



Sub Regional RTEP Committee Mid-Atlantic

June 24, 2014

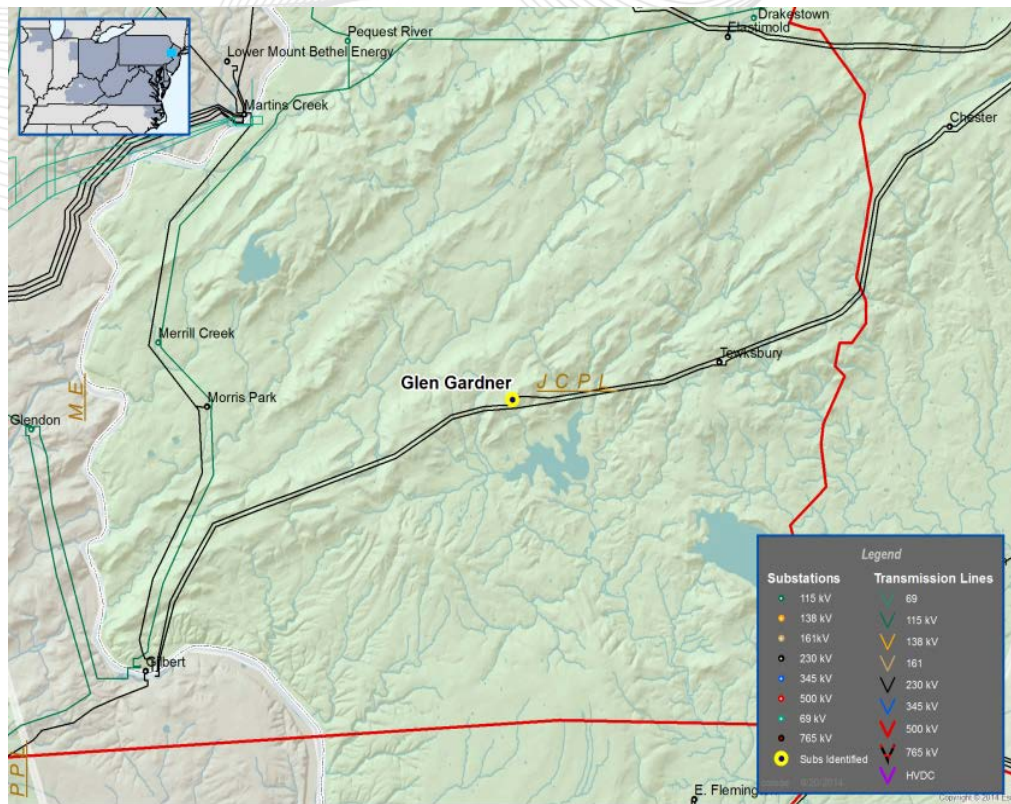
- Baseline N-0 & N-1
- Generator Deliverability and Common Mode Outage
- Load Deliverability
- N-1-1
- TO Specific Criteria
- Next Steps
- Anticipated RTEP Proposal Window



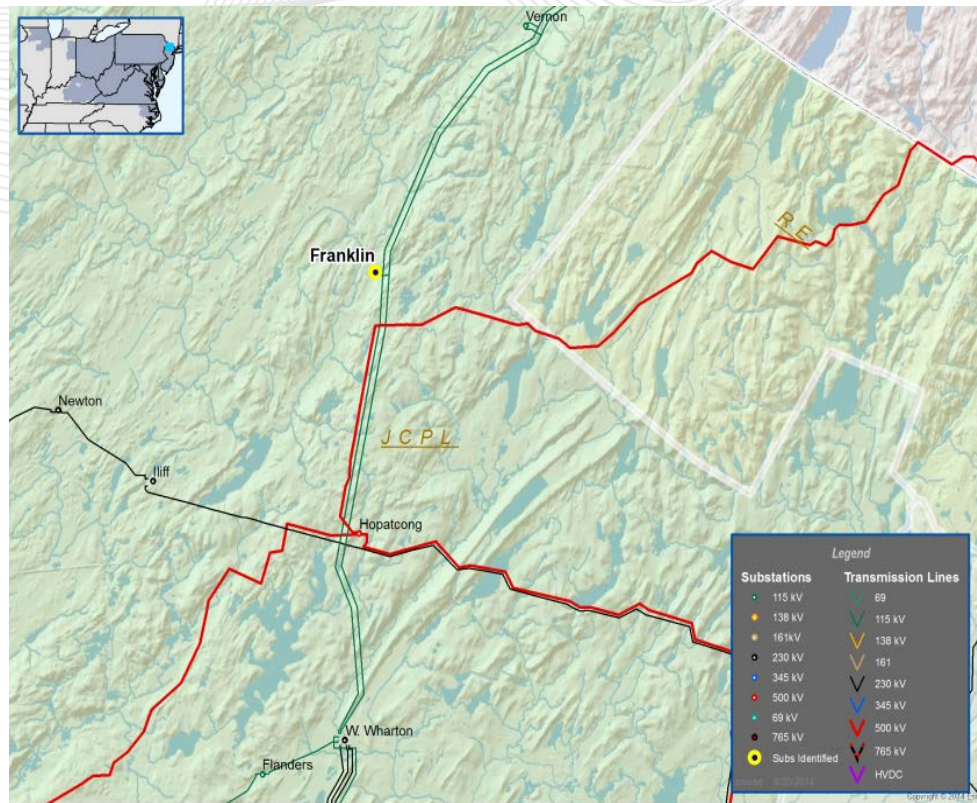
2014 RTEP Baseline Analysis Update

06/24/2014

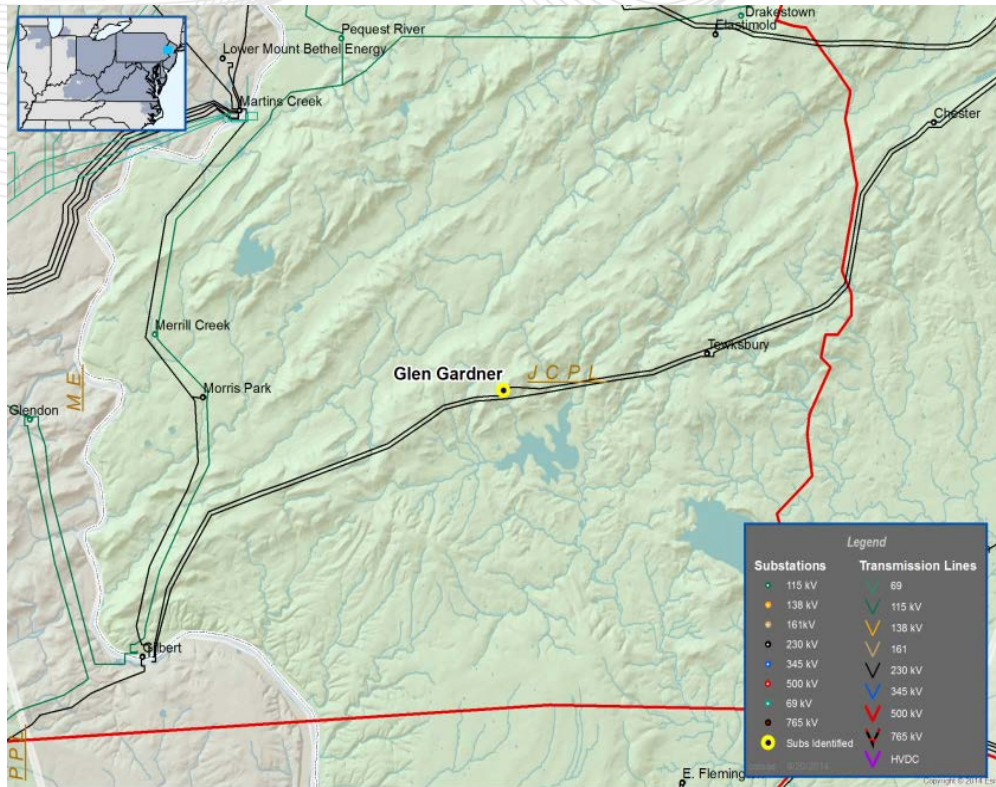
- FE Planning Criteria Violation:
- The Glen Gardner 230/34.5 kV transformer #1 is overloaded for loss of Chester – Glen Gardner 230 kV circuit.
- Proposed Solution:
 - Replace the transformer leads on the Glen Gardner 230/34.5 kV #1 transformer (B2495).
- Estimated Project Cost:
\$ 0.1 M
- Required IS Date:
6/1/2015



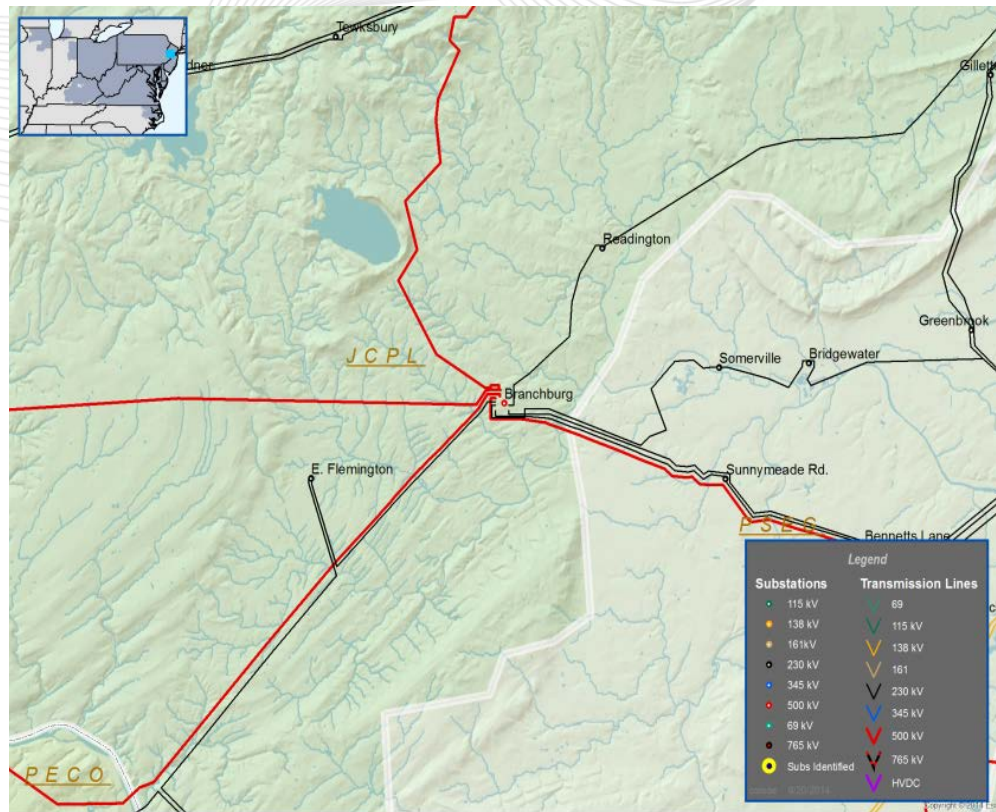
- FE Planning Criteria Violation :
- The Franklin 115/34.5 kV transformer #2 is overloaded for the loss of the Franklin 115/34.5 kV transformer #1.
- Proposed Solution:
 - Replace the Franklin 115/34.5 kV transformer #2 with a 90 MVA transformer (B2496).
- Estimated Project Cost:
\$ 3 M
- Required IS Date:
6/1/2015



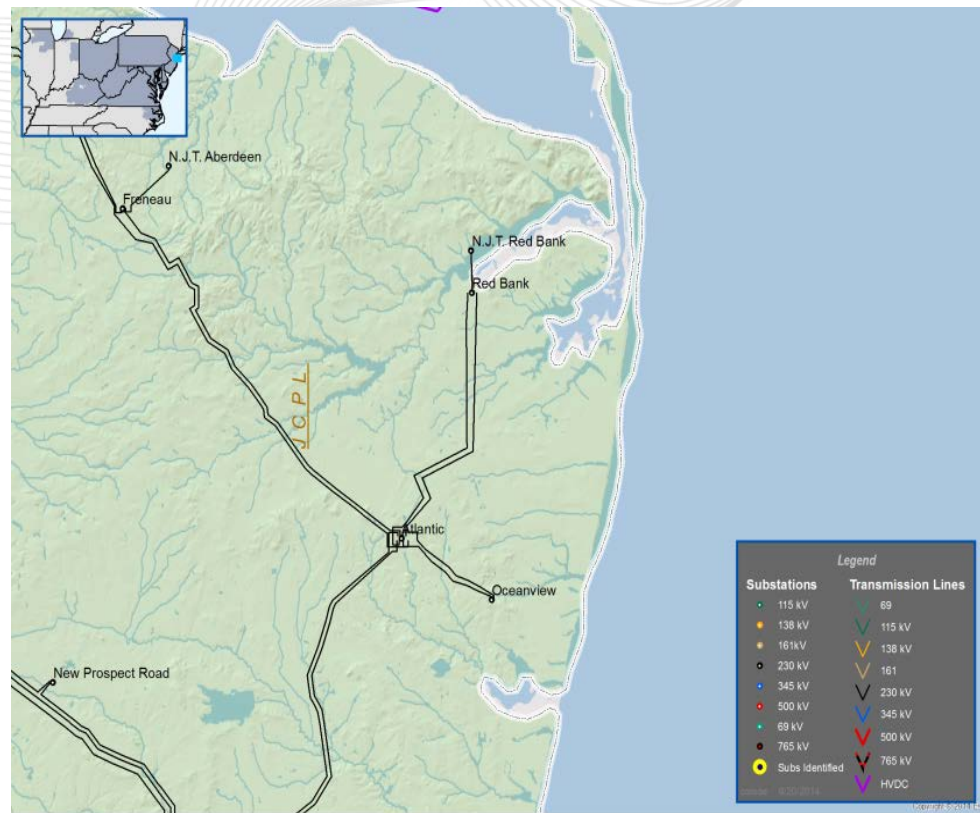
- FE Planning Criteria Violation :
- The Captive Plastics to Morris Park 34.5 kV circuit is overloaded for the loss of the Gilbert – Glen Gardner 230 kV circuit.
- Proposed Solution:
 - Reconductor 0.9 miles of the Captive Plastics to Morris Park 34.5 kV circuit (397 ACSR) with 556 ACSR (B2497).
- Estimated Project Cost:
\$ 0.6 M
- Required IS Date:
6/1/2015



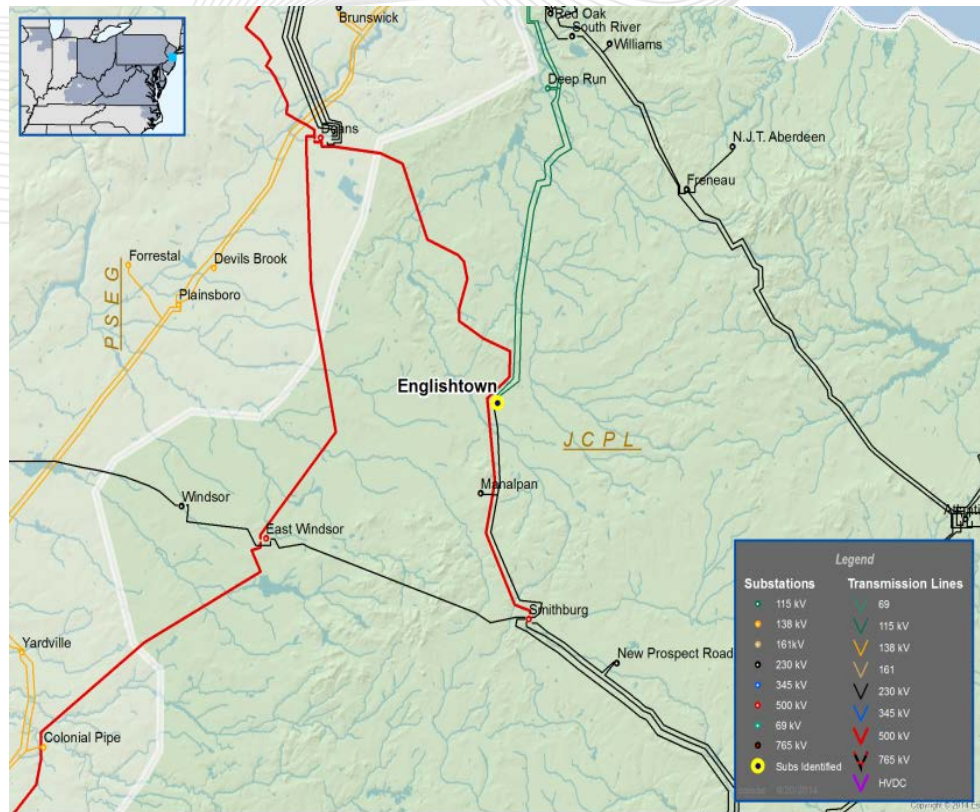
- FE Planning Criteria Violation :
- The Lebanon to North Branch 34.5 kV circuit is overloaded for the loss of the Branchburg – Readington 230 kV and the Readington 230/34.5 kV transformer #1.
- Proposed Solution:
 - Extend 5.8 miles of 34.5 kV circuit from north Branch substation to Lebanon substation with 397 ACSR and install 34.5 kV breaker at Lebanon substation (B2498).
- Estimated Project Cost:
\$ 2 M
- Required IS Date:
6/1/2015



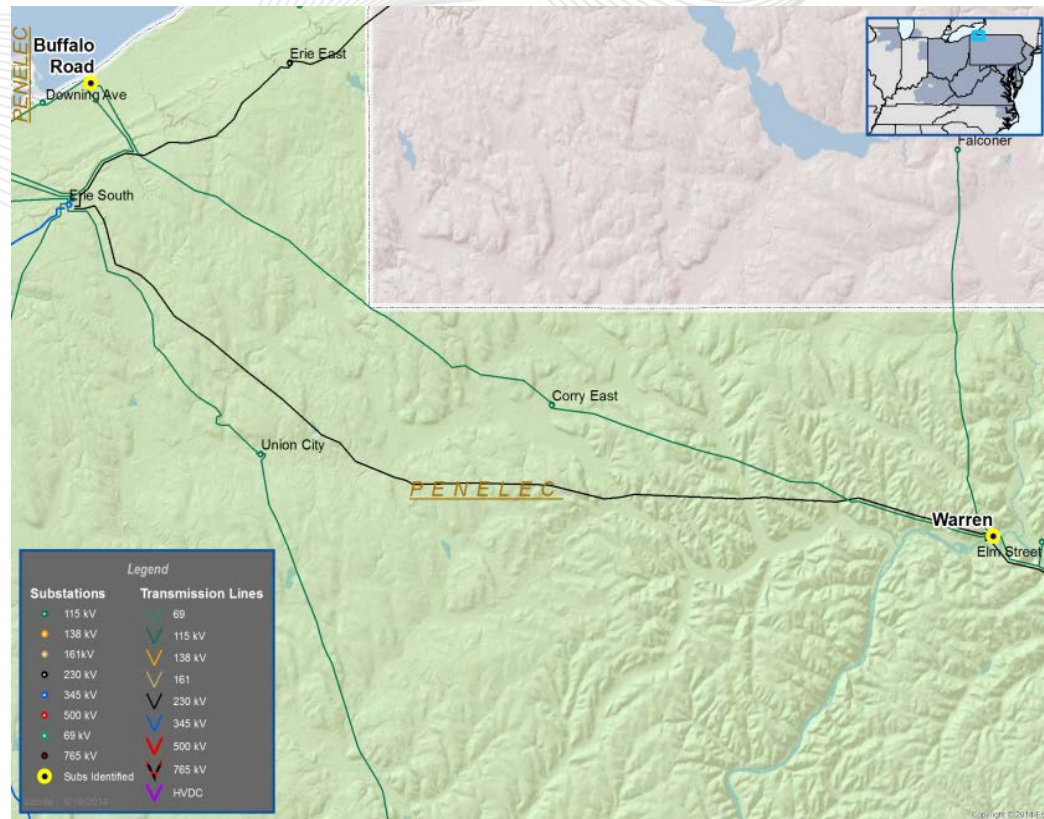
- FE Planning Criteria Violation :
- The Allenhurst to Elberon (V74) 34.5 kV circuit is overloaded for the loss of the Bath Avenue – Long Branch (V74) 34.5 kV circuit.
- Proposed Solution:
 - Construct a new 34.5 kV circuit from Allenhurst to Elberon substation with 115 kV specifications and install a 34.5 kV breaker at Allenhurst and 115 kV switch at Elberon stations (B2499).
- Estimated Project Cost:
\$ 10.5 M
- Expected IS Date:
6/1/2018



- FE Planning Criteria Violation :
- The Englishtown to Monroe (H34) 34.5 kV circuit is overloaded for the loss of the Englishtown –Monroe – Wyckoff St. (D82) 34.5 kV circuit.
- Proposed Solution:
 - Upgrade the terminal equipment at Monroe on the Englishtown to Monroe (H34) 34.5 kV circuit (B2500).
- Estimated Project Cost:
\$ 0.1 M
- Required IS Date:
6/1/2015

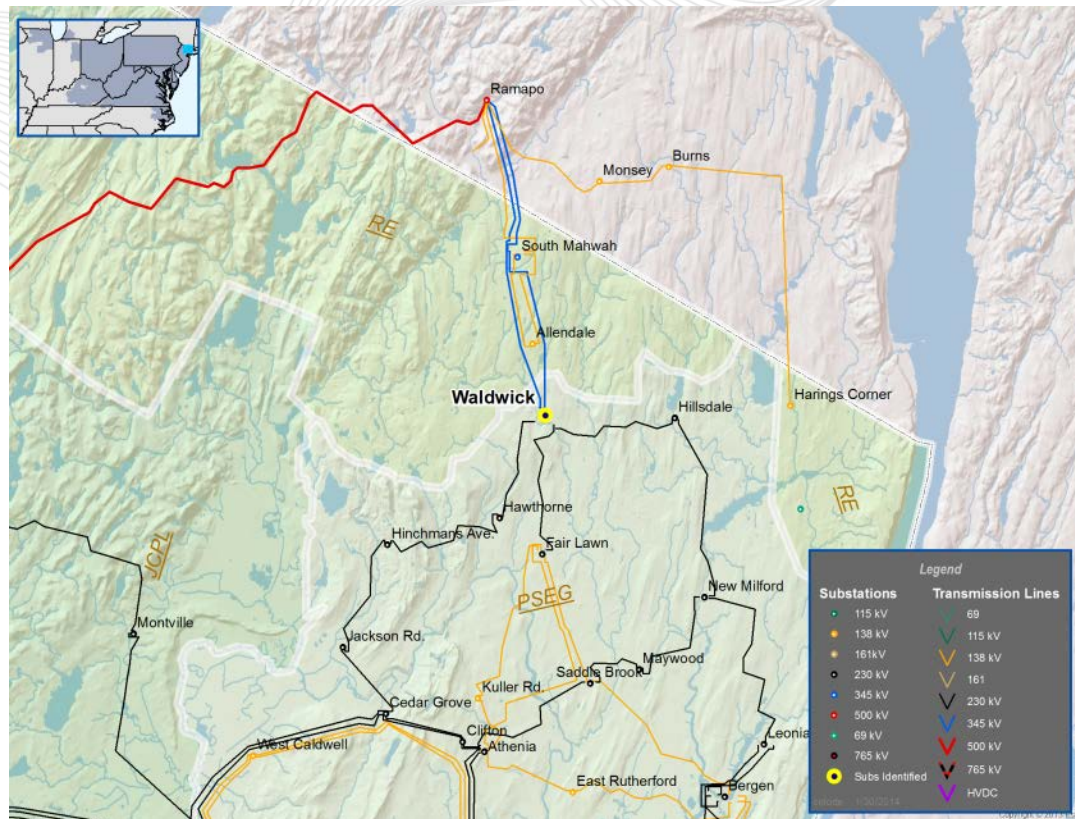


- FE Planning Criteria Violation and Operational Performance:
- Voltage violation in the North Western Pennsylvania (Warren/Buffalo Road) vicinity for multiple contingencies.
- Proposed Solution:
 - Construct Warren 230 kV bus and install a second Warren 230/115 kV transformer (B2494).
- Estimated Project Cost:
\$ 15 M
- Expected IS Date:
6/1/2016

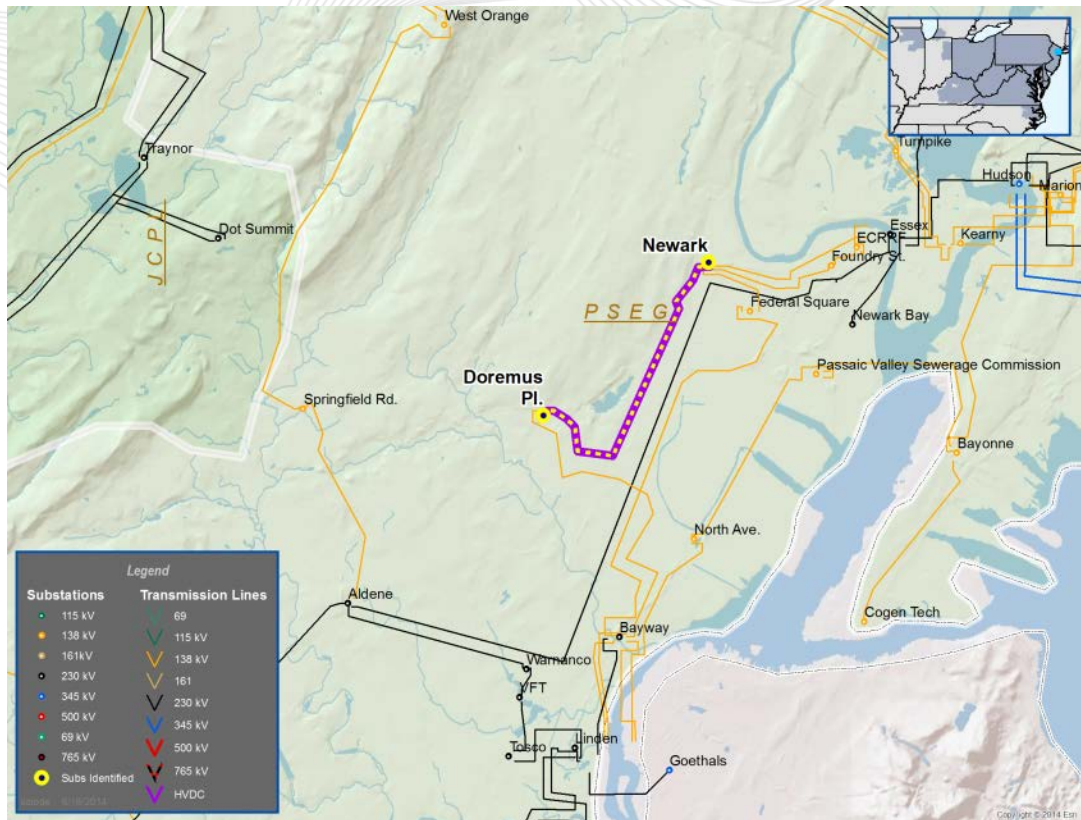


Supplemental Projects

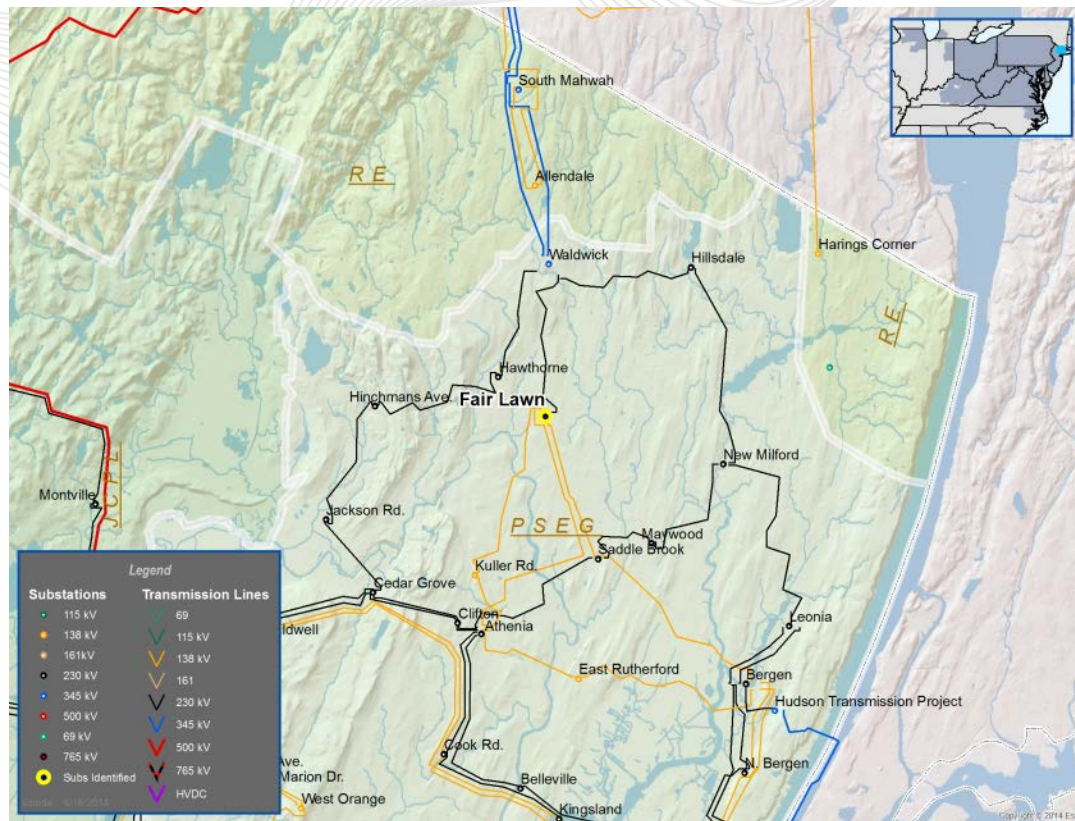
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Waldwick 230 kV PAR #2 (S0698).
- Estimated Project Cost: \$ 12 M
- Projected IS Date: 12/31/2016



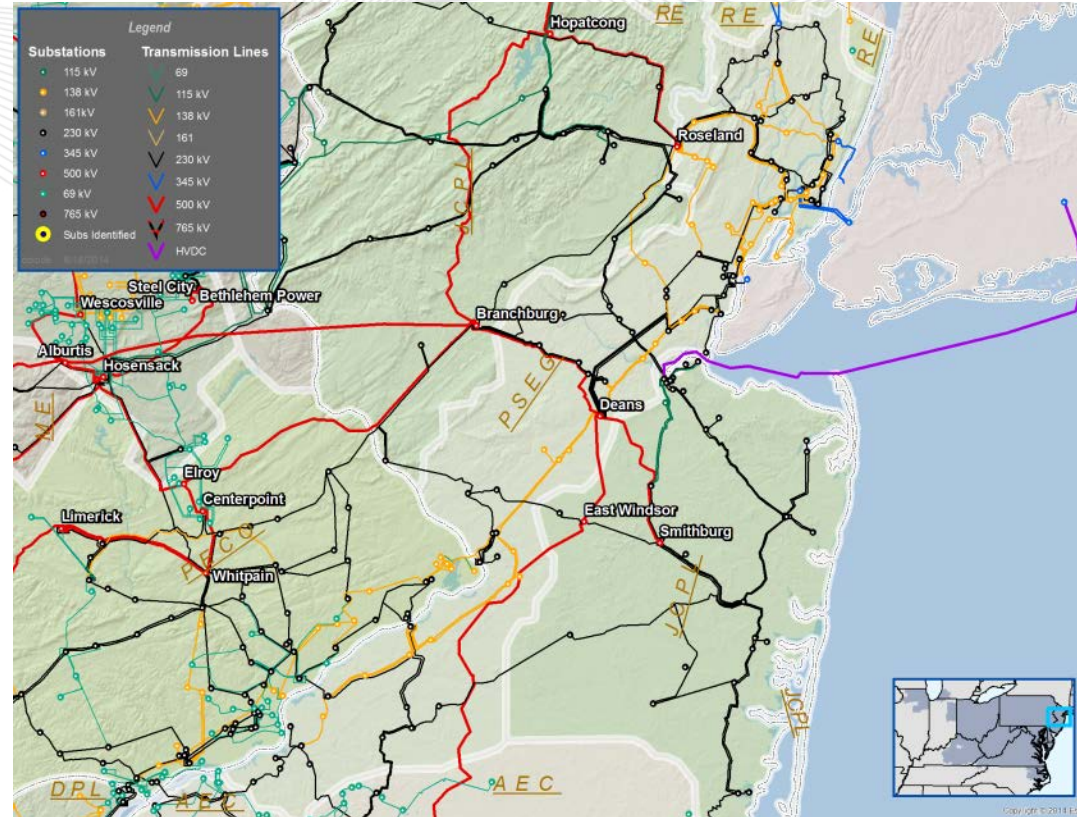
- Supplemental Project:
- Potential reliability issue as a result of existing cable movement due to elevation and track movement.
- Proposed Solution:
 - Reconductor the N-1366 (Doremus Place – Newark Se. 138 kV circuit) (S0687).
- Estimated Project Cost: \$ 34 M
- Projected IS Date: 12/31/2018



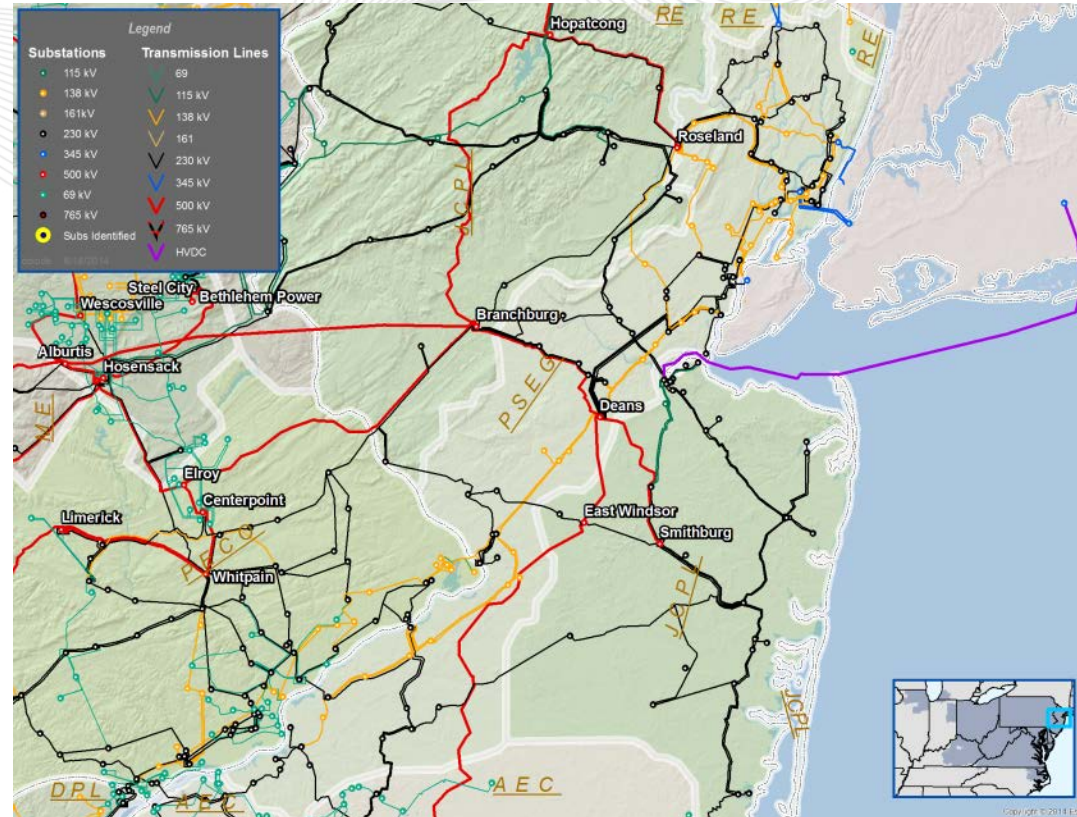
- Supplemental Project:
- Improve reliability due to the existing bus configuration.
- Proposed Solution:
 - Construct Fairlawn 138 kV ring bus (S0689).
- Estimated Project Cost: \$11.1 M
- Projected IS Date: 12/31/2015



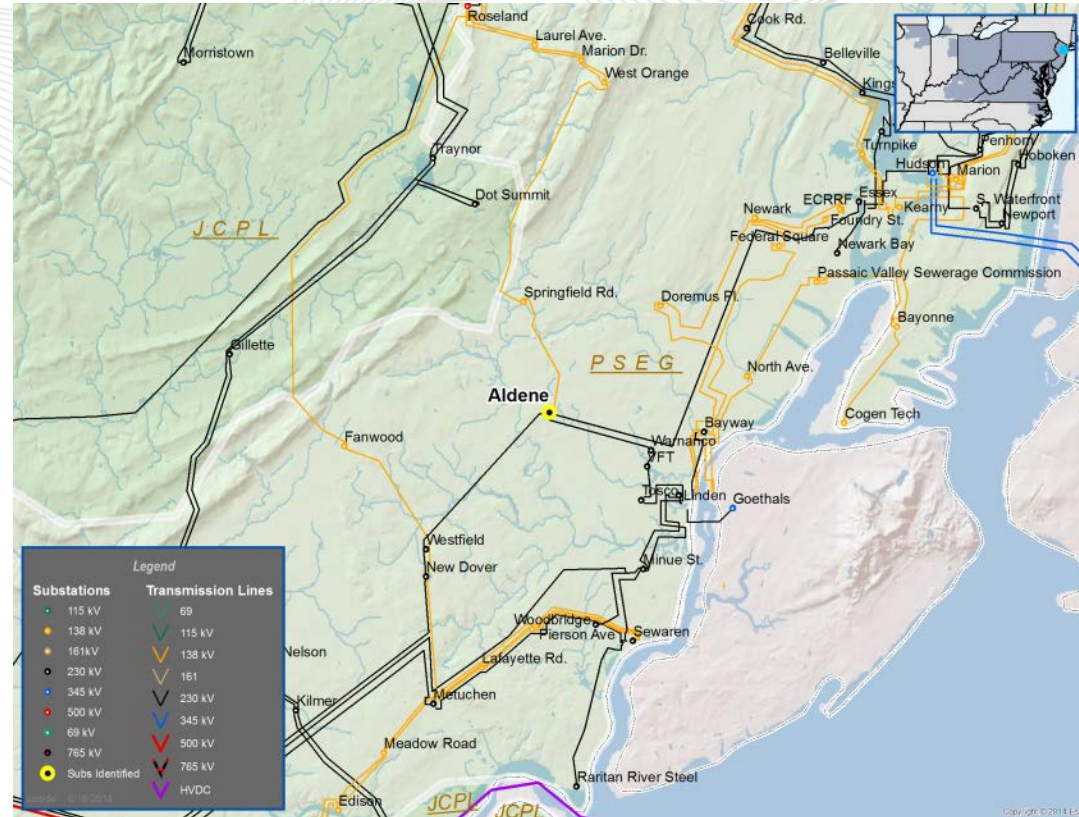
- Supplemental Project:
- To improve reliability due to failed mobile substation.
- Proposed Solution:
 - Replace failed 230-27 kV mobile unit substation (S0690).
- Estimated Project Cost: \$ 3.45 M
- Projected IS Date: 6/30/2015



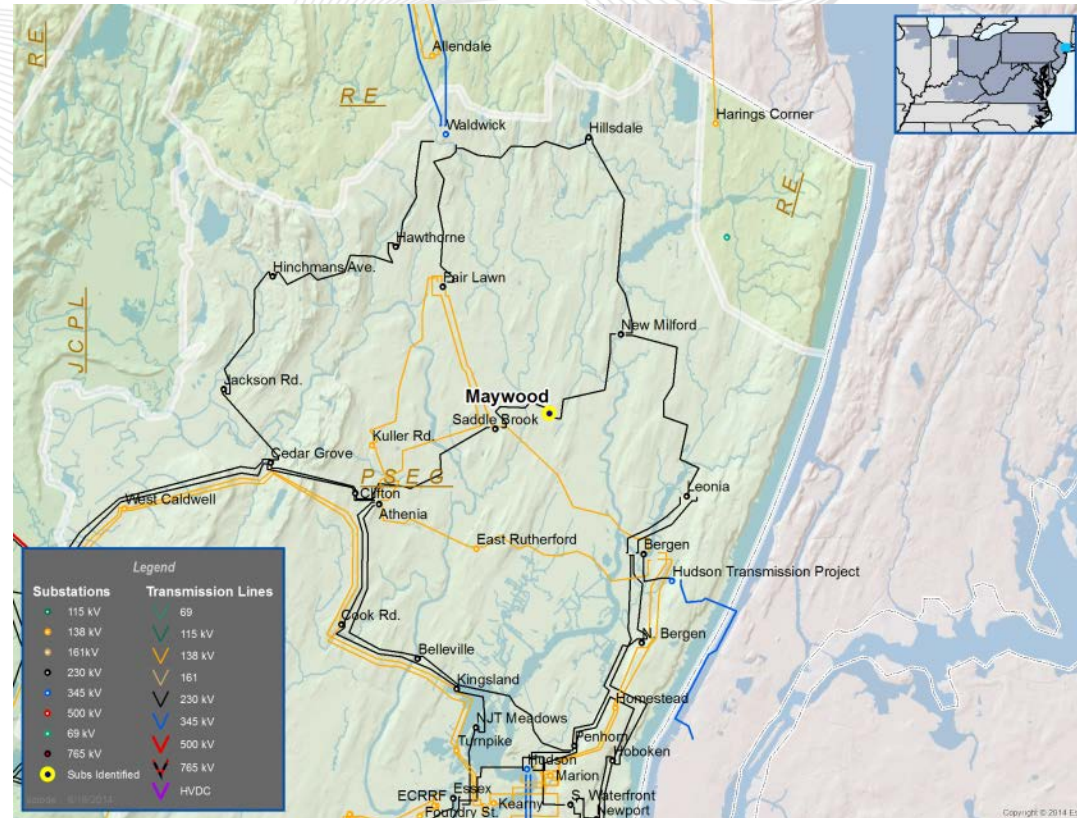
- Supplemental Project:
- To improve reliability due to failed mobile substation.
- Proposed Solution:
 - Refurbish failed 230-27 kV mobile unit substation (S0691).
- Estimated Project Cost: \$ 1.0 M
- Projected IS Date: 3/30/2015



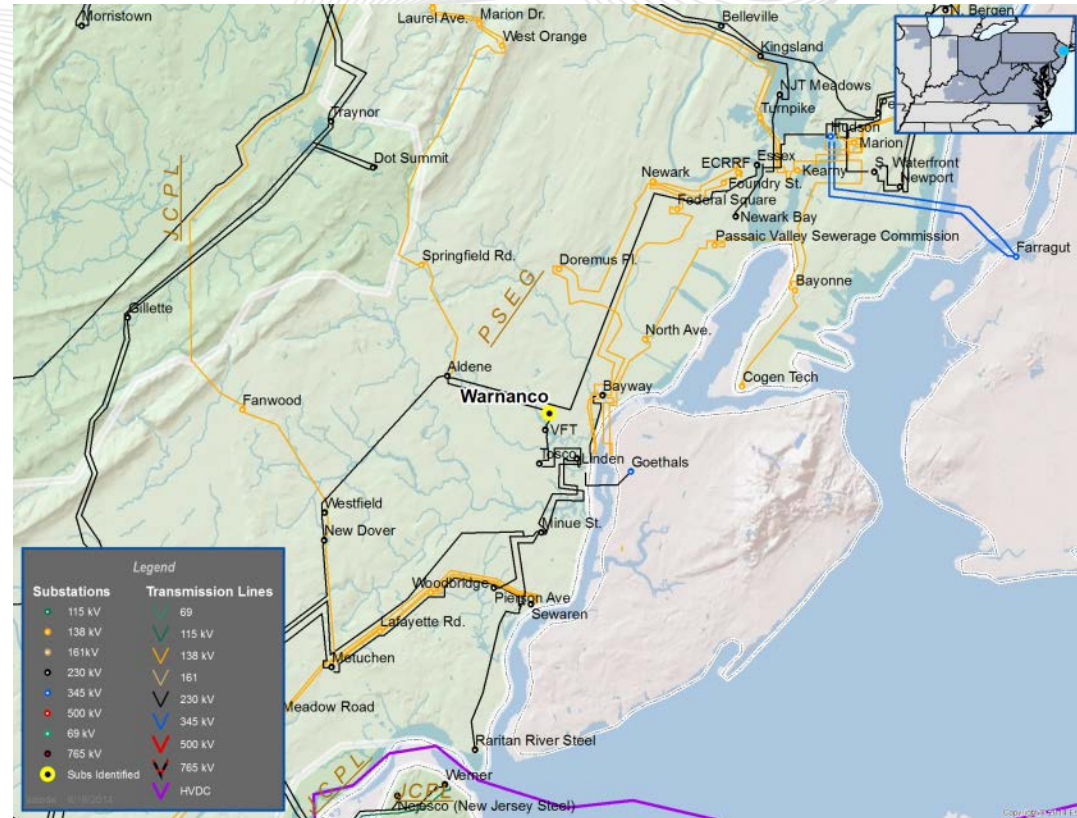
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Aldene 220-1 (230/26 kV) transformer (S0694).
- Estimated Project Cost: \$ 15 M
- Projected IS Date: 12/31/2016



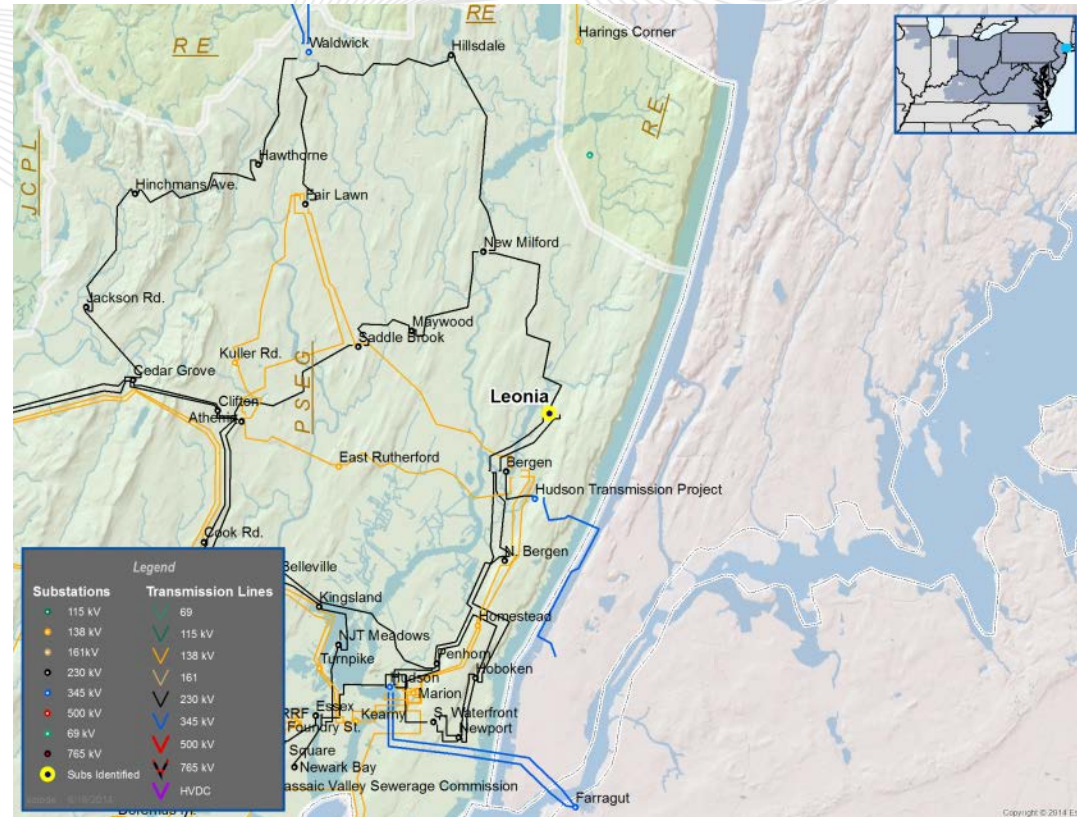
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Maywood T1 (230/13 kV) transformer (S0695).
- Estimated Project Cost: \$ 4.1 M
- Projected IS Date: 12/31/2016



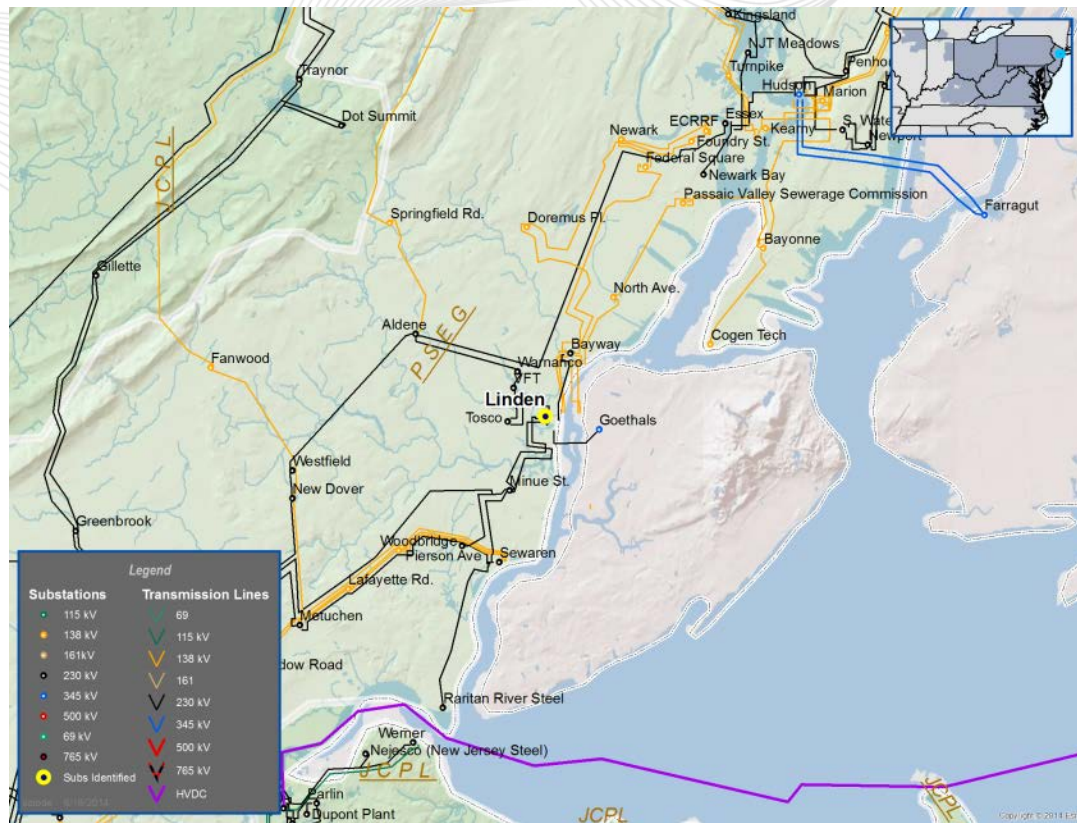
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Warinanco T2 (230/13 kV) transformer (S0696).
- Estimated Project Cost: \$ 4.1 M
- Projected IS Date: 12/31/2016



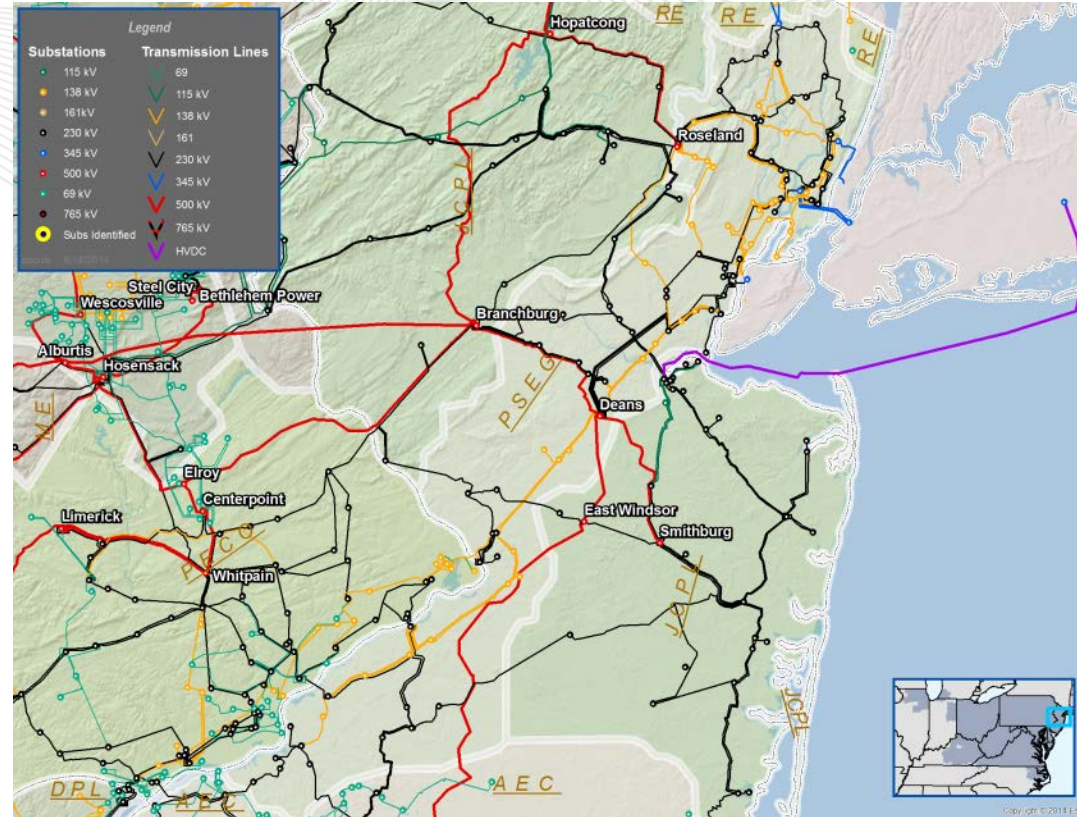
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Leonia T3 (230/13 kV) transformer (S0697).
- Estimated Project Cost: \$ 4.1 M
- Projected IS Date: 12/31/2016



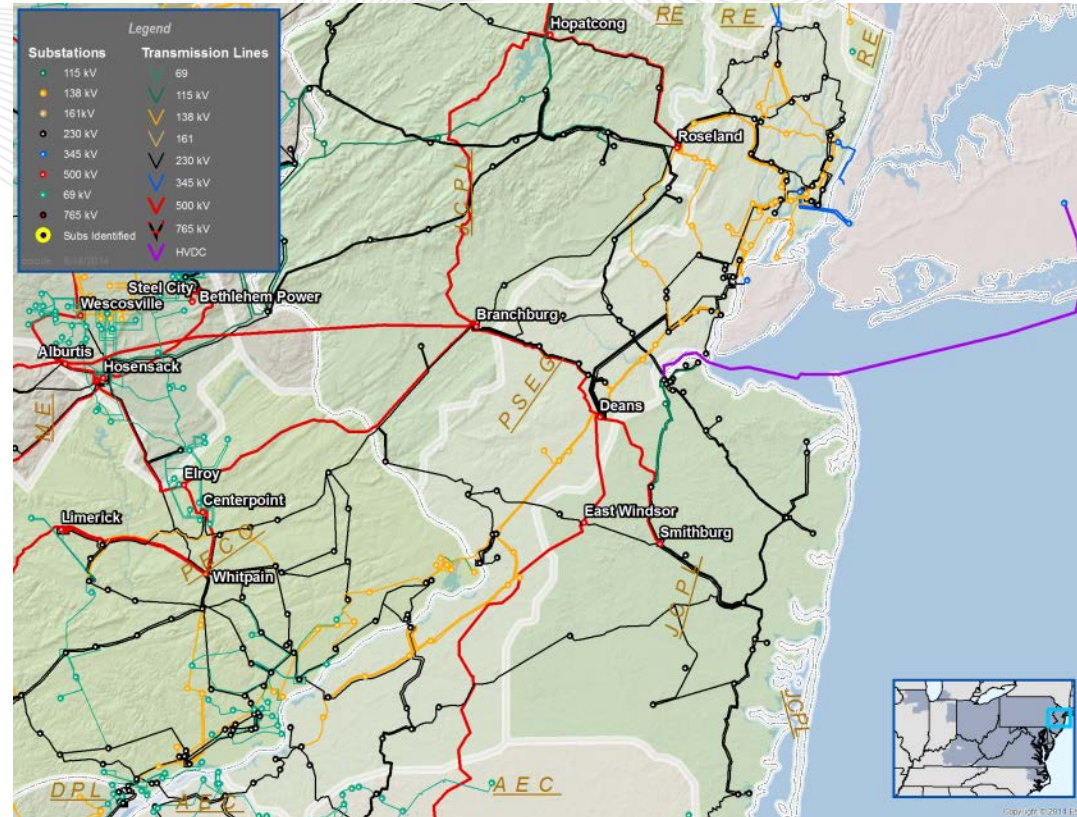
- Supplemental Project:
- To improve reliability due to aging infrastructure.
- Proposed Solution:
 - Replace Linden 132-5 (138/26/11 kV) transformer (S0699).
- Estimated Project Cost: \$ 12 M
- Projected IS Date: 12/31/2016



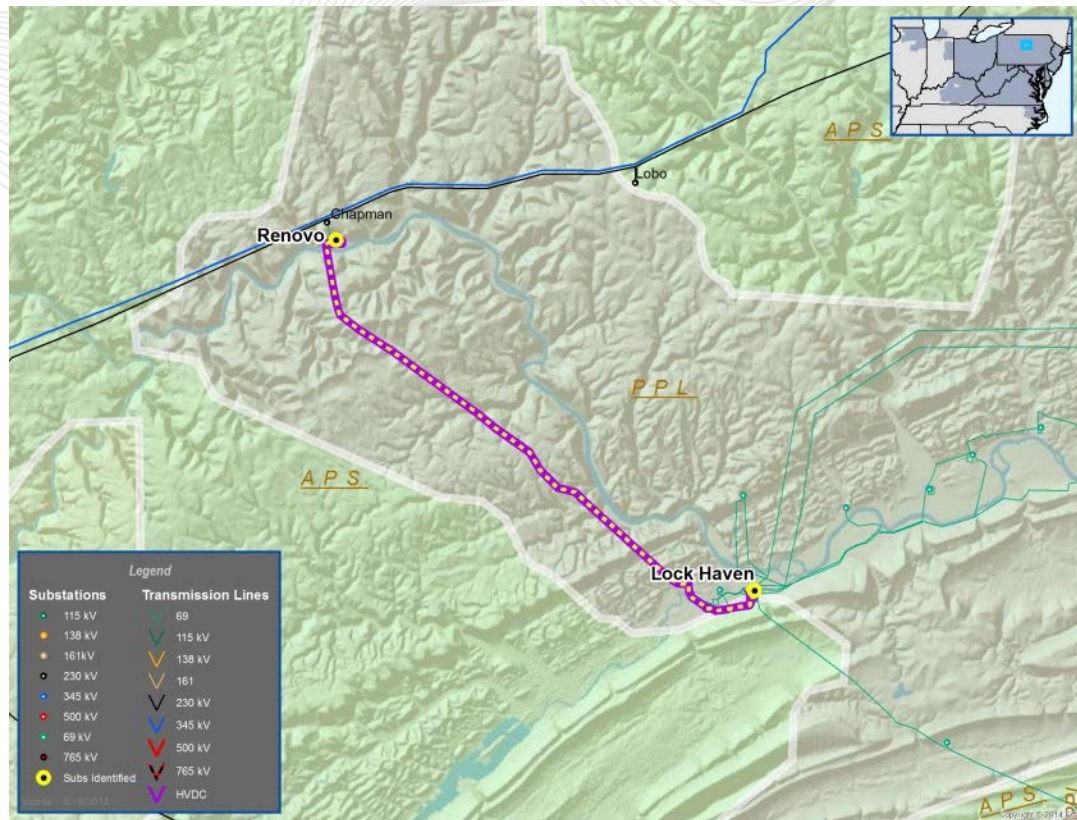
- Supplemental Project:
- To improve reliability.
- Proposed Solution:
 - Purchase spare 69/13 kV mobile unit substation (S0703).
- Estimated Project Cost: \$ 1.9 M
- Projected IS Date: 12/31/2015



- Supplemental Project:
- To improve reliability.
- Proposed Solution:
 - Purchase several 69/4 kV & 69/13 kV transformers (S0705).
- Estimated Project Cost: \$ 13.3 M
- Projected IS Date: 5/31/2015



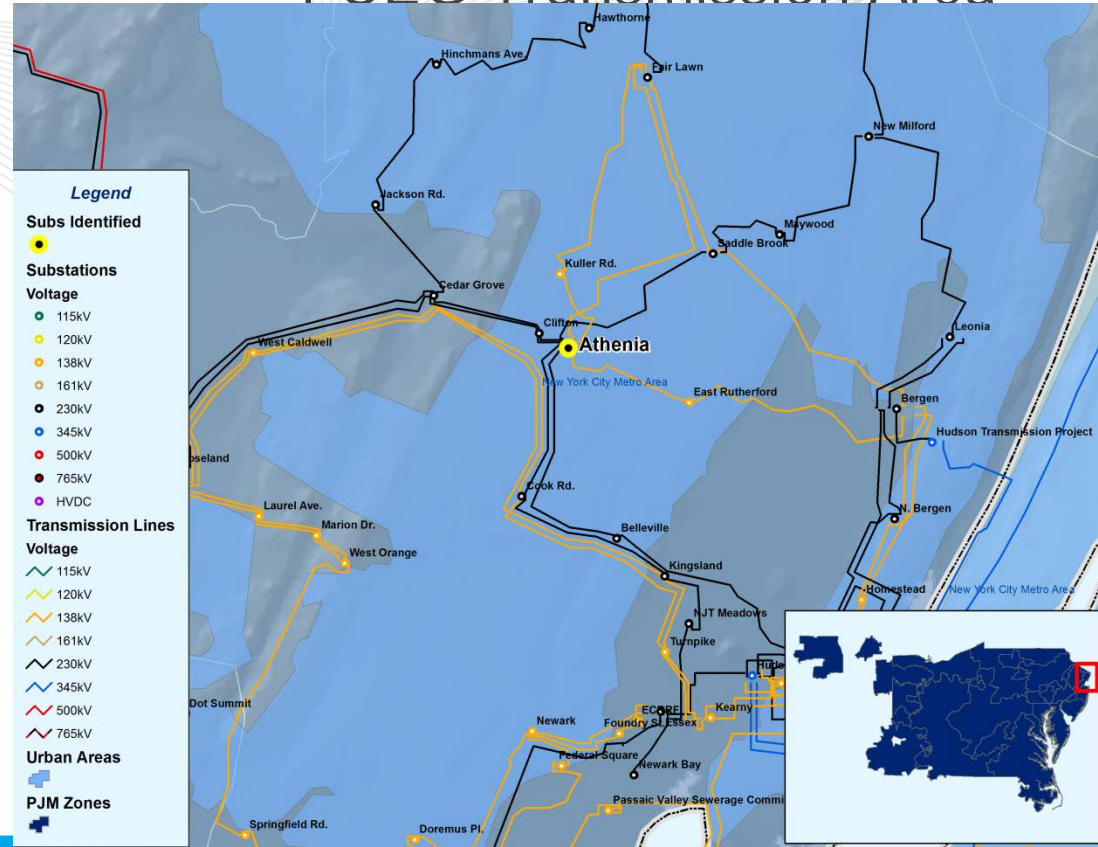
- Supplemental Projects :
- Given a large load addition, the Lock Haven-Renovo and Lock Haven Flemington 69kV lines will be loaded above 50% of capacity. A maintenance outage will overload the remaining line.
- Proposed Solution:
 - Build a new 69 kV line from Lock Haven 69 kV switchyard to the Renovo Tap (S0706).
- Estimated Project Cost:
\$ 2.6 M
- Projected IS Date:
5/31/2016





Short Circuit Upgrades

- The Athenia 138kV breakers '2LH' and '2TH' are overstressed
- Proposed solution: Rebuild the Athenia 138kV substation to 80kA
- Estimated Project Cost: \$131 M
- Projected In-Service Date: 6/1/2018

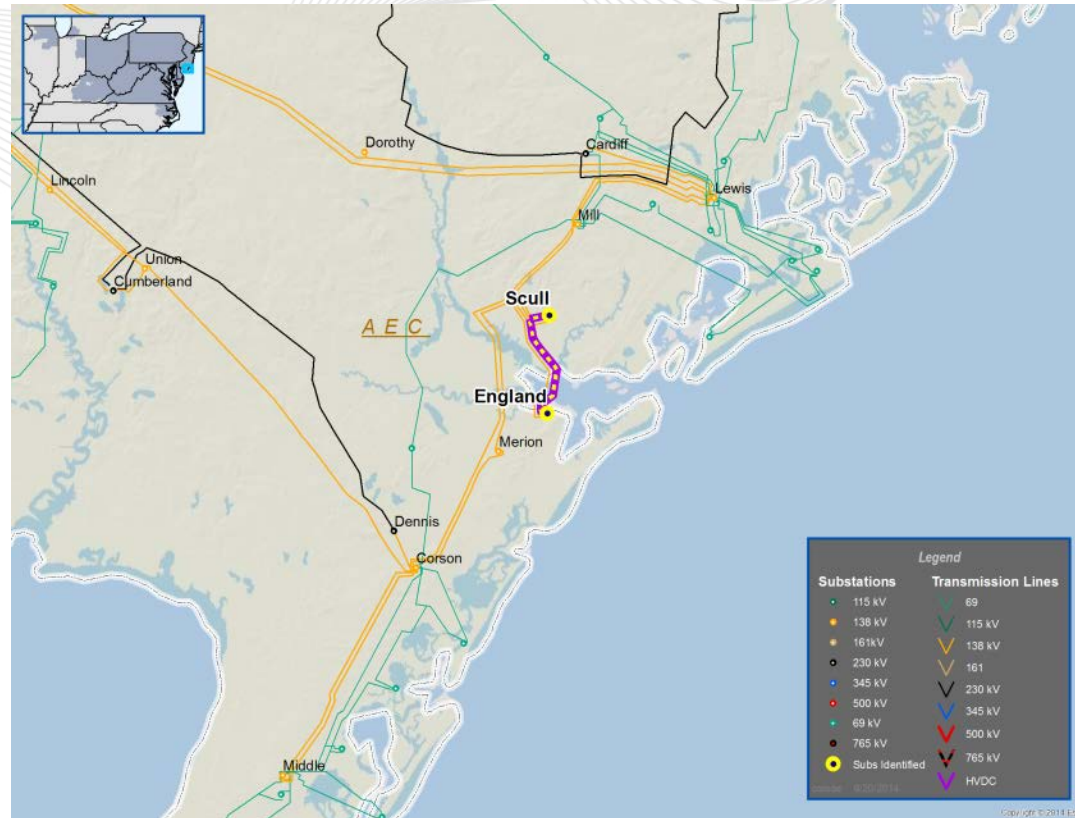




2014 RTEP Preliminary Reliability Results Posted for the Anticipated 6/27/2014 RTEP Window

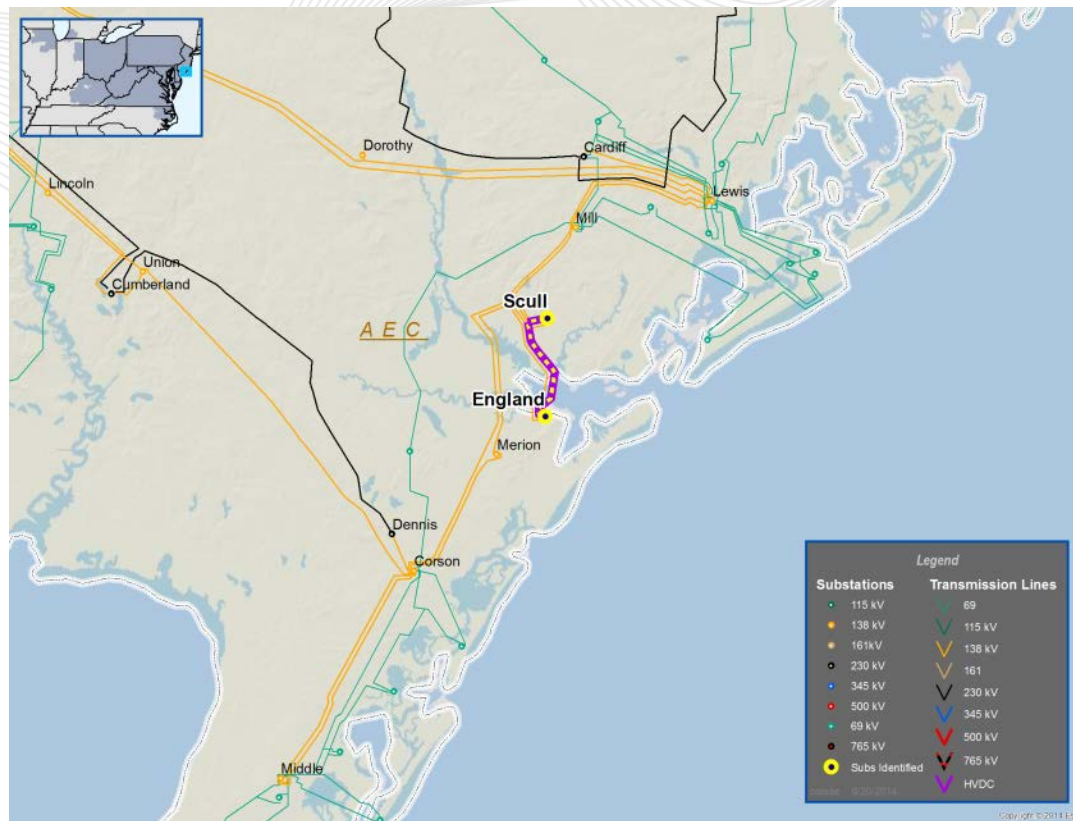
- Generation Deliverability and Common Mode Outage Violation.
- The BL England to Scull 138 kV circuit #1 is overloaded for multiple contingencies.

AE Transmission Zone



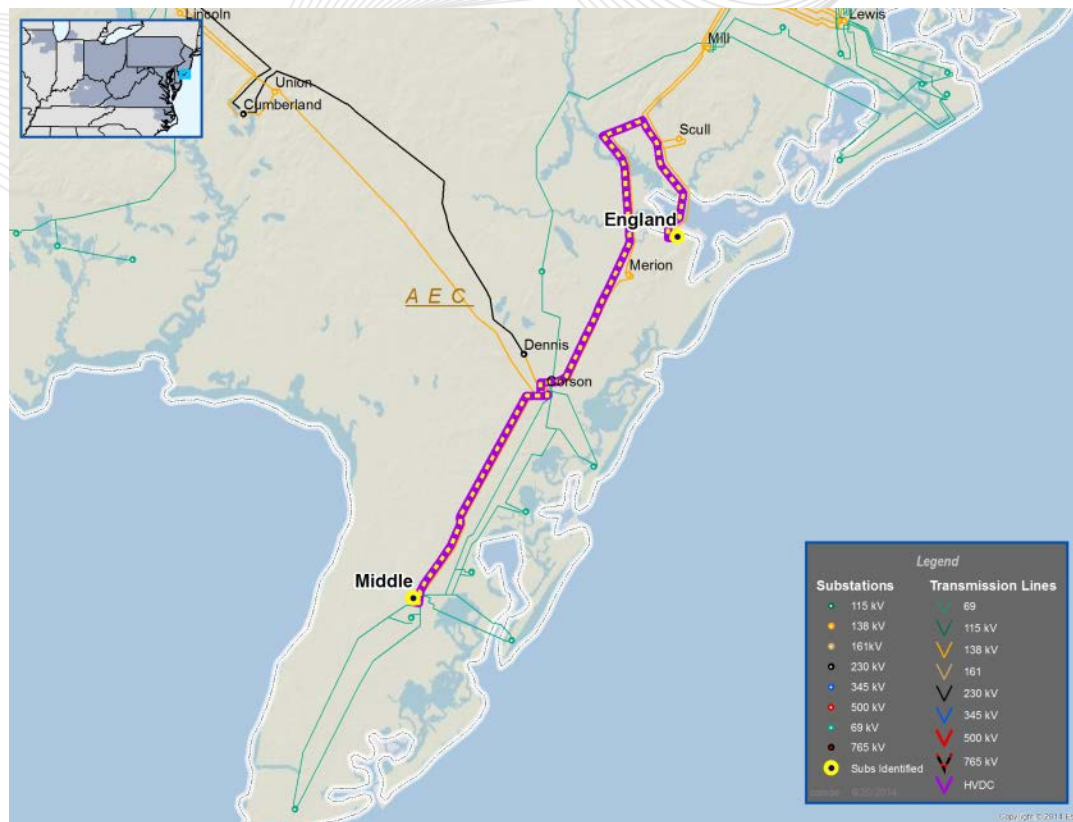
- Generation Deliverability and Common Mode Outage Violation.
- The BL England to Scull 138 kV circuit #2 is overloaded for multiple contingencies.

AE Transmission Zone



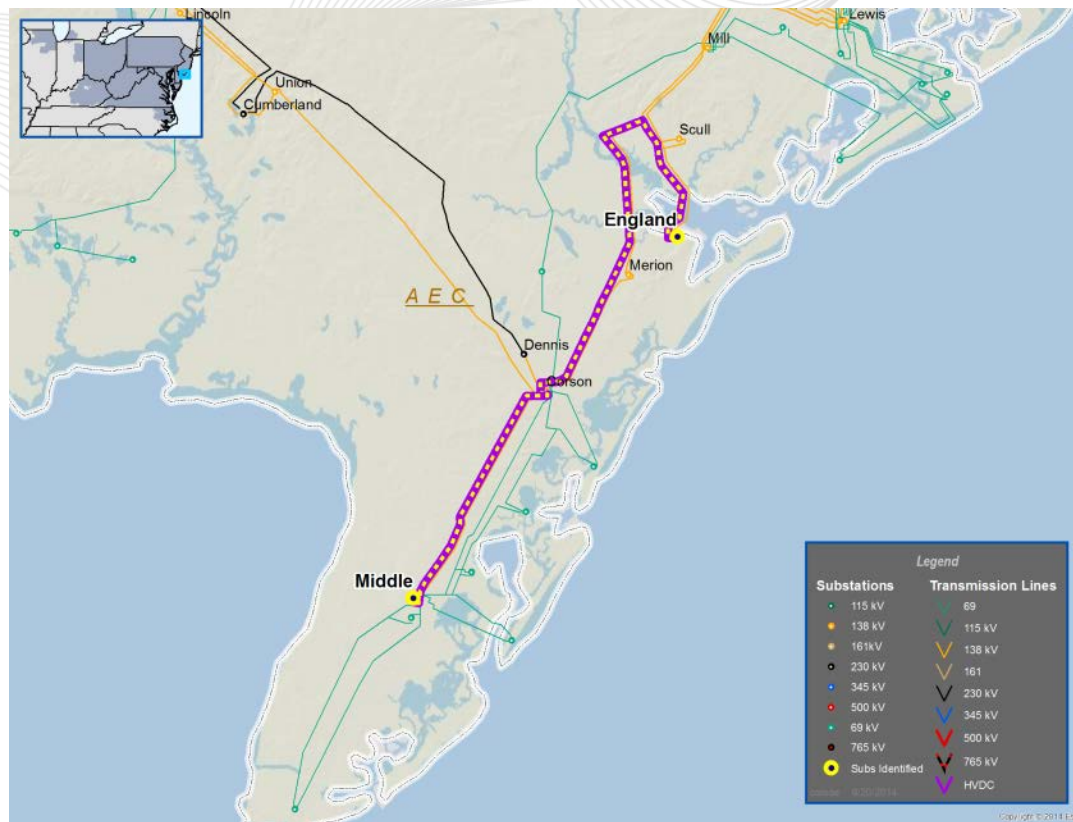
- Generation Deliverability, Common Mode Outage and N-1-1 Violation.
- The BL England to Middle Tap 138 kV circuit is overloaded for tower contingency loss of the BL England – Scull – Mill 138 kV circuits #1 & #2, and for multiple N-1-1 contingencies.

AE Transmission Zone

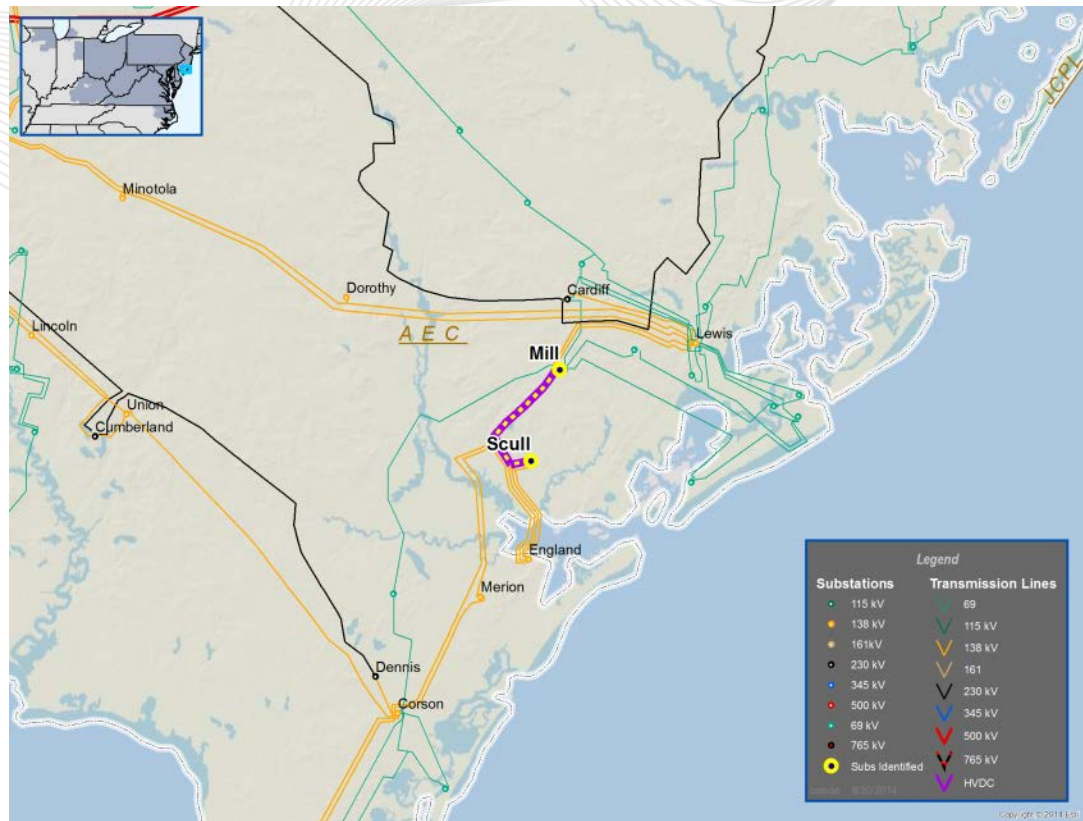


- Generation Deliverability and Common Mode Outage Violation.
- The Scull to Mill 138 kV circuit #1 is overloaded for multiple contingencies.

AE Transmission Zone

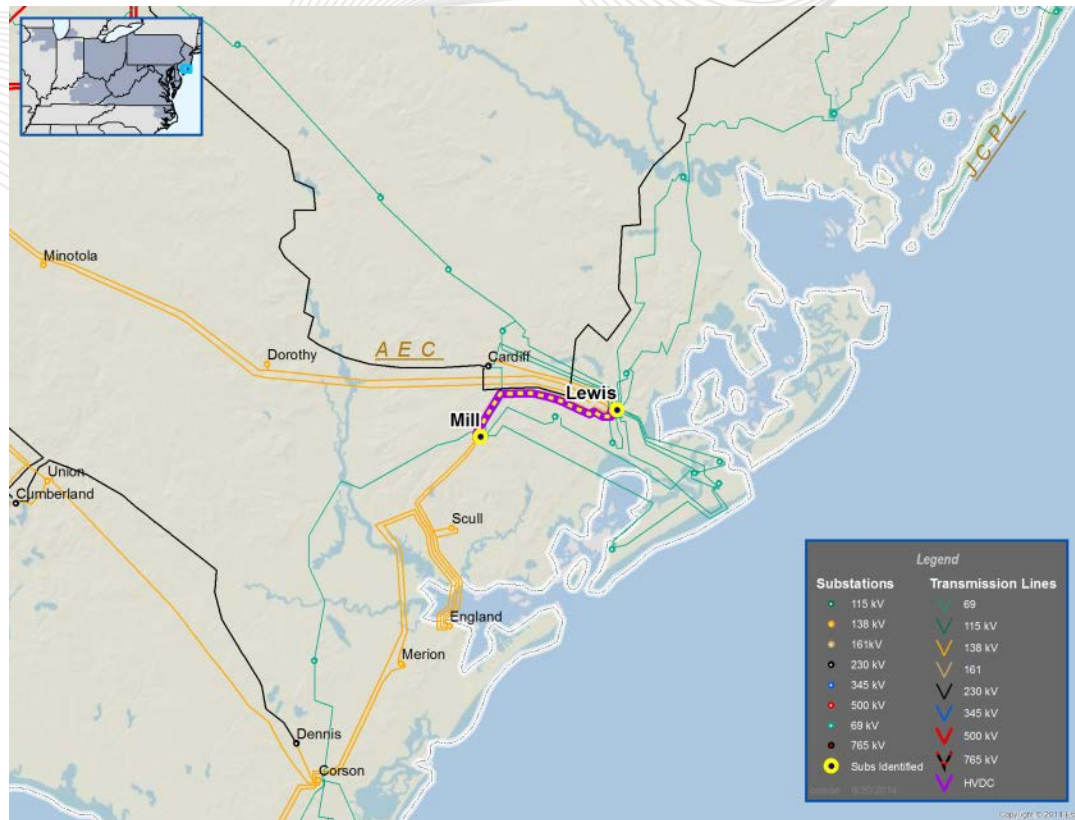


- Generation Deliverability and Common Mode Outage Violation.
- The Scull to Mill 138 kV circuit #2 is overloaded for multiple contingencies.



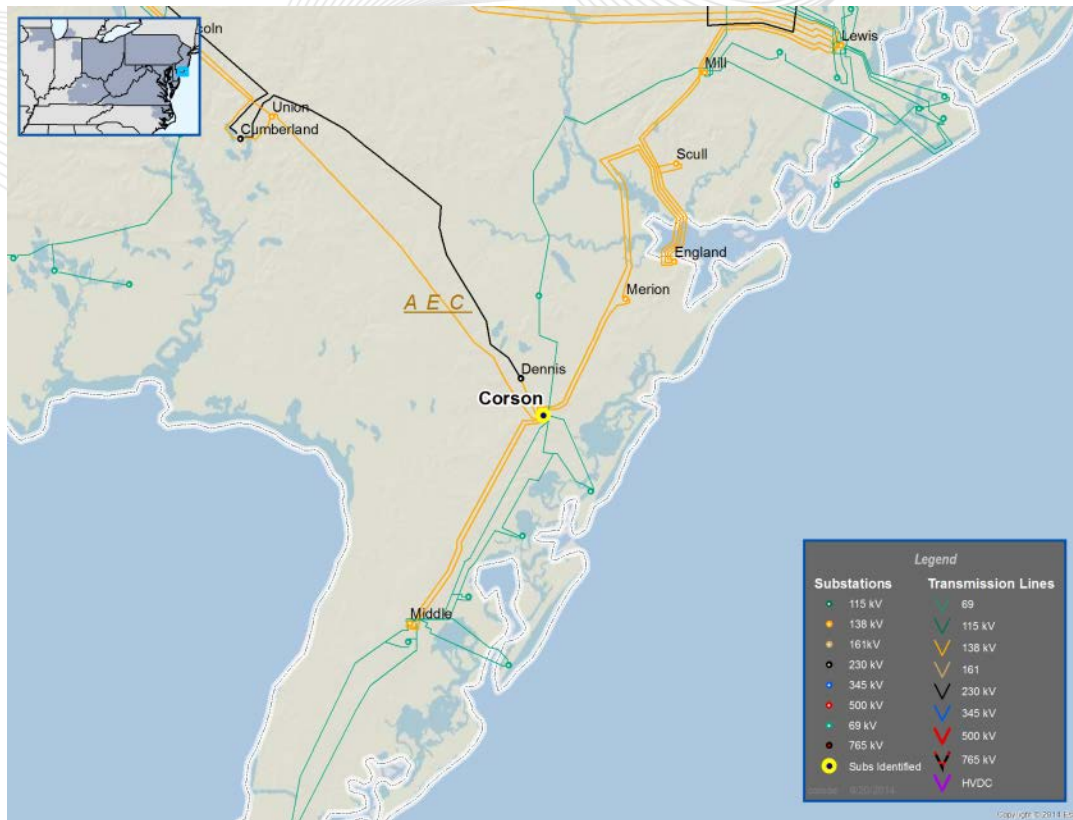
- Generation Deliverability and Common Mode Outage Violation.
- The Mill - Lewis 138 kV circuit #1 is overloaded for multiple contingencies.

AE Transmission Zone



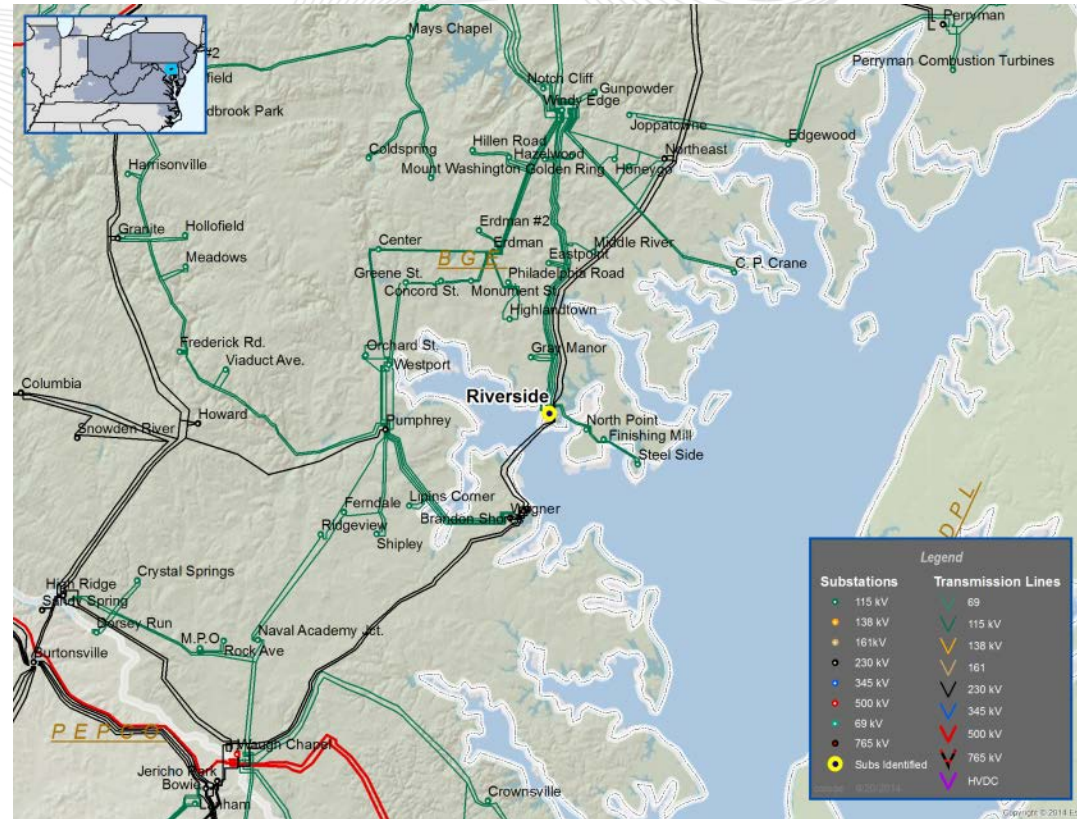
- Common Mode Outage Violation.
- The Corson 138/69 kV transformer #1 is overloaded for line stuck breaker contingency loss of the BL England – Middle Tap – Corson and Corson – Dennis 138 kV circuits, plus Corson 138/69 kV transformer #2.

AE Transmission Zone



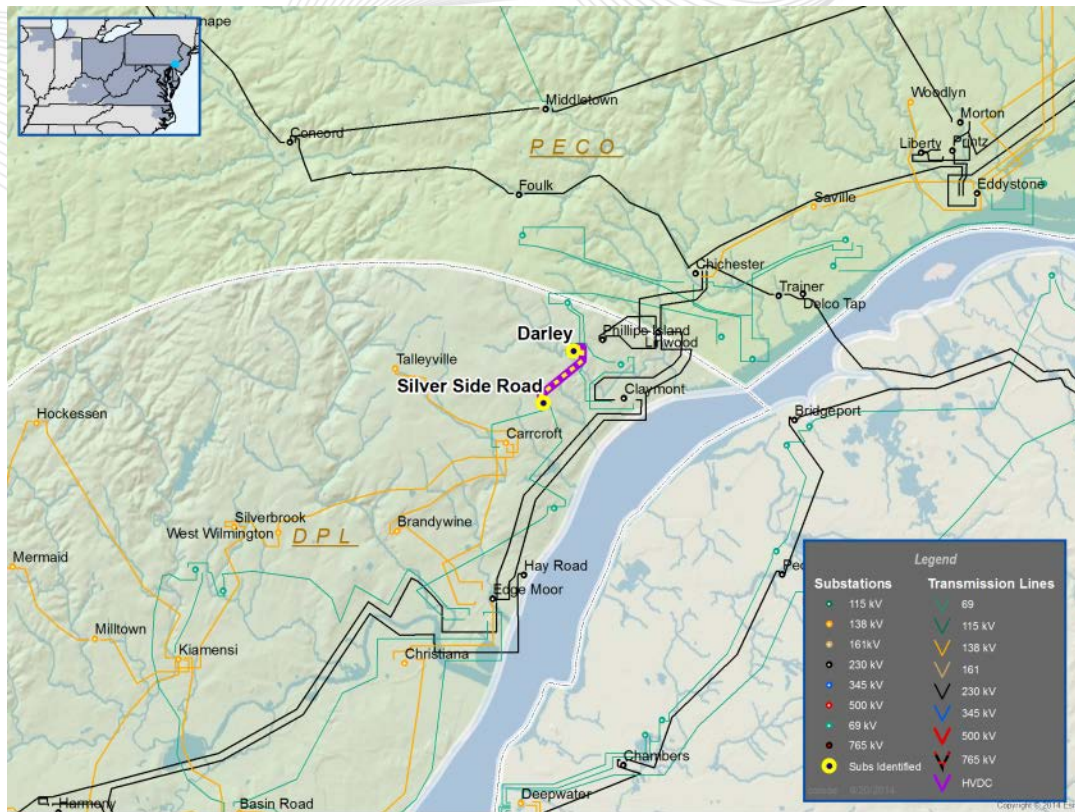
- Baseline and Common Mode Outage Violation.
- The Riverside 115 kV bus section is overloaded for line fault stuck breaker contingency loss of the Brandon Shores to Riverside 230 kV circuit '2344', Riverside 230/115 kV transformer #1 and Brandon Shores 230/115 kV transformer #2.

BGE Transmission Zone

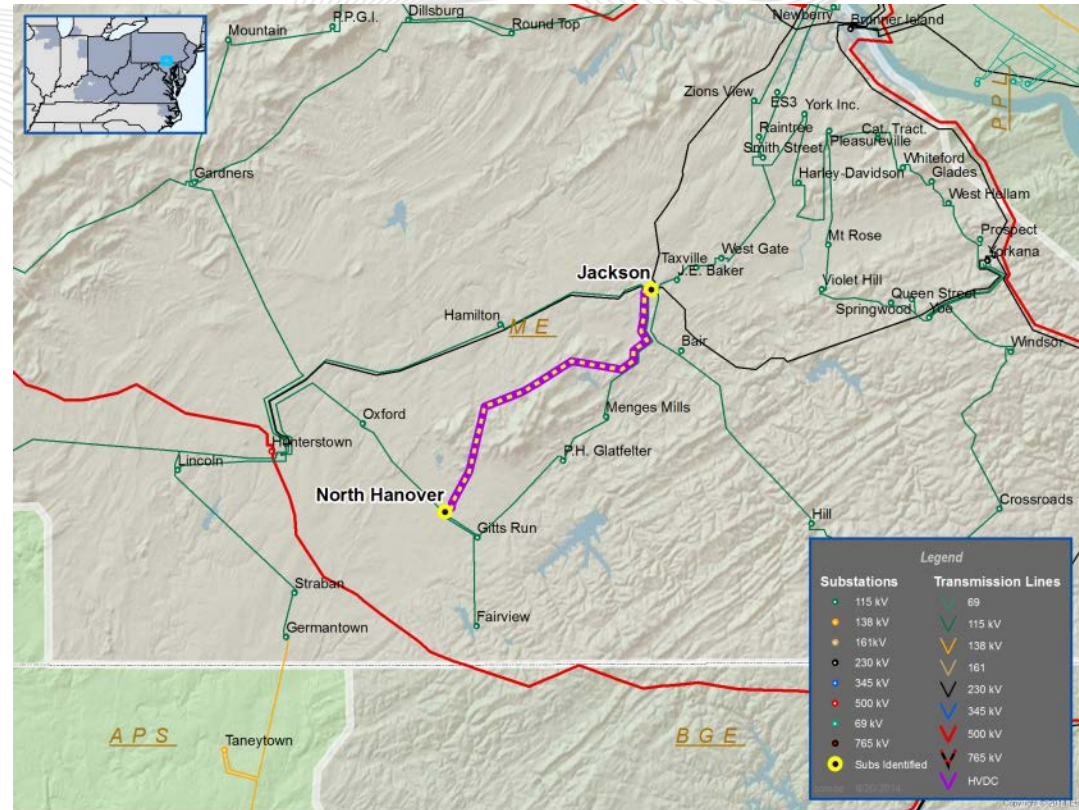


- Common Mode Outage Violation.
- The Silver Side Road to Darley 69 kV circuit is overloaded for tower contingency loss of the Edgemore – Clay and Edgemore – Linwood 230 kV circuits .

DPL Transmission Zone



- N-1-1 Violation.
- The Jackson to North Hanover 115 kV circuit is overloaded for multiple N-1-1 contingencies.



- N-1-1 Violation.
- The Eddystone to Llanerch 138 kV circuit '130-45' is overloaded for N-1-1 contingency loss of Plymouth – Brynmawr 230 kV and Eddystone to Llanerch 138 kV '130-42' circuits.

PECO Transmission Zone

