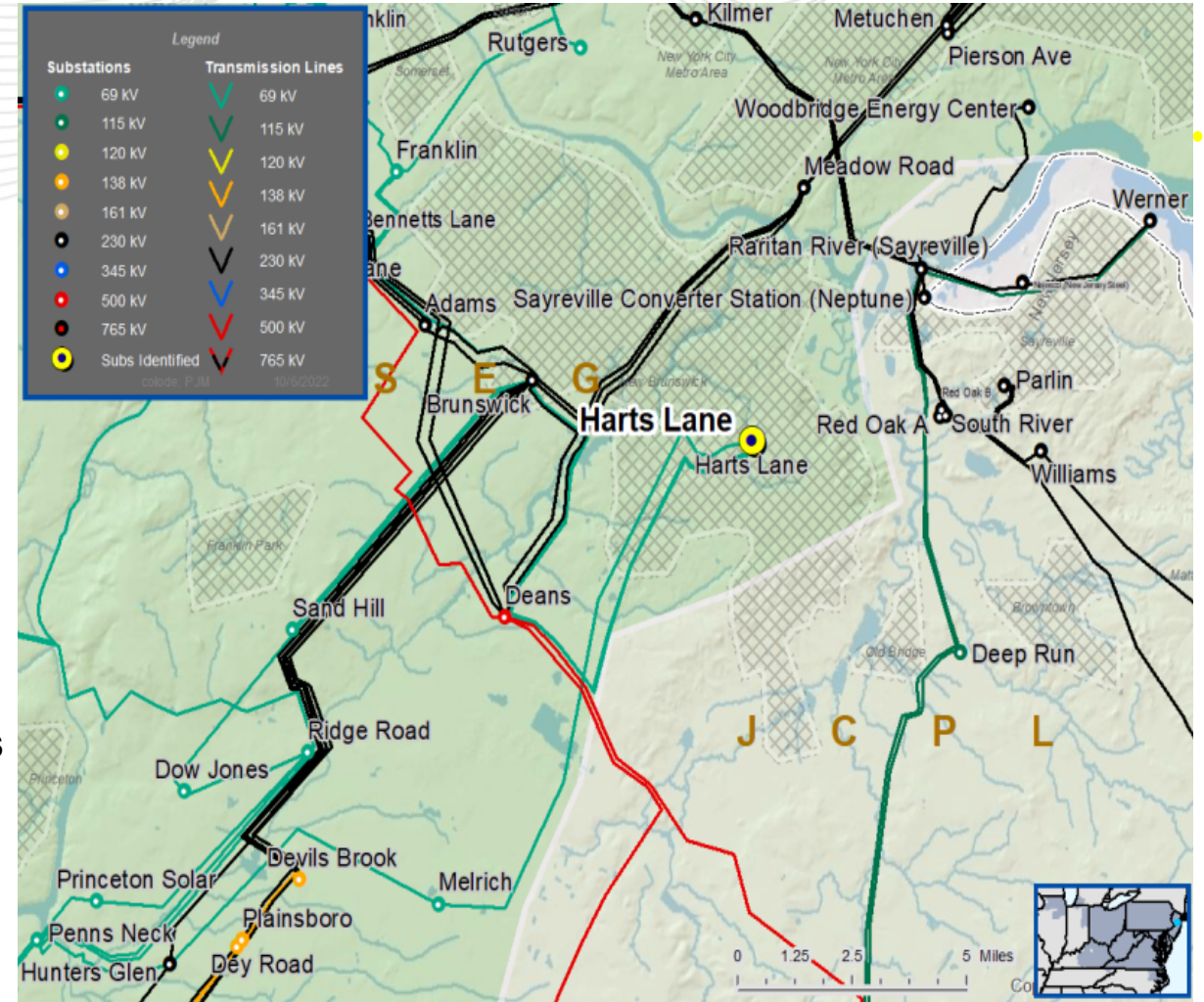
**Alternatives**

-Install Capacitor bank at Harts Lane:

- Harts Lane already has a capacitor bank, however, reported voltage drop is too great for an additional capacitor bank to be an effective solution.

-Alternative circuit to Brunswick has a more challenging route and provides no benefit to the rest of the area 69kV system.

**Required In-Service:** 6/1/2027





# Questions?



A large blue arrow pointing to the right, with the year "2022" written in white text inside it.

2022

- The Next 2022 Mid-Atlantic SRRTEP meetings are as followed
- 11/17
- 12/14





V1 – 10/6/2022 – Original slides posted