

Market Efficiency Update

Nic Dumitriu,
Manager Market Simulation
Transmission Expansion Advisory Committee
August 5, 2025

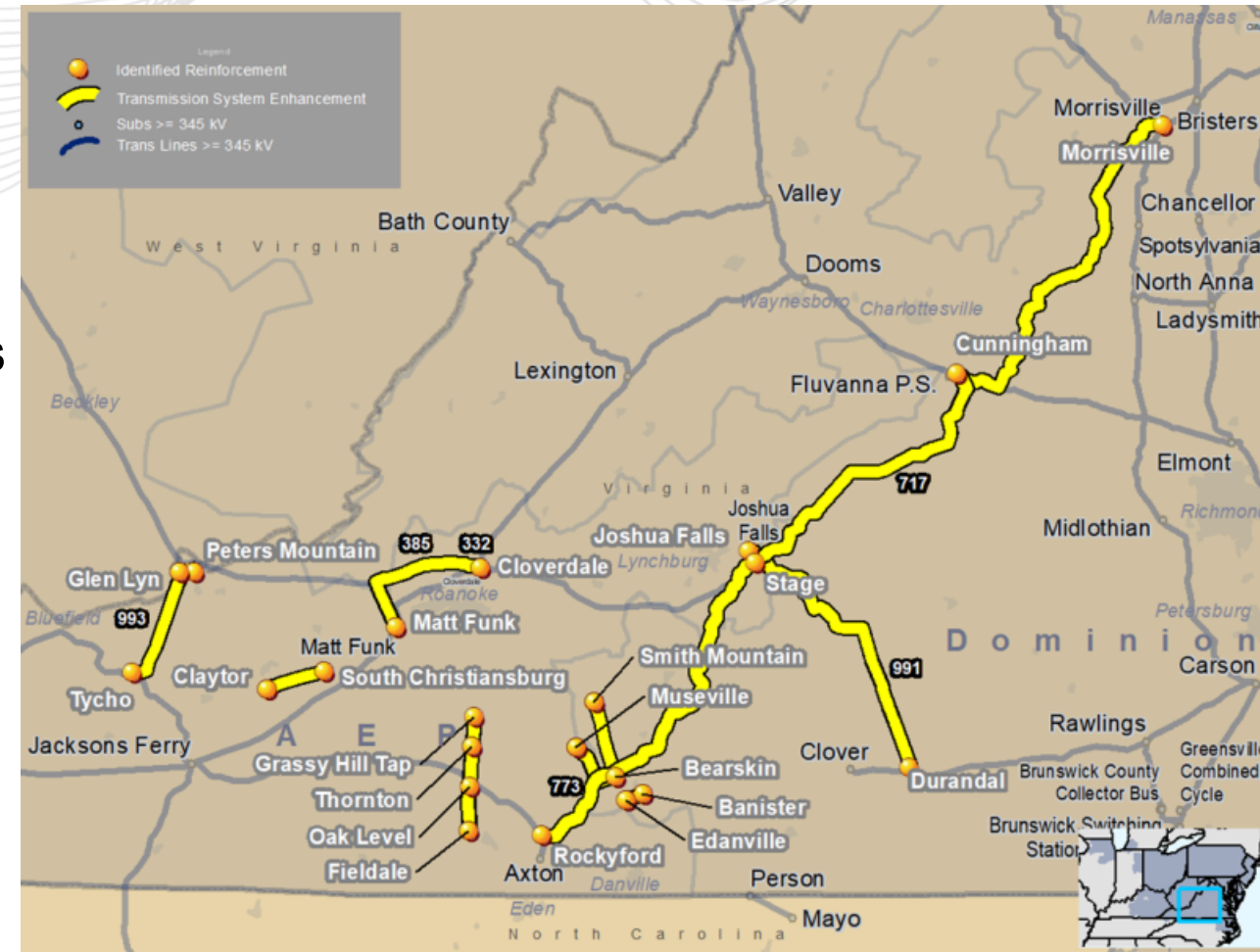
2024/25 Market Efficiency Window 1 Update

- [2024/25 Long-Term Market Efficiency Window 1](#) opened on 4/11/25 and closed 6/10/25.

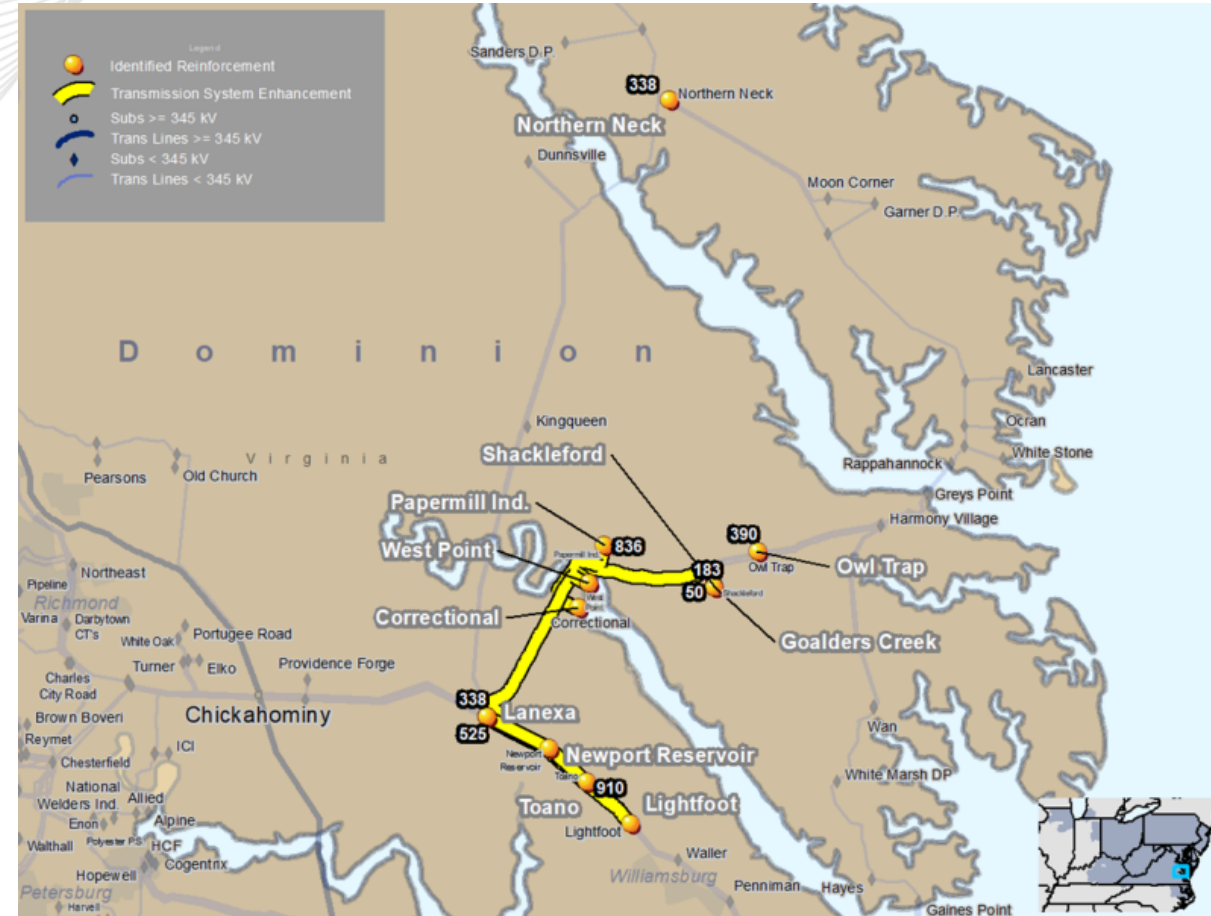
Congestion Driver	Area	Type	Comment
Museville-Smith Mountain 138 kV	AEP	Line	Historical congestion. Congestion increases driven by increased load forecast.
West Point-Lanexa 115 kV	DOM	Line	Congestion driven by the renewable buildup.
Garrett-Garrett Tap 115 kV	PN-APS	Line	Congestion driven by the renewable buildup.

- Market Efficiency Base Case, Sensitivity Scenarios, and Congestion Drivers for the window are posted on [Market Efficiency secure page](#).
- Received 14 proposals from 5 entities.
 - Redacted versions of proposals are posted on the [Redacted Proposals page](#).
 - See the Appendix A for individual proposal descriptions.
- Currently PJM reviewing proposals received.
 - Also reviewing the overlap of congestion drivers with 2025 RTEP Window 1.

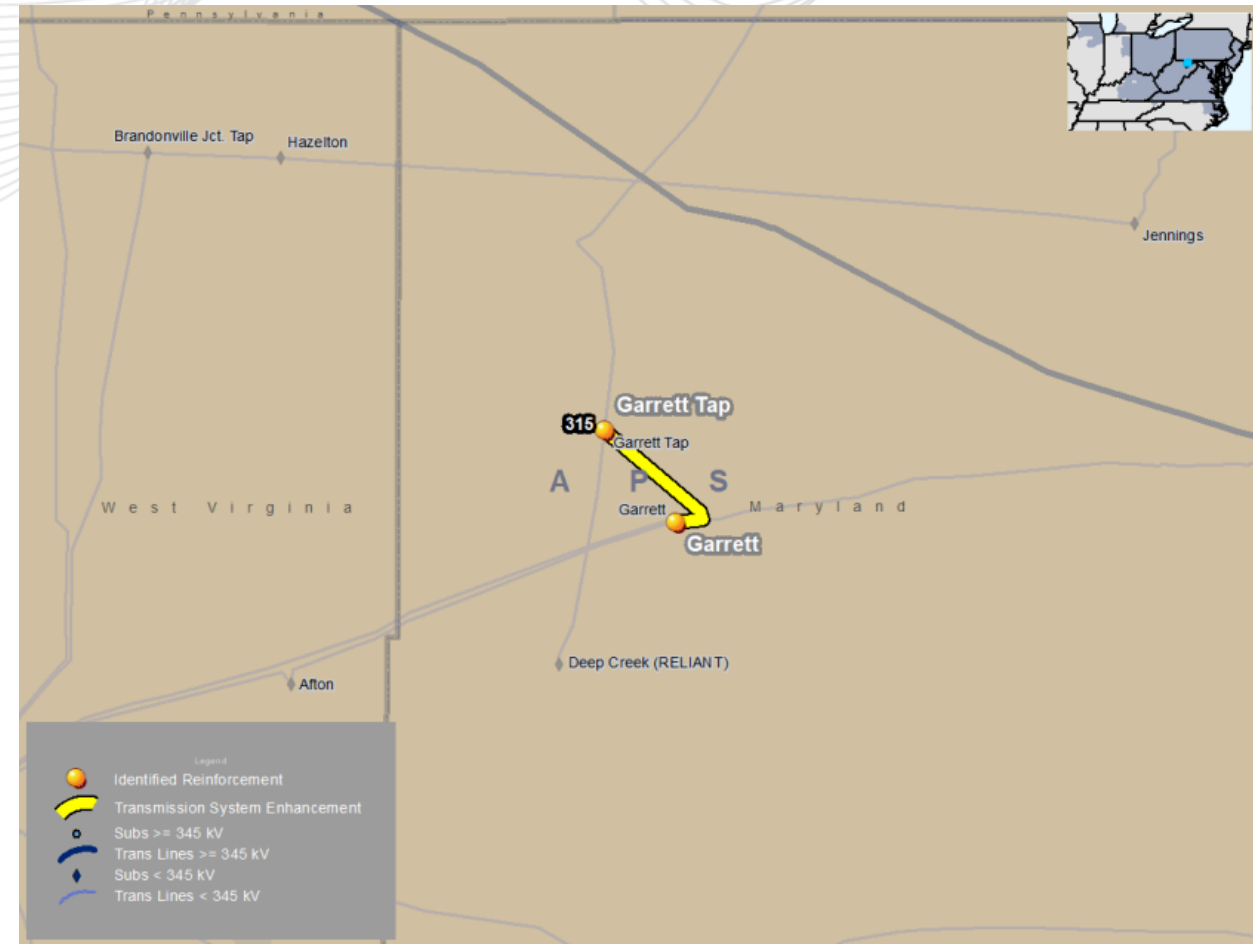
- 6 proposals received.
- 3 Greenfield proposals with in-service year costs from \$270.1M to \$1.568B:
 - Proposal ID 717: 765 kV & 500 kV substations and transmission lines.
 - Proposal ID 993: 765/345 kV substation and 345 kV transmission lines in existing ROW.
 - Proposal ID 991: 765/500 kV substation and 765 kV transmission line.
- 3 upgrade proposals with in-service year costs from \$1.8M to \$131.6M.

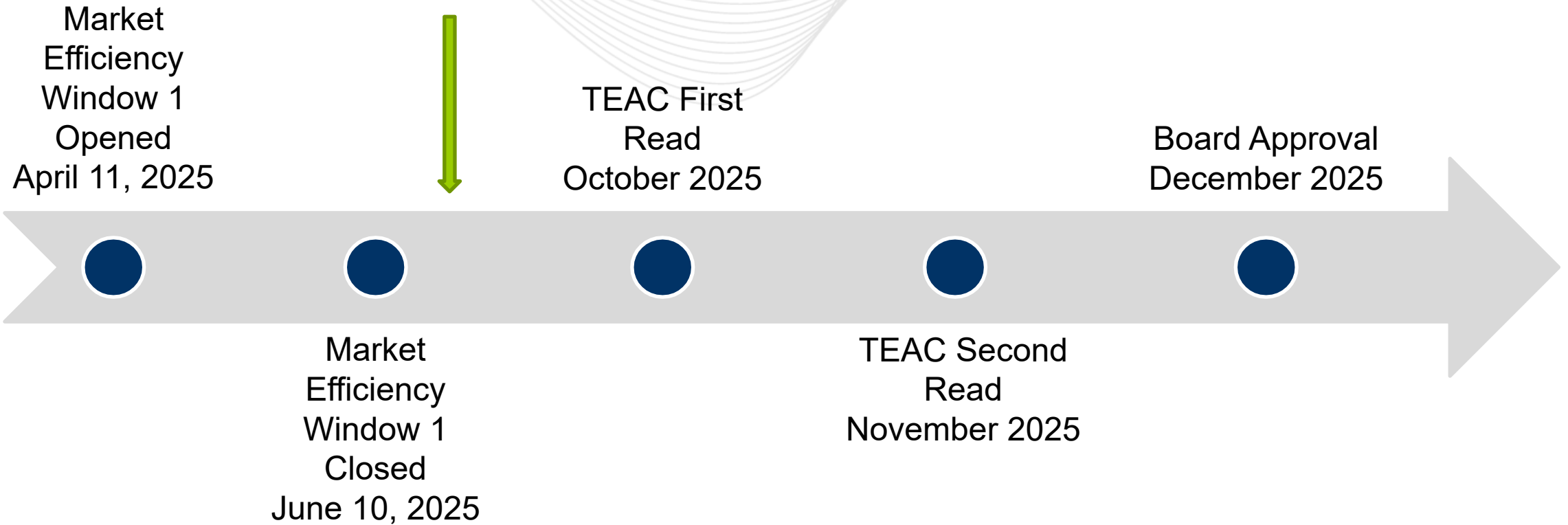


- 7 proposals received.
- 2 Battery Energy Storage System (BESS) proposals with in-service year costs of \$83.9M and \$221.7M.
- 3 upgrade proposals with in-service year costs from \$28.1M to \$90.9M.
- 2 substation expansion proposals with in-service year costs of \$21.4M and \$23.4M.



- 1 upgrade proposal received.
 - Proposal in-service year cost of \$9.9M.





Appendix A

2024/2025 Market Efficiency Window Proposals Received

Project ID: 2025-ME1-332

Proposed Solution:

Rebuild one span of the Smith Mountain-Museville 138 kV line.

Rebuild one span of the Matt Funk-Cloverdale 345 kV line.

Mitigate clearance issues on the Glen Lyn-Peters Mountain 138 kV, Claytor-South Christiansburg 138 kV, East Danville-Banister 138 kV, Bearskin-Museville 138 kV, Smith Mountain-Museville 138 kV, and Matt Funk-Cloverdale 345 kV lines.

Replace station equipment at Smith Mountain, Museville, Banister and South Christiansburg stations.

Rebuild approximately 15 miles of the Fieldale-Thornton 138 kV double circuit line.

Project Type: Upgrade

kV Level: 345 kV & 138 kV

In-Service Cost (\$M): \$86.11

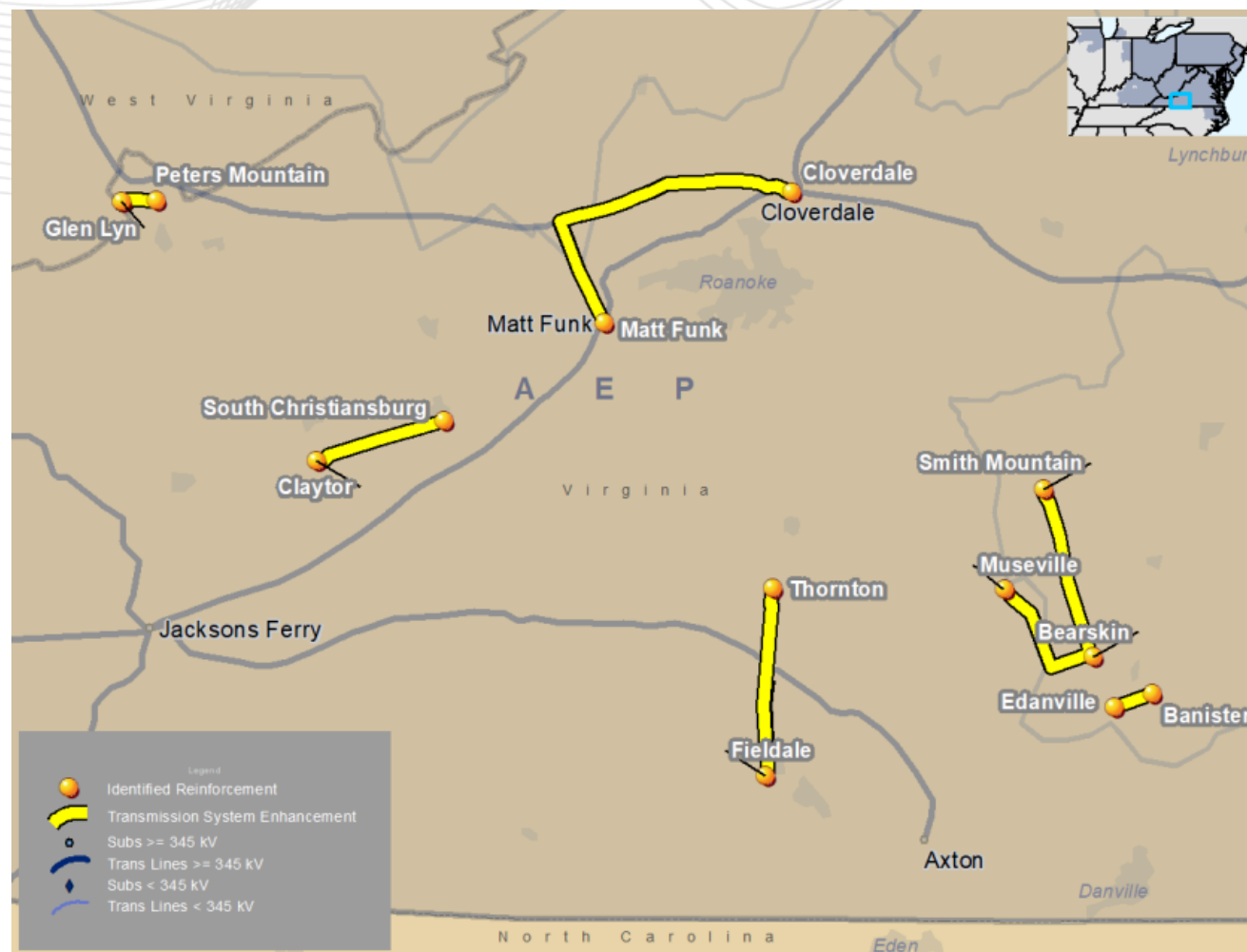
In-Service Year: 2029

Target Zone: AEP

ME Constraints:

Museville-Smith Mountain 138 kV

Cost Capping Provision: No



Project ID: 2025-ME1-385

Proposed Solution:

Rebuild the Smith Mountain-Museville 138 kV line.

Rebuild one span of the Matt Funk-Cloverdale 345 kV line.

Mitigate clearance issues on the Glen Lyn-Peters Mountain 138 kV, Claytor-South Christiansburg 138 kV, East Danville-Banister 138 kV, Bearskin-Museville 138 kV, Smith Mountain-Museville 138 kV, and Matt Funk-Cloverdale 345 kV lines.

Replace station equipment at Smith Mountain, Museville, Banister and South Christiansburg stations.

Rebuild approximately 15 miles of the Fieldale-Thornton 138 kV double circuit line.

Project Type: Upgrade

kV Level: 345 kV & 138 kV

In-Service Cost (\$M): \$131.64

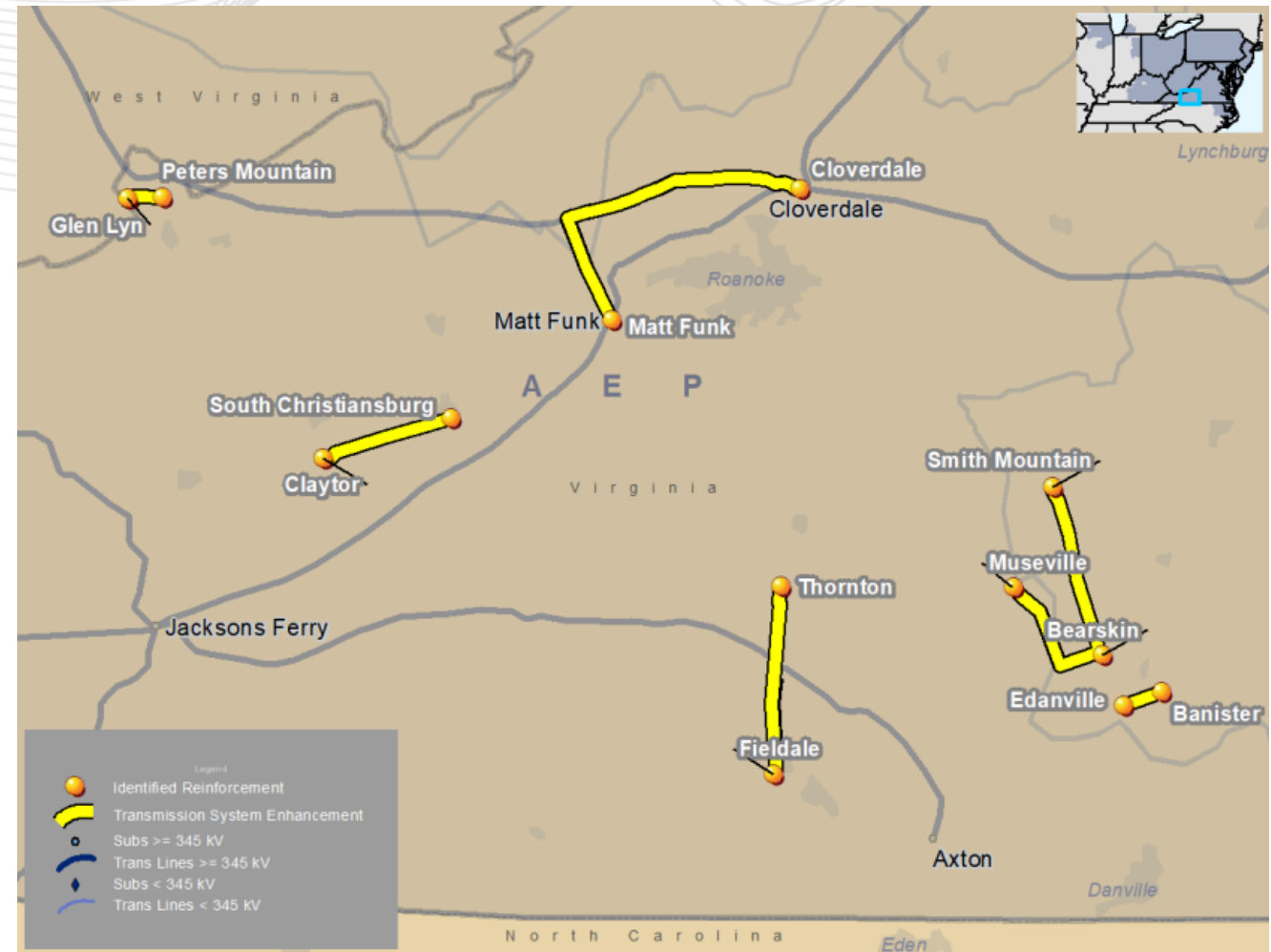
In-Service Year: 2029

Target Zone: AEP

ME Constraints:

Museville-Smith Mountain 138 kV

Cost Capping Provision: No



Project ID: 2025-ME1-733

Proposed Solution:
Rebuild one span of the Smith Mountain-Museville 138 kV line and replace disconnect switches at Smith Mountain station.

Project Type: Upgrade

kV Level: 138 kV

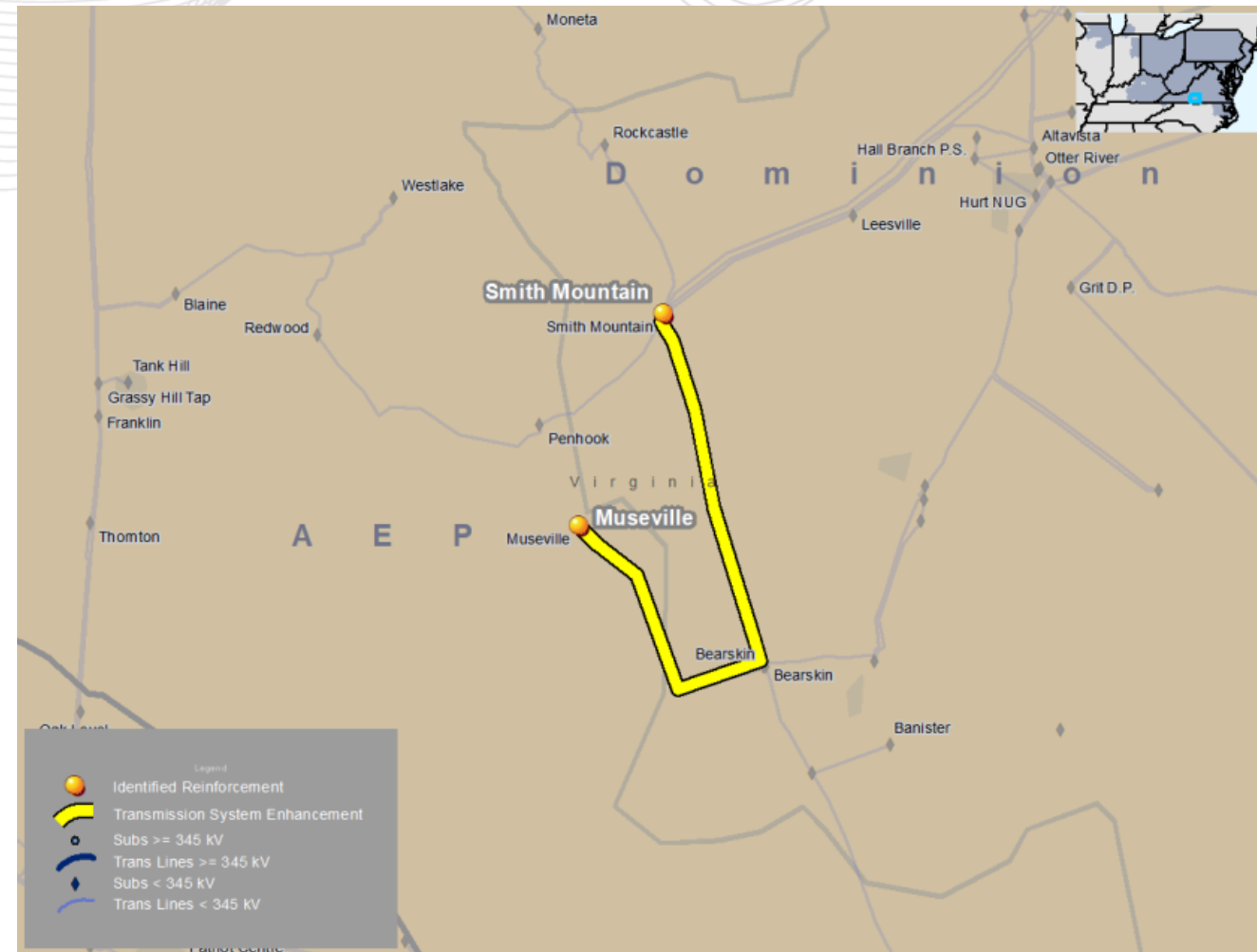
In-Service Cost (\$M): \$1.81

In-Service Year: 2029

Target Zone: AEP

ME Constraints:
Museville-Smith Mountain 138 kV

Cost Capping Provision: No



Project ID: 2025-ME1-717

Proposed Solution:

Construct 765 kV Rocky Ford and 765/500kV Stage Substations. Expand existing Cunningham and Morrisville 500 kV Substations. Construct Rocky Ford to Stage 765kV, Stage to Cunningham 500kV, and Cunningham to Morrisville 500kV transmission lines.

Project Type: Greenfield

kV Level: 765 kV & 500 kV

In-Service Cost (\$M): \$1568.72

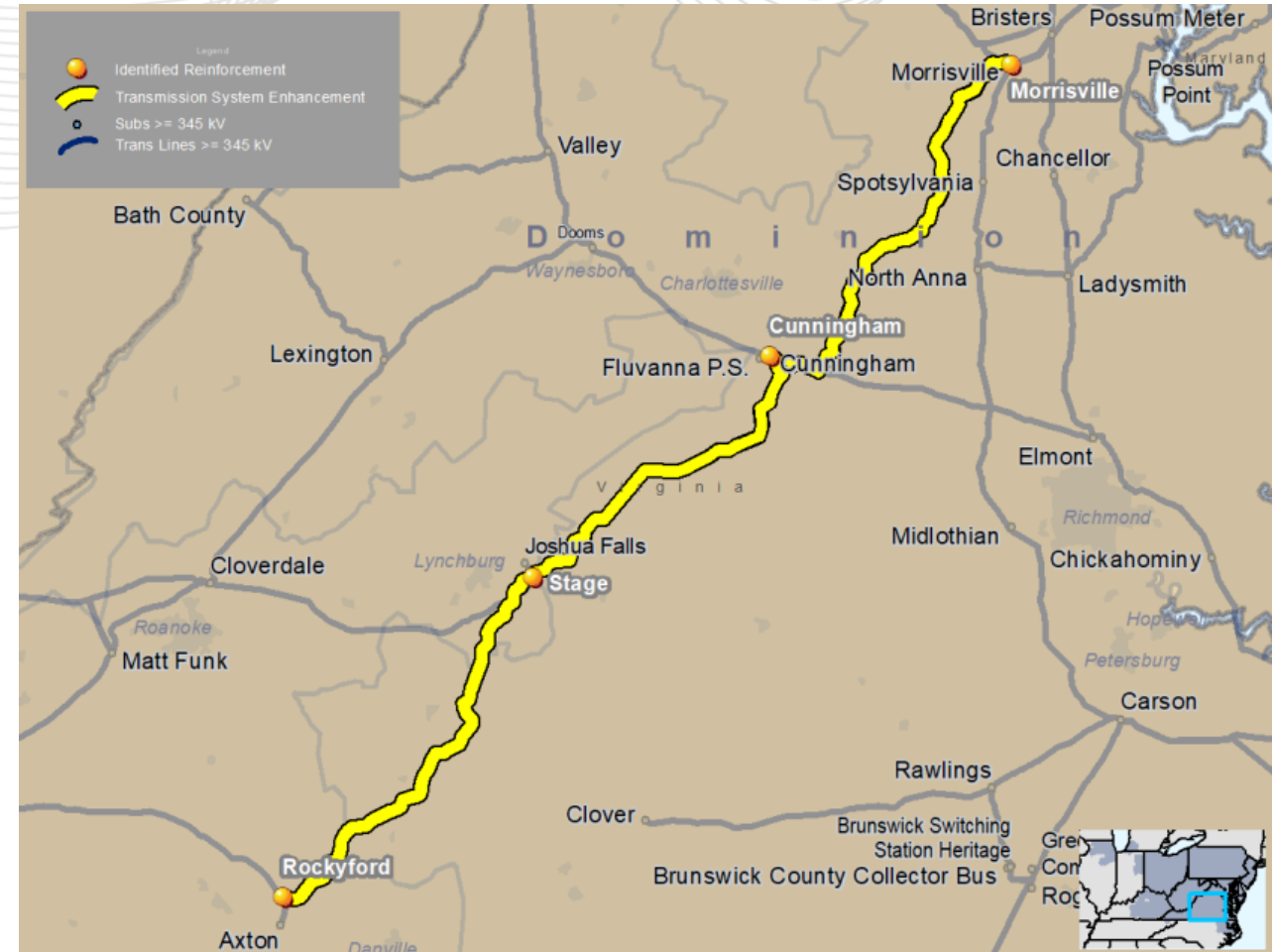
In-Service Year: 2029

Target Zone: AEP

ME Constraints:

Museville-Smith Mountain 138 kV

Cost Capping Provision: Yes



Project ID: 2025-ME1-991

Proposed Solution:

Construct a 765/500kV Durandal greenfield substation that will interconnect a new 765kV Joshua Falls - Durandal line and the existing Clover - Rawlings 500kV line. Construct Joshua Falls - Durandal 765kV greenfield line.

Project Type: Greenfield

kV Level: 765 kV & 500 kV

In-Service Cost (\$M): \$520.38

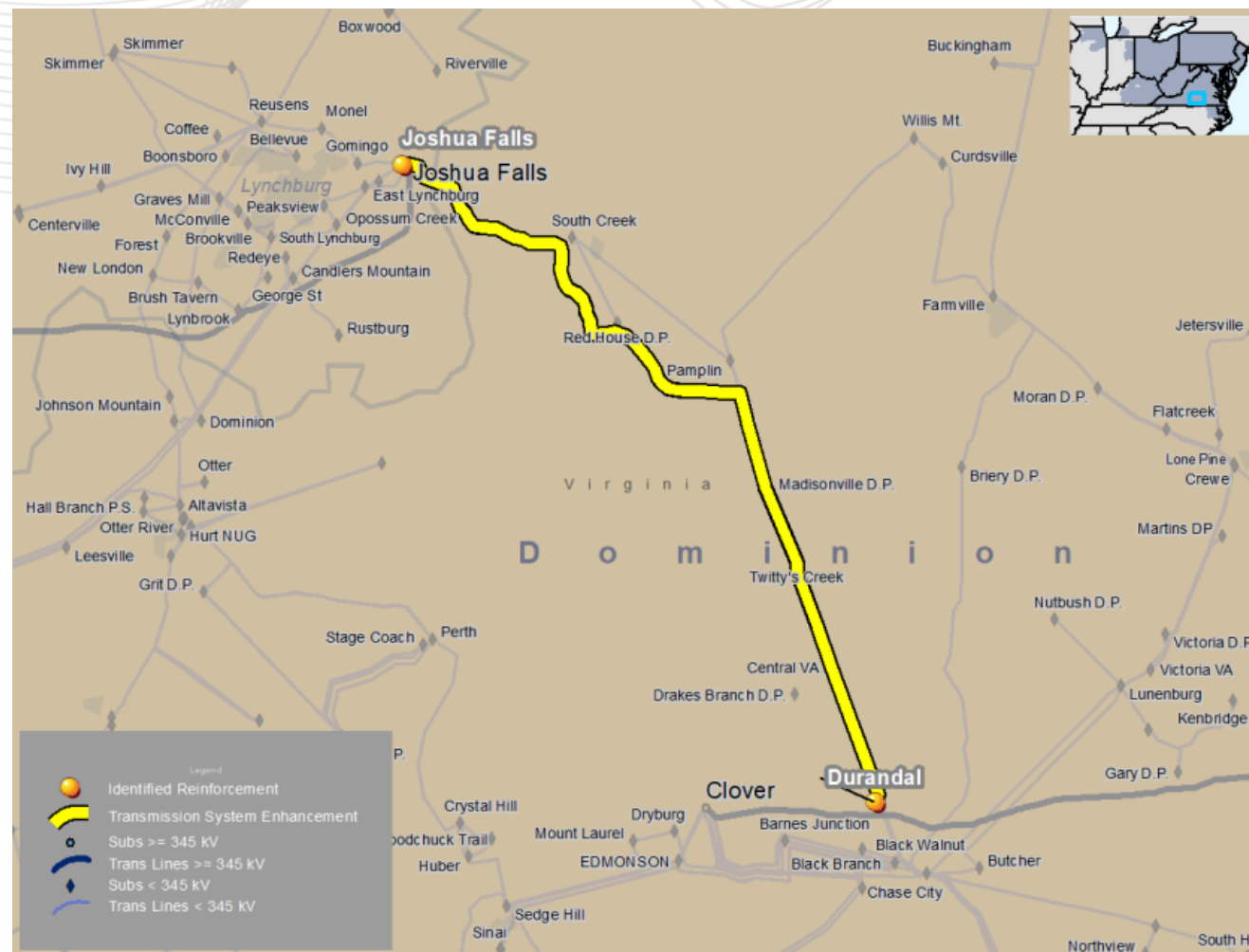
In-Service Year: 2029

Target Zone: AEP

ME Constraints:

Musevillle-Smith Mountain 138 kV

Cost Capping Provision: Yes



Project ID: 2025-ME1-993

Proposed Solution:

Construct a 765/345KV greenfield substation, called Tycho, that will interconnect the existing 765kV Wyoming-Jacksons Ferry line and the existing 345 kV Kanawha River-Matt Funk line. Install a 765/345KV transformer at Tycho. Matt Funk-Cloverdale 345 kV span upgrade.

Project Type: Greenfield

kV Level: 765 kV and 345 kV

In-Service Cost (\$M): \$270.09

In-Service Year: 2029

Target Zone: AEP

ME Constraints:

Musevillle-Smith Mountain 138 kV

Cost Capping Provision: Yes



Project ID: 2025-ME1-50

Proposed Solution:

Install a 25MW battery energy storage system (BESS) with a 4-hour charge-discharge duration at Goalders Creek Substation.

Project Type: Upgrade

kV Level: 115 kV

In-Service Cost (\$M): \$83.92

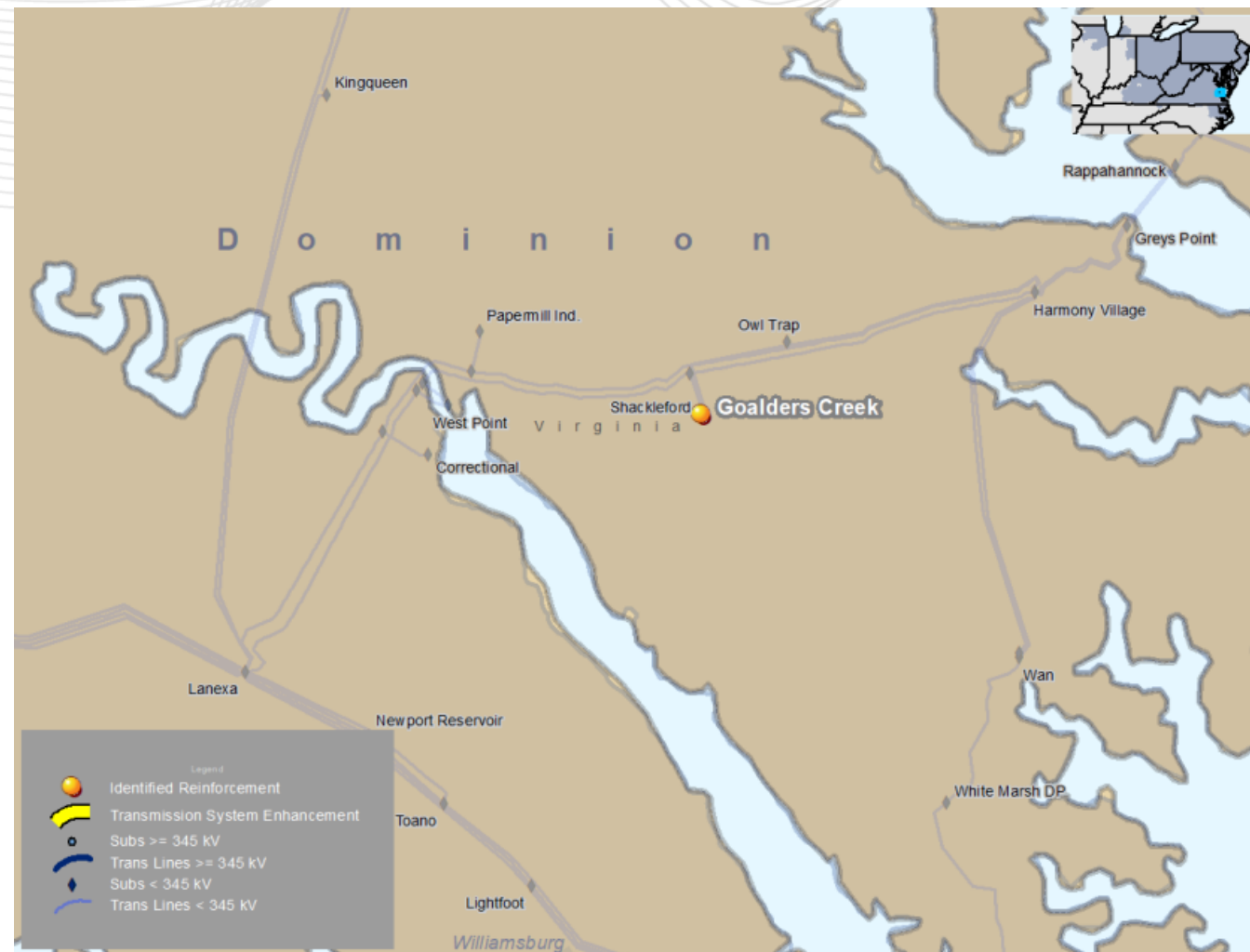
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-183

Proposed Solution:

Install a 50MW battery energy storage system (BESS) with an 8-hour charge-discharge duration at Goalders Creek Substation.

Project Type: Upgrade

kV Level: 115 kV

In-Service Cost (\$M): \$221.74

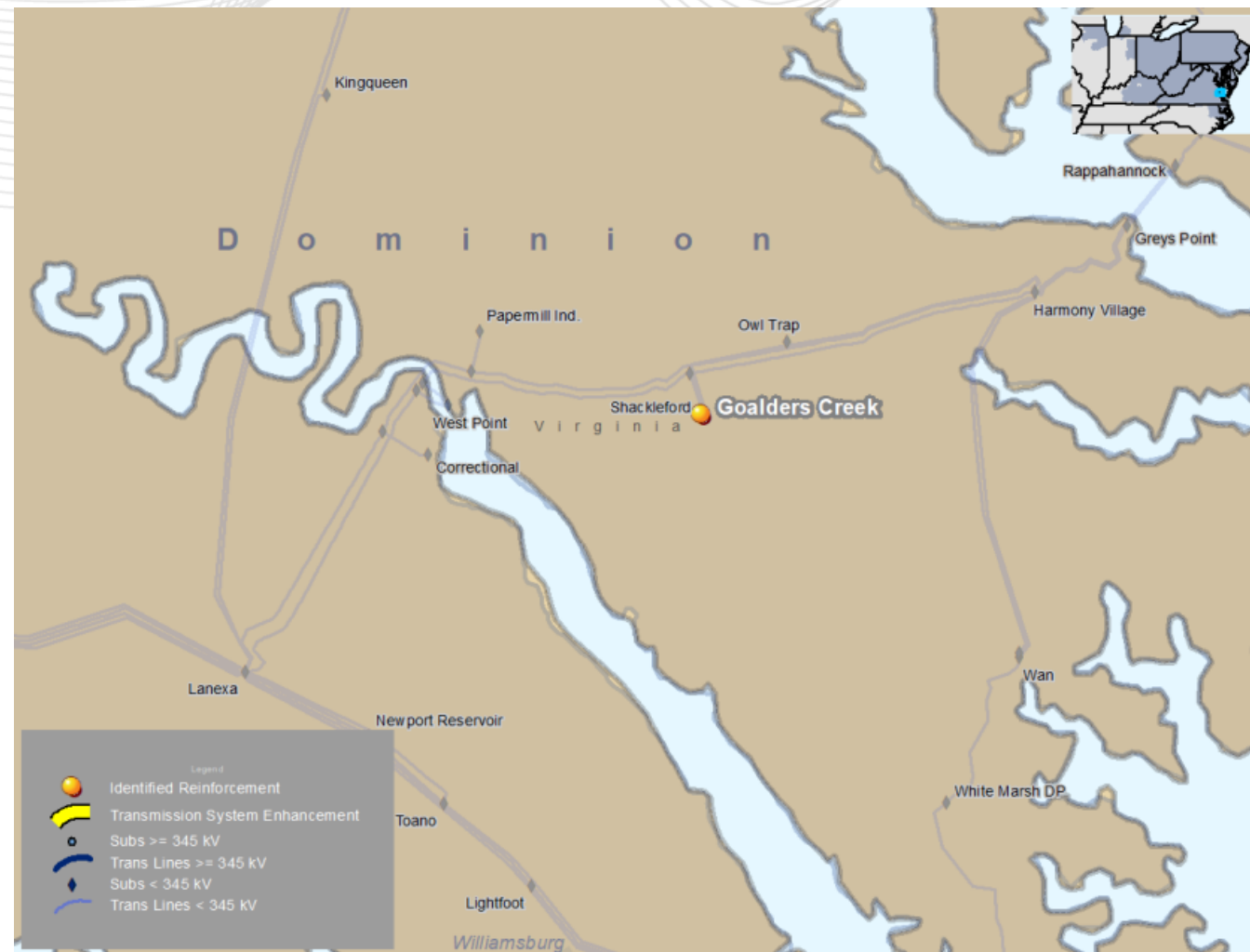
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-338

Proposed Solution:

Partial rebuild and uprate of existing 115kV line #85 from Lanexa to West Point. Install cooling radiator as needed at Northern Neck Transformer #6 to match the rating of Northern Neck Transformer #4.

Project Type: Upgrade

kV Level: 230 kV & 115 kV

In-Service Cost (\$M): \$28.11

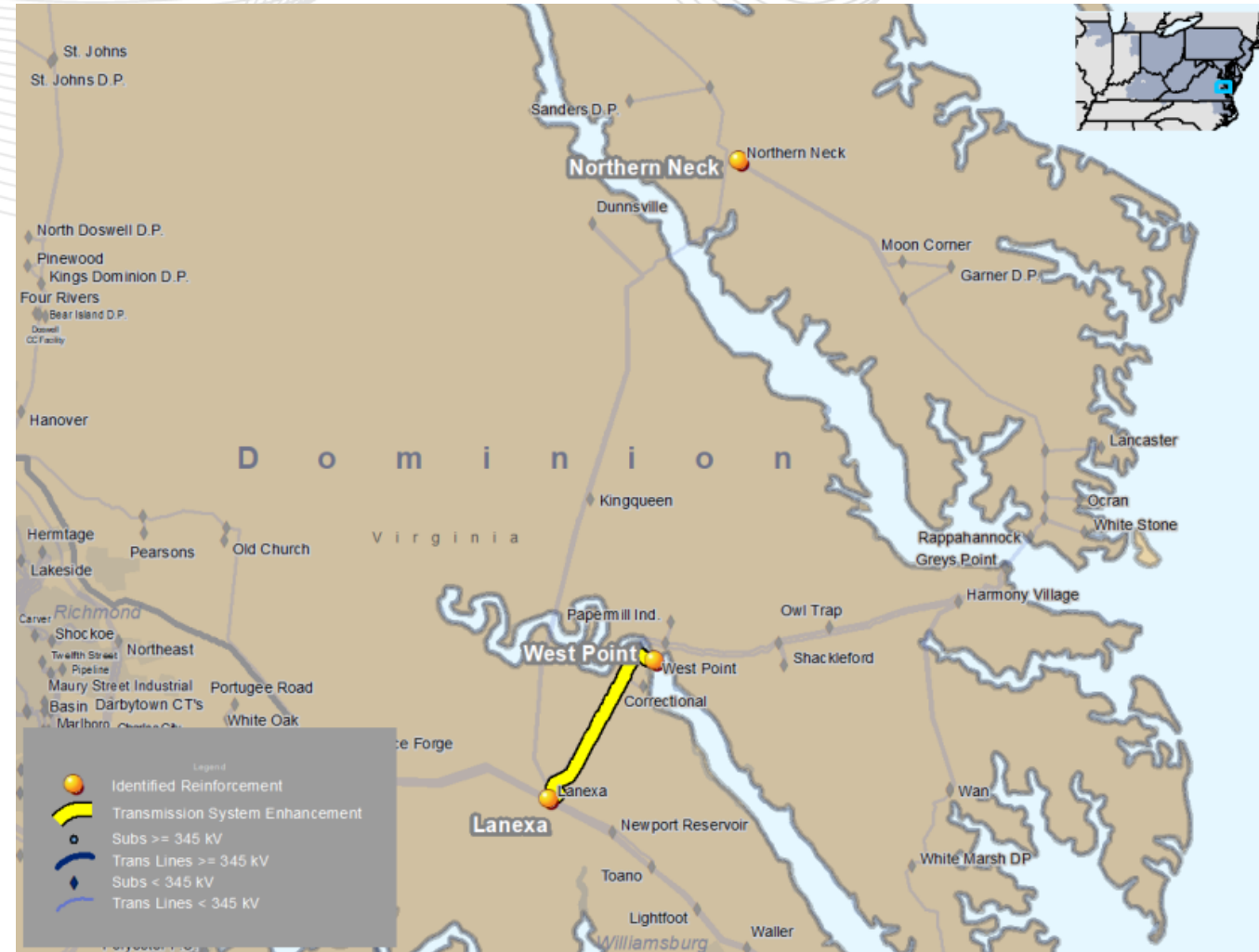
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-390

Proposed Solution:

Construct 230/115kV switching station at Owl Trap 115kV yard and install a 230/115kV transformer. Cut the existing Line #2016 from Lanexa to Harmony Village near the Owl Trap substation.

Project Type: Upgrade

kV Level: 230 kV & 115 kV

In-Service Cost (\$M): \$21.41

In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-525

Proposed Solution:

Construct 230/115kV switching at the future Goalders Creek 115kV substation and install a 299 MVA, 230/115kV transformer. Cut the existing Line #2016 from Lanexa to Harmony Village near the Goalders Creek substation.

Project Type: Upgrade

kV Level: 230 kV & 115 kV

In-Service Cost (\$M): \$23.41

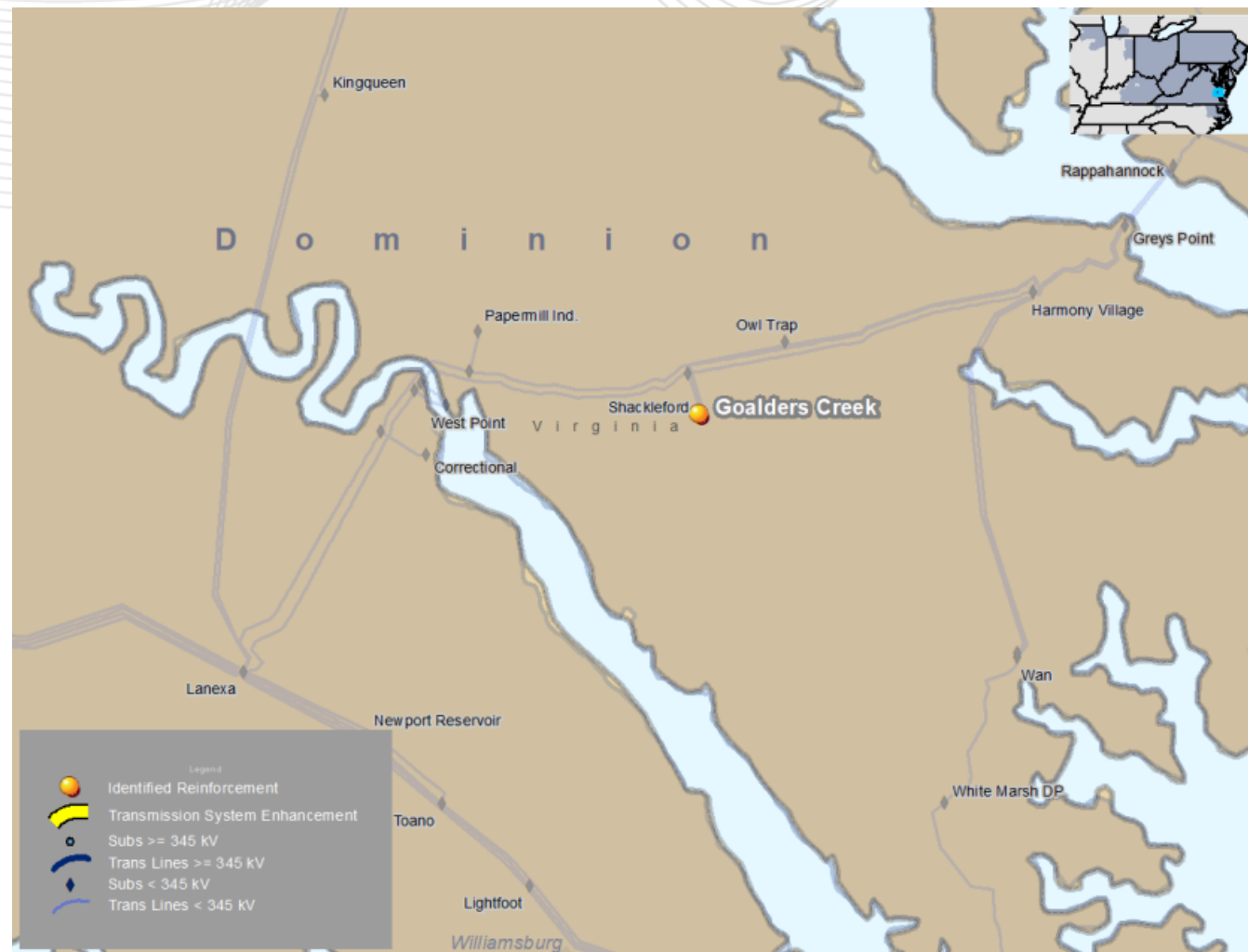
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-836

Proposed Solution:

Rebuild approximately 10.94-mile double circuit segment of Line #85 between Lanexa (structure 85/1A) and structure 85/75C to current 115kV standards. Line #85 shares a double circuit with 230kV Line #2016.

Project Type: Upgrade

kV Level: 115 kV

In-Service Cost (\$M): \$62.58

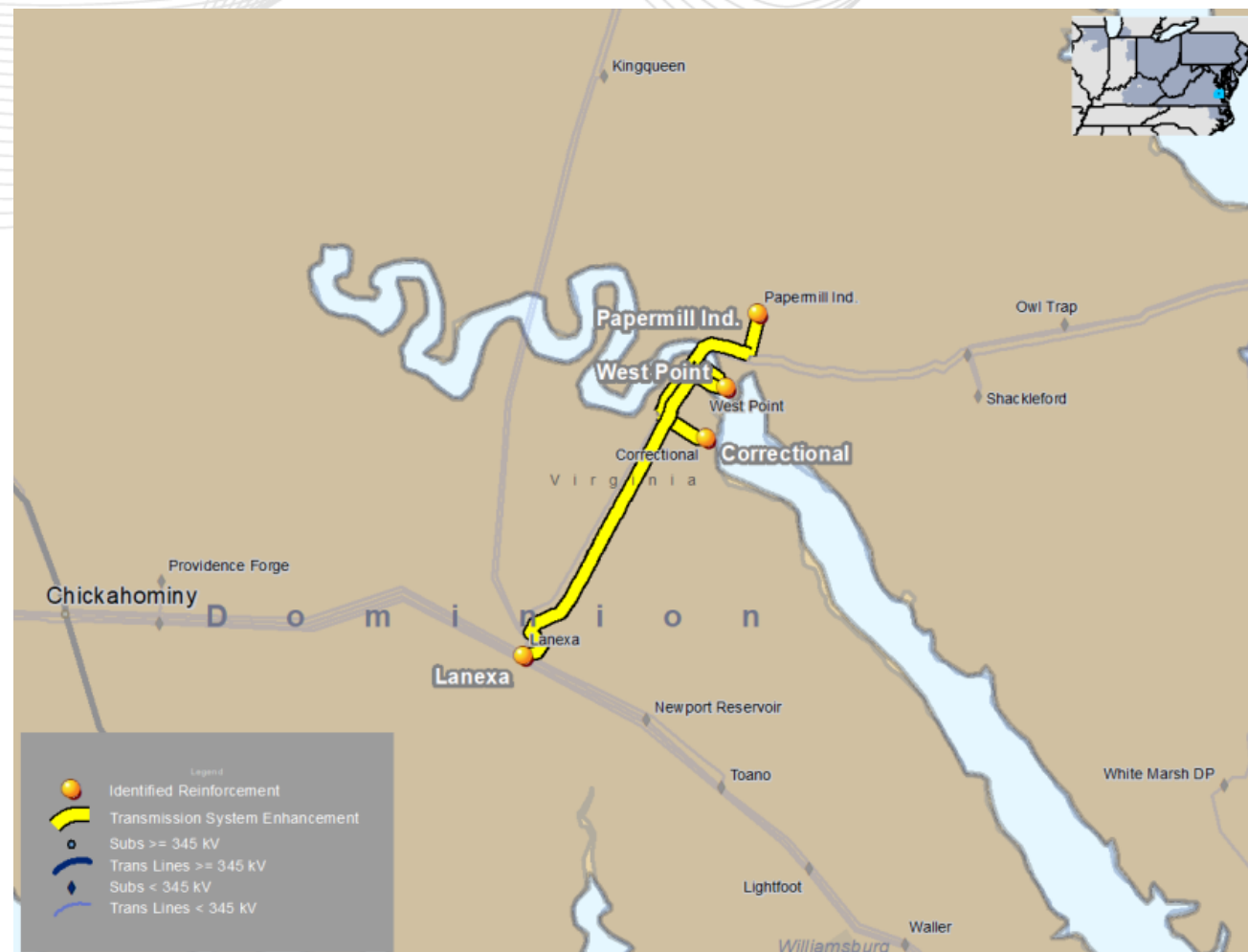
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-910

Proposed Solution:

Partial rebuild and uprate of existing 115kV line #85 from Lanexa to West Point. Rebuild approximately 10.7-mile double circuit segment of Line #2113 between Lanexa (structure 2113/274) and Lightfoot (structure 2113/374) to current 230kV standards.

Project Type: Upgrade

kV Level: 230 kV & 115 kV

In-Service Cost (\$M): \$90.89

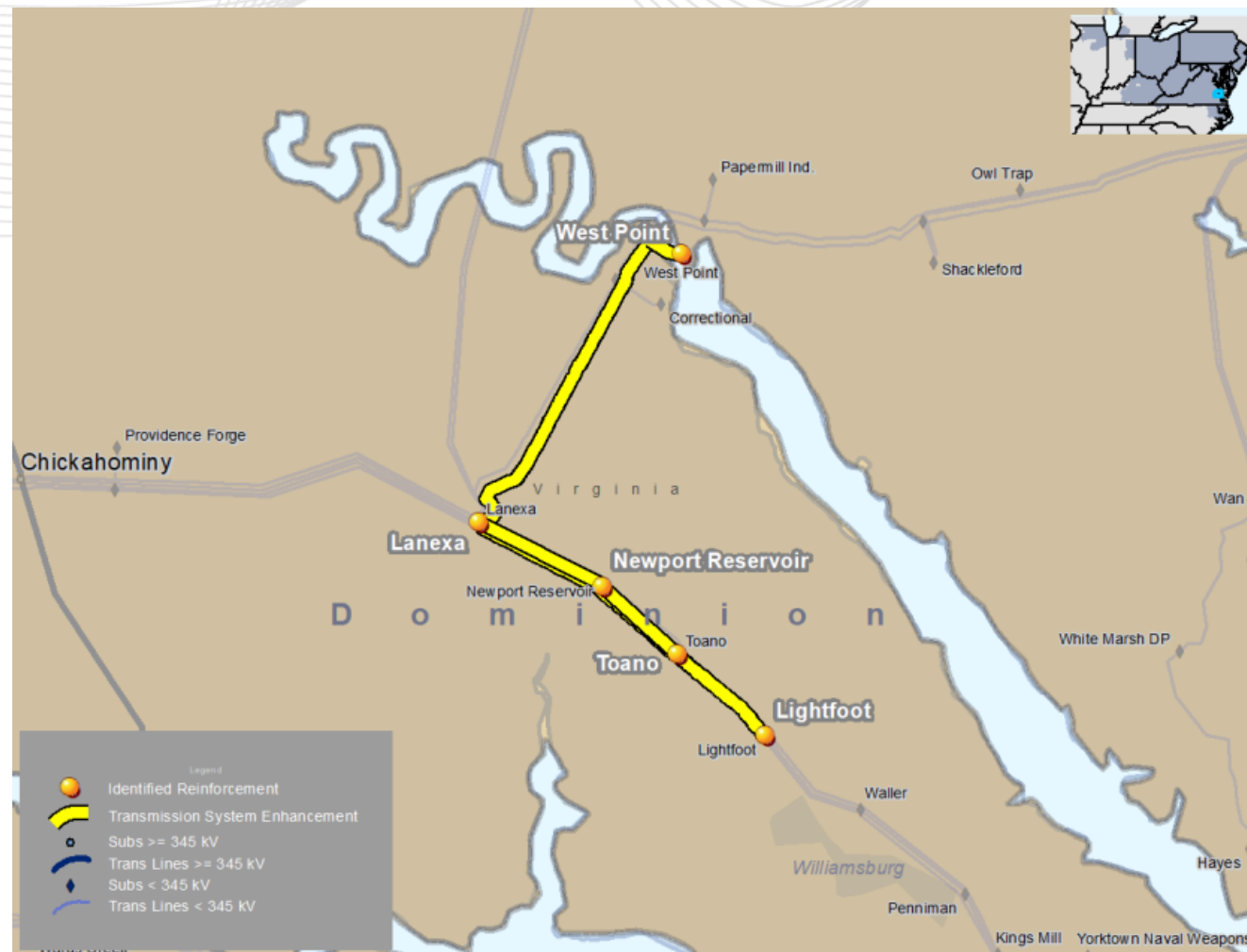
In-Service Year: 2029

Target Zone: DOM

ME Constraints:

West Point-Lanexa 115 kV

Cost Capping Provision: No



Project ID: 2025-ME1-315

Proposed Solution:

Rebuild the Garrett Tap - Garrett 115 kV Line to increase the rating and eliminate the congestion on the system.

Project Type: Upgrade

kV Level: 115 kV

In-Service Cost (\$M): \$9.90

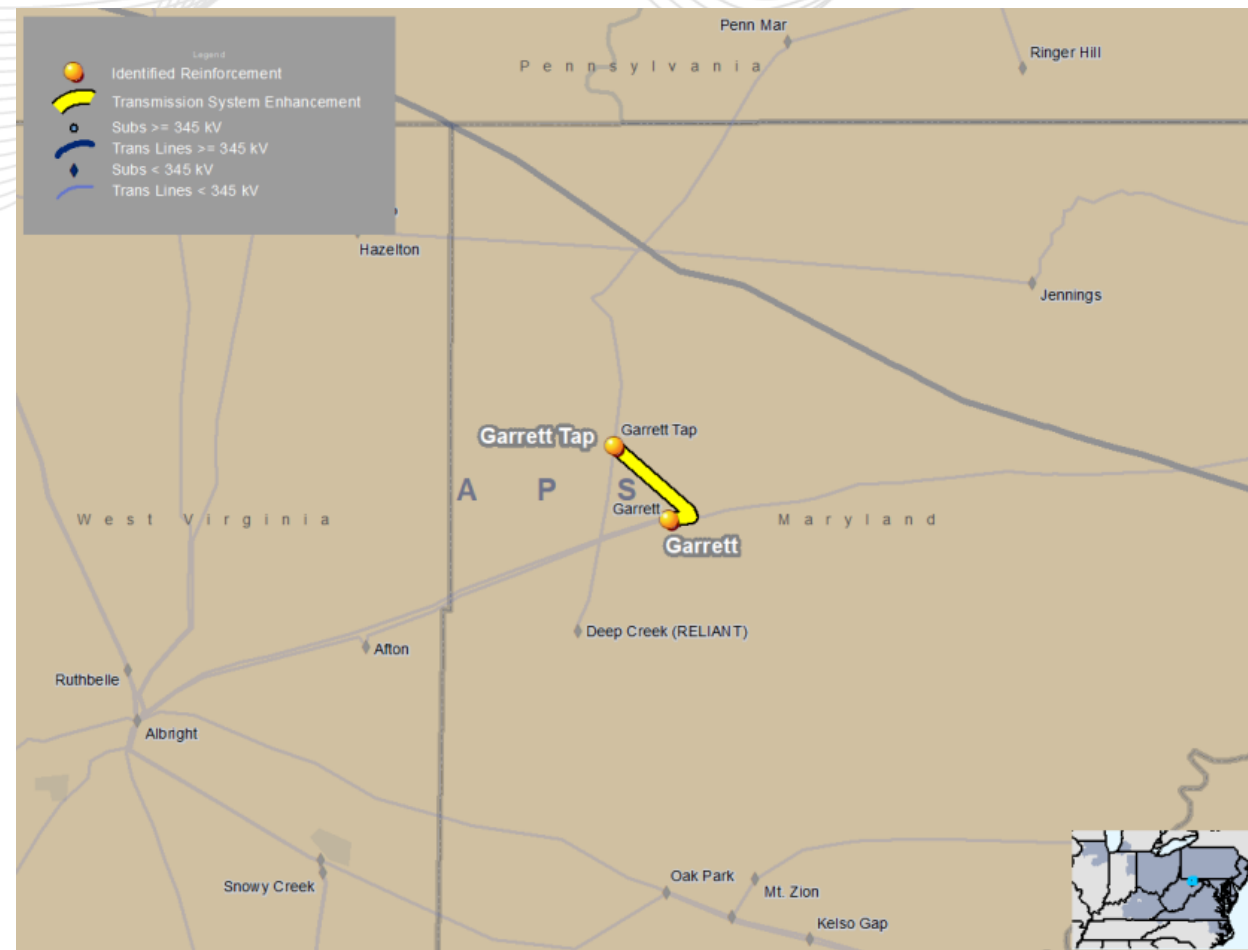
In-Service Year: 2029

Target Zone: PENELEC-APS

ME Constraints:

Garrett Tap-Garrett 115 kV

Cost Capping Provision: No



Facilitator:

Eric Hsia, Eric.Hsia@pjm.com

Secretary:

Joshua Stephenson, Joshua.Stephenson@pjm.com

SME/Presenters:

Nicolae Dumitriu, Nicolae.Dumitriu@pjm.com

Market Efficiency Update



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

- V1 – 7/31/2025 – Original slides posted.

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