



Reliability Analysis Update

Sami Abdulsalam, Director
PJM Transmission Planning

Transmission Expansion Advisory
Committee
October 8, 2024

- 2024 RTEP Window 1 Updates
- 2024 RTEP Window 1 – Breaker Replacements
 - 1st Read

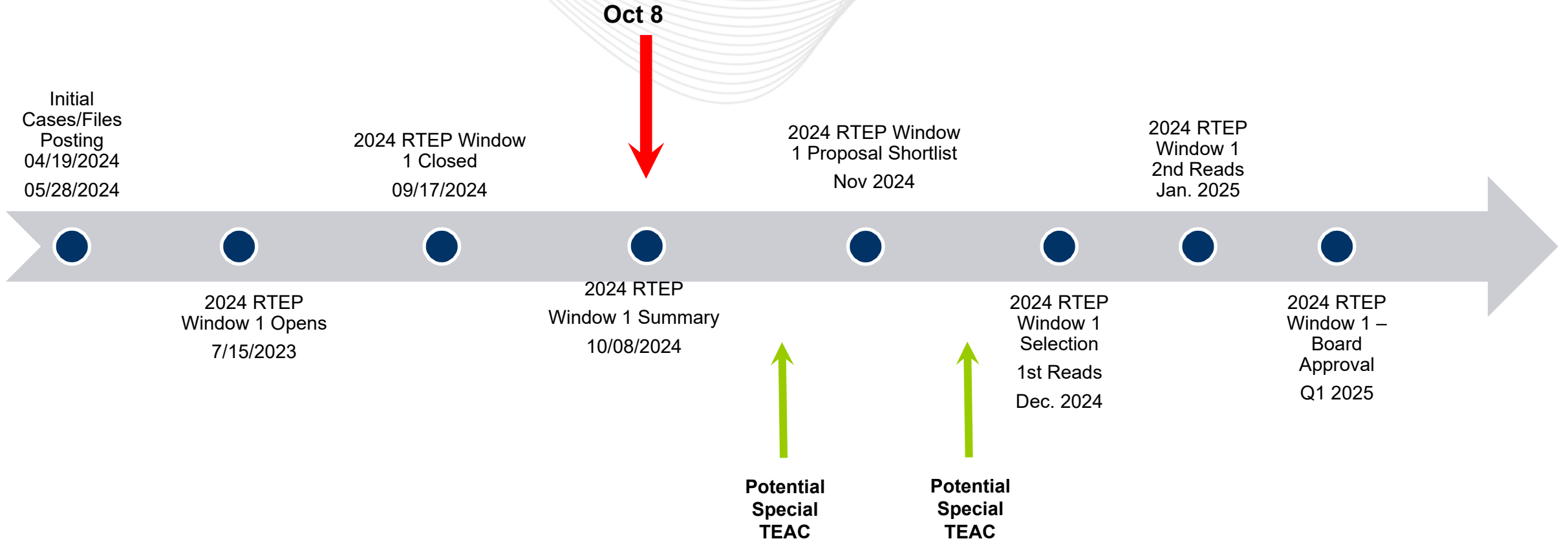
2024 RTEP Window 1 Updates

- Heavy transmission interface flows West-East driven by load increase in Dominion/East and sourced generation in both Western and Eastern PJM
- The need for additional West-East reinforcement, previously identified by PJM, is now materializing earlier than anticipated due to higher load growth in the MAAC/Dominion areas
- Proposed reinforcement through 2022W3 and 2023W1/W2 performing well
- The 8-year RTEP scenario mainly focuses on right sizing solutions
 - Of the 5-year RTEP needs
 - Long lead transmission needs
 - Check/confirm impact of “forecast” generation on transmission needs identified in the 5-year model



2024 RTEP W1

Timeline and Status Update



- The 2024 RTEP Window 1 officially closed on Sept. 17, 2024.
- 94 Proposals were received from 16 entities.
- 48 projects are upgrades, 40 are greenfield, and six are joint proposals.
- Proposals range from simple upgrades to facilities, to new extra-high-voltage transmission lines and facilities.
- Total cost of solution package will depend on proposals selected.
- Several proposals have cost containment commitments.
- Targeting Q1 2025 Board approval – December and January for TEAC 1st and 2nd reads

- All proposals submitted to address West-East regional flows recommended 765 kV solutions:
 - Multiple proposals recommending variants of Joshua Falls/Axton-Morrisville area 765 kV development
 - One proposal recommending a northern, John Amos-Northern Virginia 765 kV development
 - West-East regional solutions will include at least one variant of these proposals for a 765 kV development, plus accompanying 500 kV and 765 kV upgrades.
- A number of proposals' performance will rely on the robustness of the regional solutions to be evaluated.
 - A number of reliability needs may be eliminated based on the to-be-selected regional solution.

Proposing Entity	East	West	Transfers	Dominion	Local
AEP					X
Dominion			X	X	X
Exelon					X
First Energy			X		X
LS Power			X	X	
NextEra		X	X	X	
PPL	X				X
PSEG	X				
Transource		X		X	
Joint Proposal: DOM/FE/Transource		X	X	X	X

- Individual proposal screening underway
- Baseline scenarios are being developed:
 - Includes all full solution proposals offered in all four need areas (East, West, Transfers, Dominion and Local)
 - Preliminary analysis shows good performance of a number of holistic proposals.
 - Scenarios will include all holistic proposals evaluated individually (in their own areas).
 - Based on individual proposal performance, PJM may develop scenarios with components from other proposals.
- More scenario details and evaluation results will be shared at the next TEAC.

- Scenarios with their associated proposed developments will be ranked based on:
 - Meeting the system needs of 2029 and 2032
 - Being scalable/flexible to address forecasted needs going forward (for right sizing and limiting disruption)
 - Utilization of existing ROWs and brownfield development/expansion (where possible and efficient)
 - Cost evaluation using third-party cost benchmarking metrics
 - Risk of individual components development

- Individual proposals and a number of scenarios were evaluated and more are being developed/underway.
 - Additional detail will be provided in the next TEAC update.
- Two rounds or more of PJM meetings with proposing entities
 - Discussions to clarify details of proposed developments, assumptions, rationale of proposed alternatives/variations.
 - First round started September 20, and second round commenced early October.
 - Focus on rationale of proposed alternatives/variants, proposal merits, preliminary routing detail, risk and cost assumptions/considerations

- Scenario evaluations to continue through November 2024
 - Scenario shortlist targeted for November 5 TEAC
 - Possible interim TEAC for scenario evaluation updates
- PJM will be conducting load deliverability evaluations for the short listed scenarios.
- Targeting to finalize technical and constructability evaluations by end of October 2024.
- PJM may schedule a special TEAC to walk through the window evaluation results before the December TEAC meeting.

First Read – Short Circuit

BGE Transmission Zone: Baseline Conastone 230 kV 2322 B5 CB Replacement

Process Stage: First Read

Criteria: Short Circuit

Assumption Reference: 2024 RTEP assumptions

Model Used for Analysis: 2029 RTEP Short Circuit base case

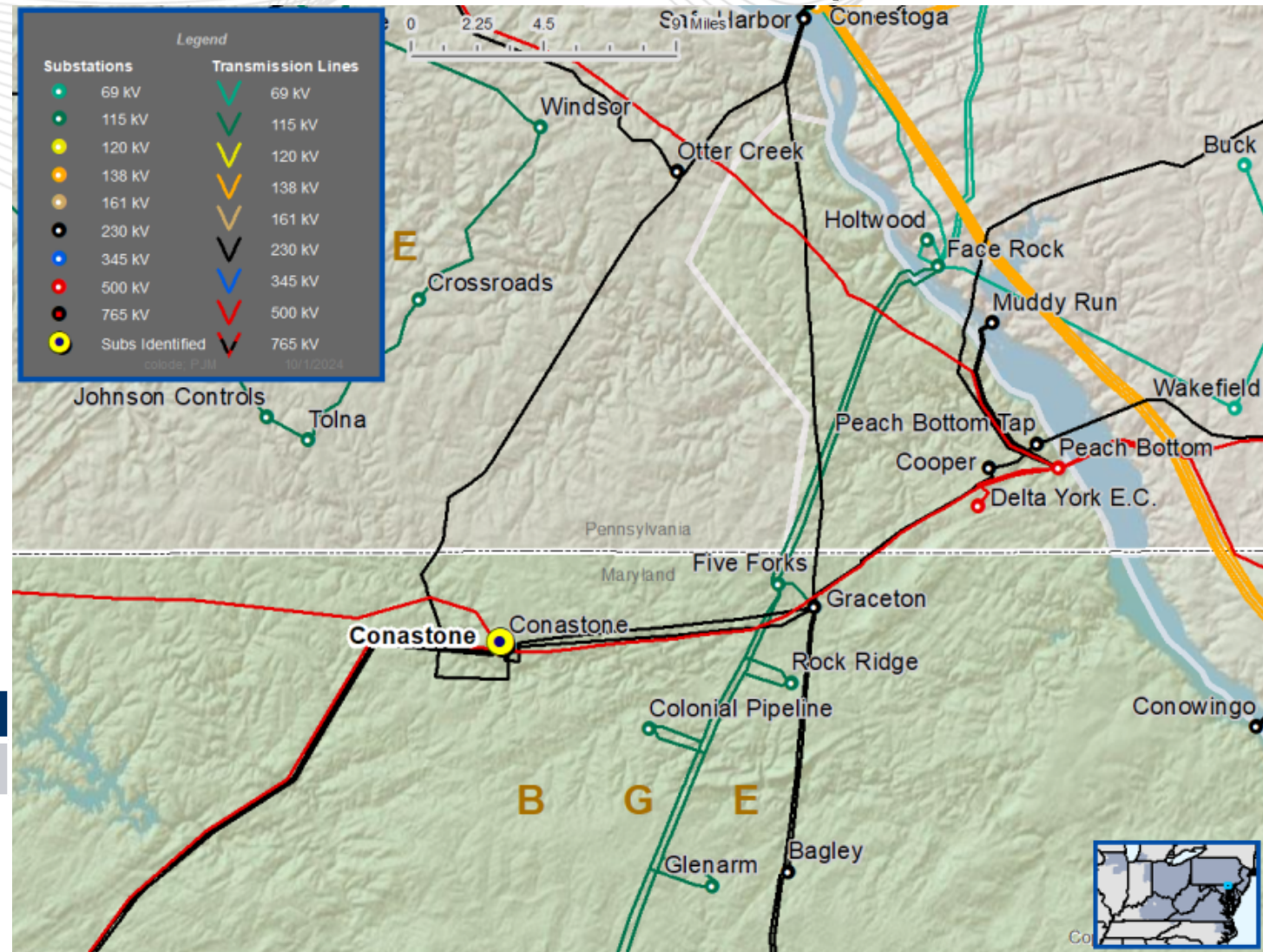
Proposal Window Exclusion: None

Flowgate: 2024W1-SC-26

Problem Statement:

In the 5-year 2028 RTEP Short Circuit base case, the Conastone 230 kV breaker 2322 B5 is identified as being over duty.

Circuit Breaker	Interrupting Rating (kA)
230kV breaker 2322 B5	50



BGE Transmission Zone: Baseline Conastone 230 kV 2322 B5 CB Replacement

Proposed Solution: b3857

- 1) Replace over duty Conastone 230 kV circuit breaker 2322 B5 with an interrupting rating of 63 kA.

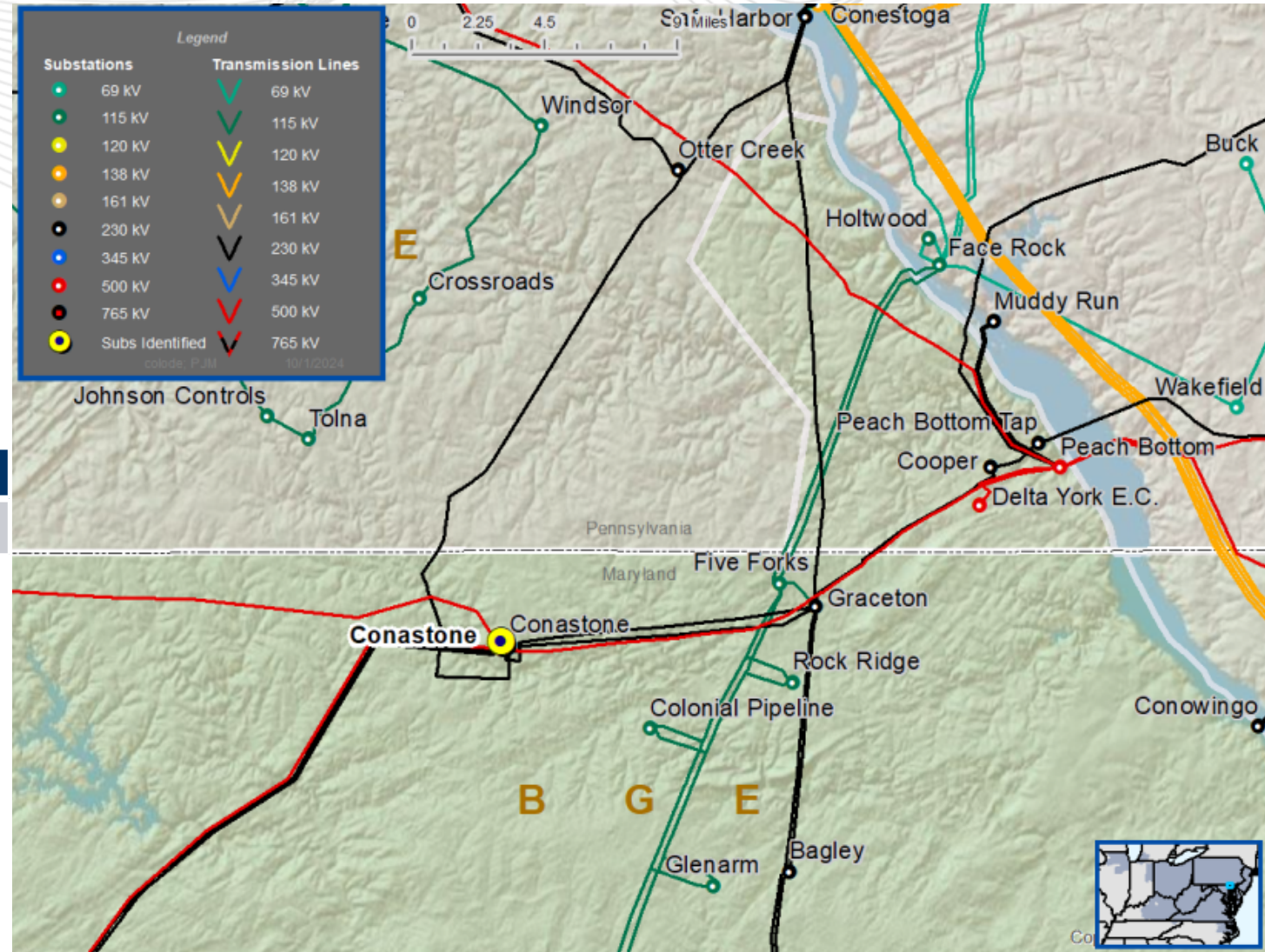
Estimated Cost: \$1.921M

Preliminary Facility Rating:

Circuit Breaker	Interrupting Rating (kA)
230kV breaker 2322 B5	63

Required IS Date: 6/1/2029

Projected IS Date: 6/1/2029

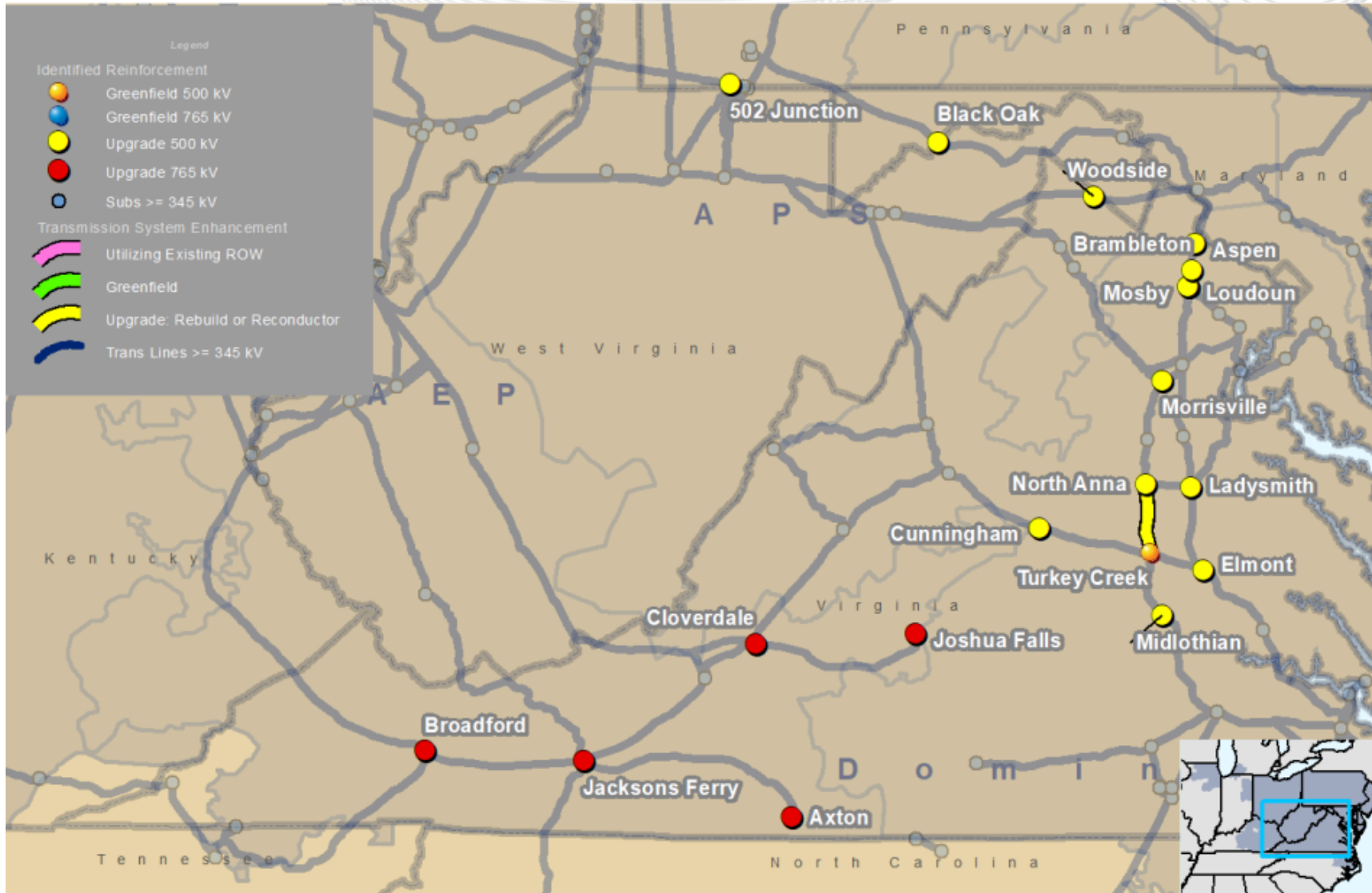


2024 RTEP W1

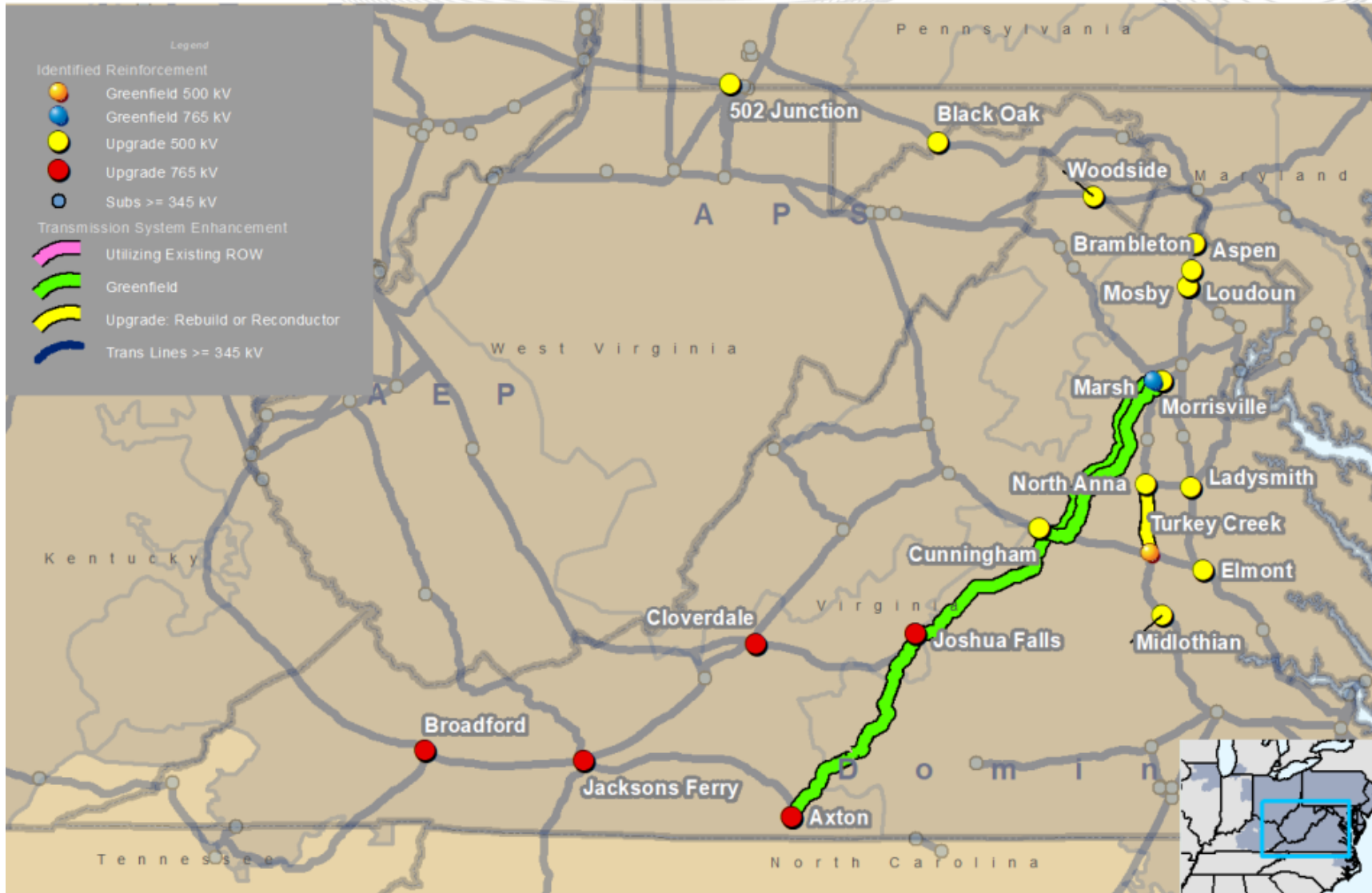
Appendix – Major Proposal Maps

(All proposal maps are in draft form – Full maps will be available at the November TEAC)

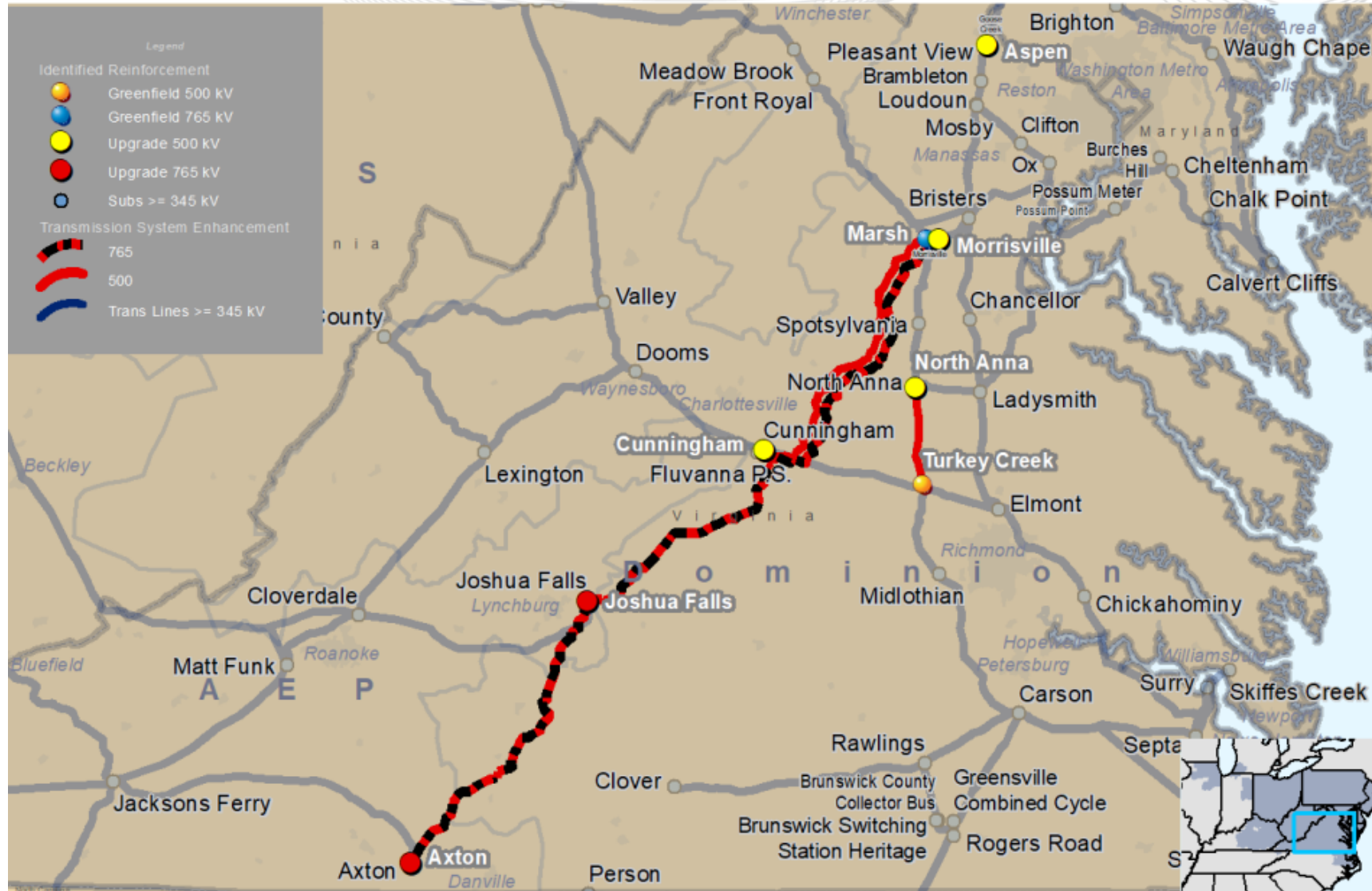
CNTLTM Proposals



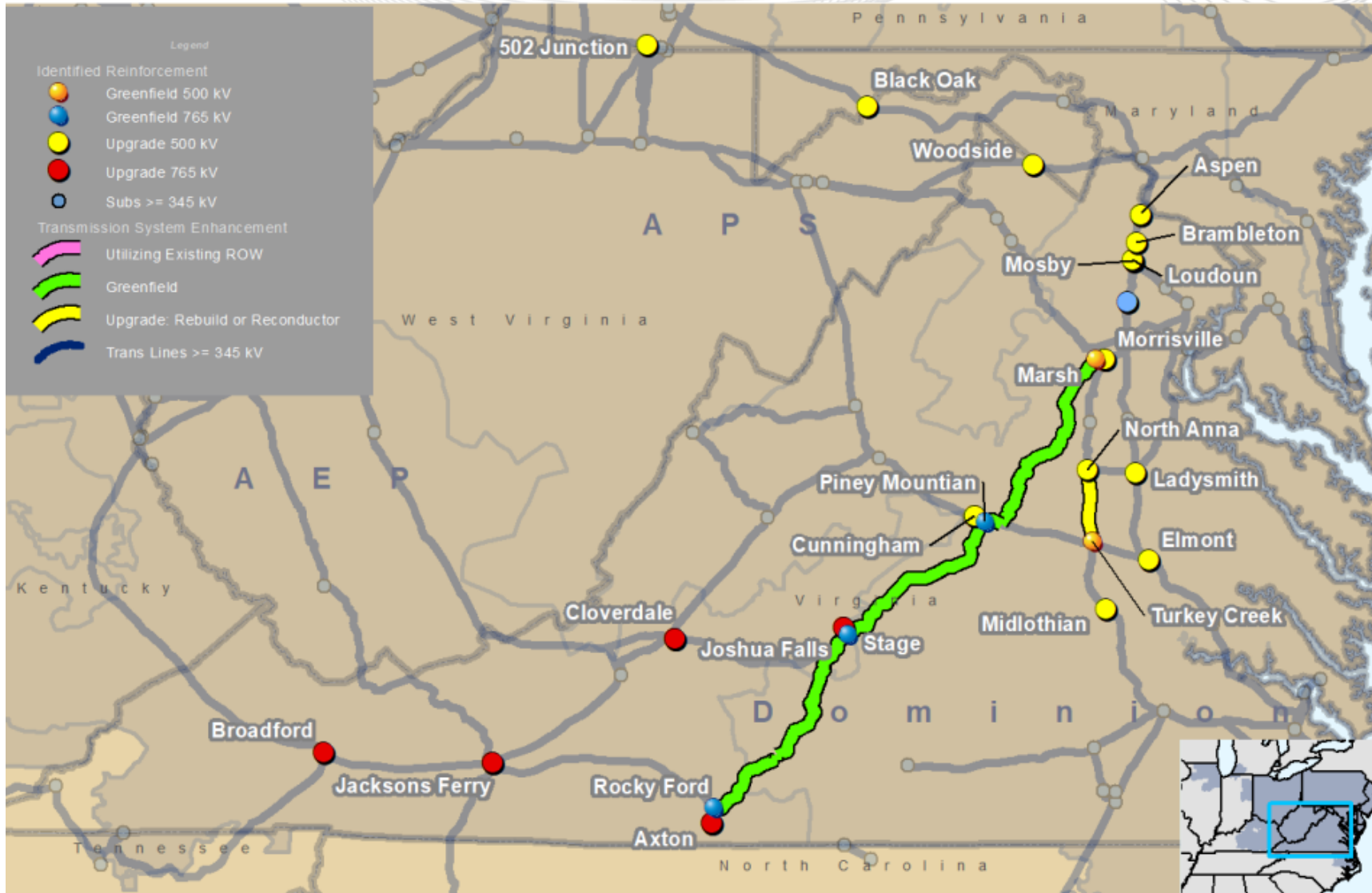
NOTE: This map is only intended to illustrate the general electrical connectivity of the projects, and should not be relied upon for exact geographical substation locations or line routes.



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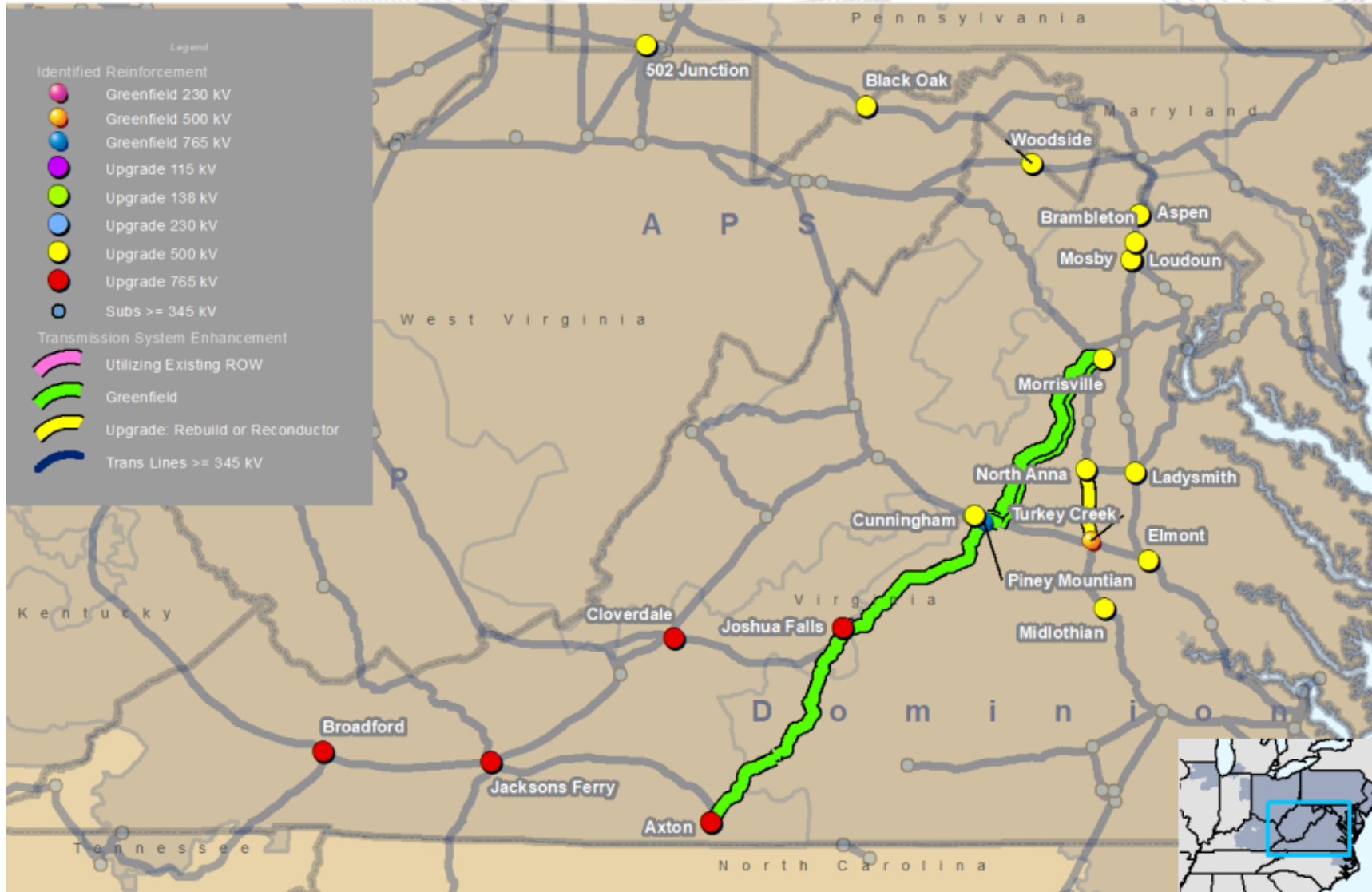
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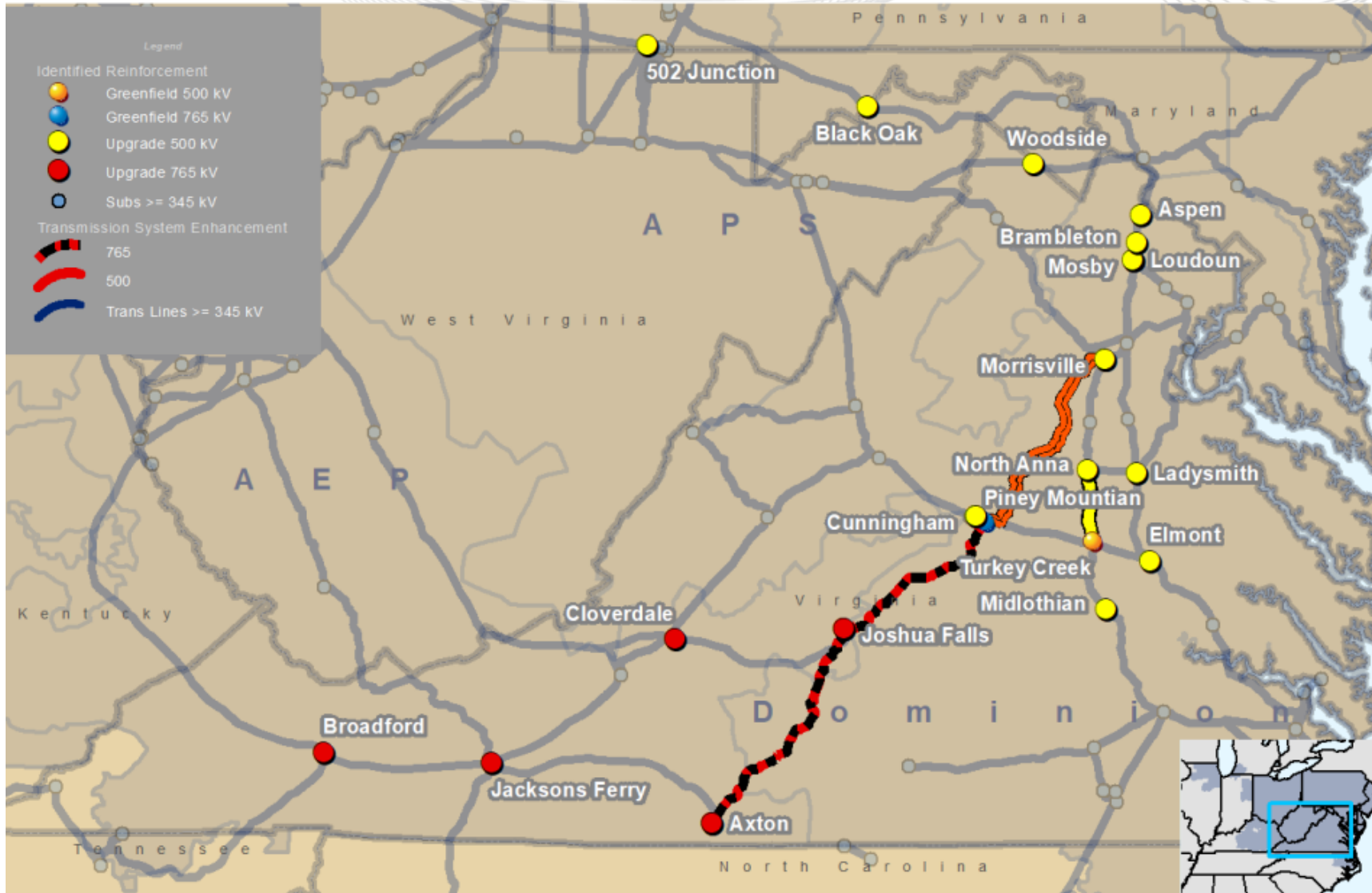
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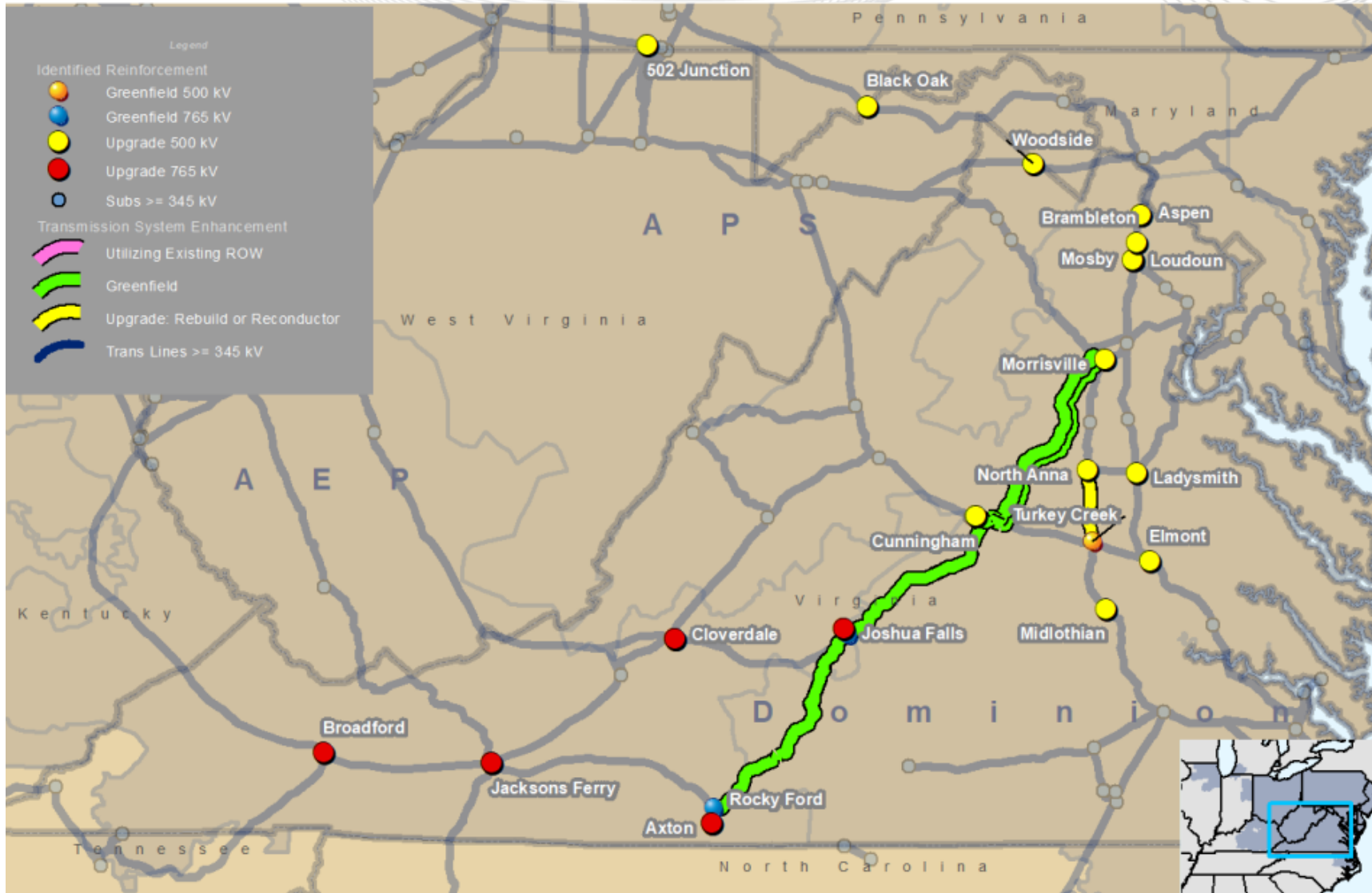
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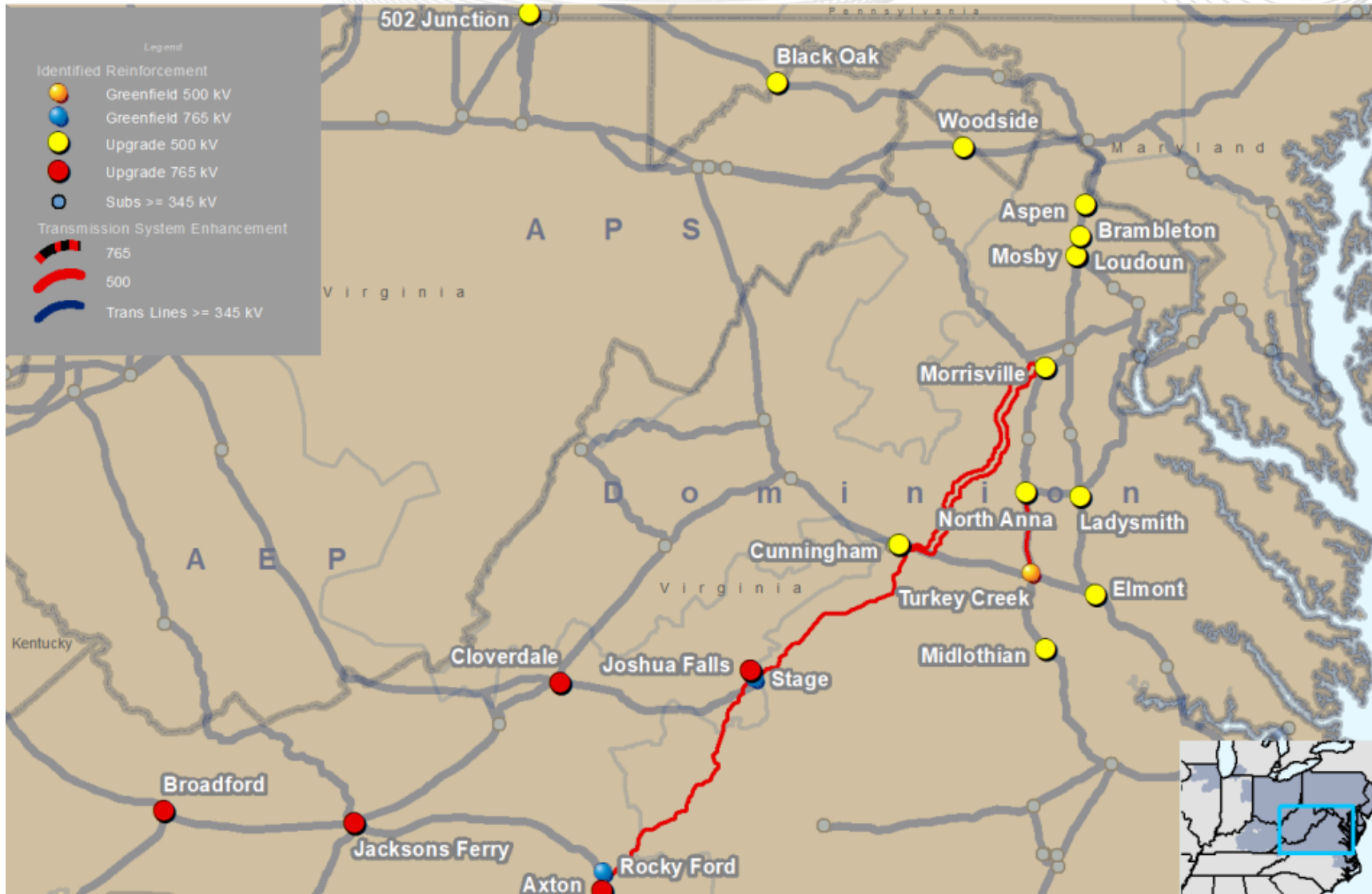
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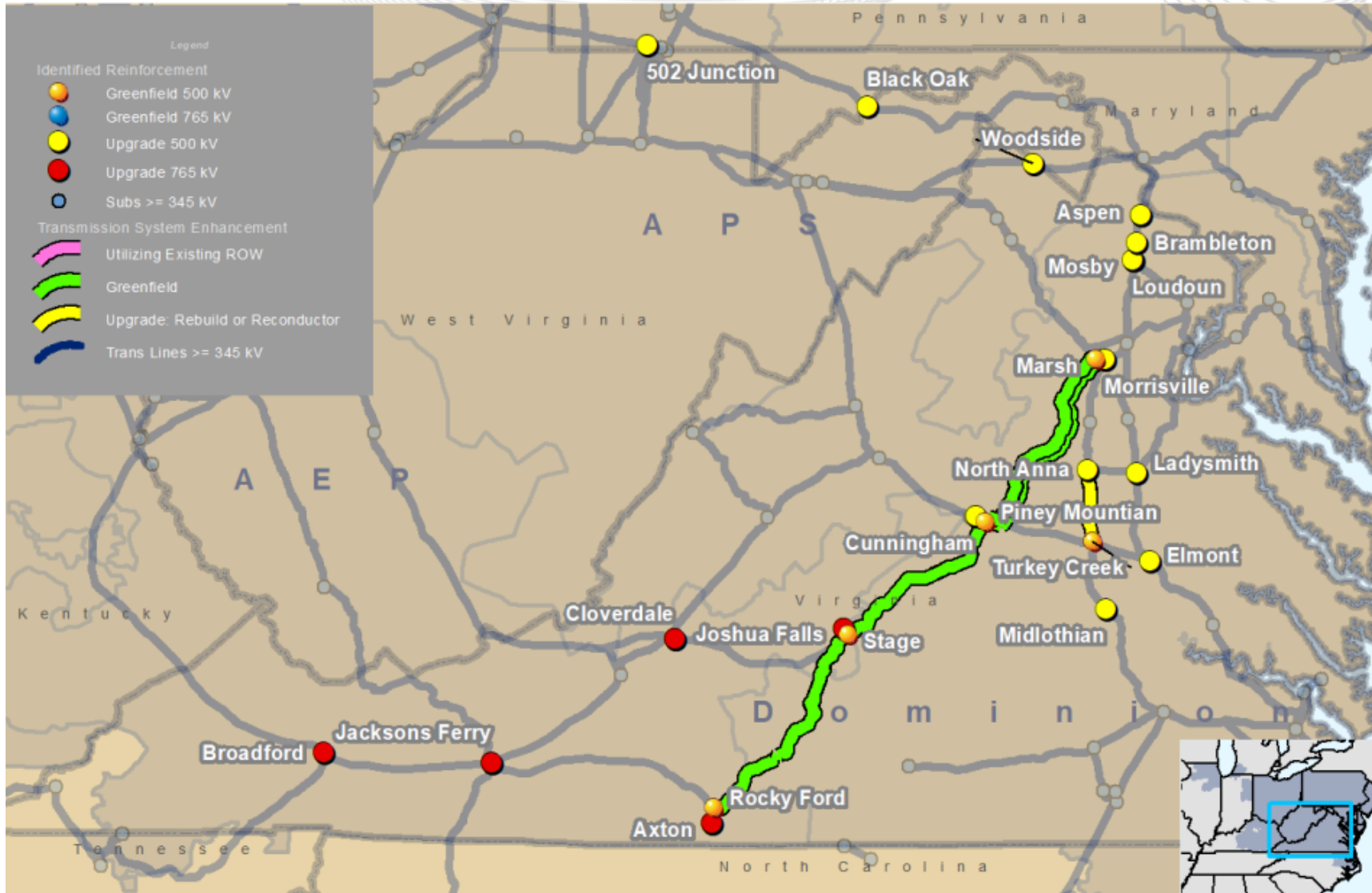


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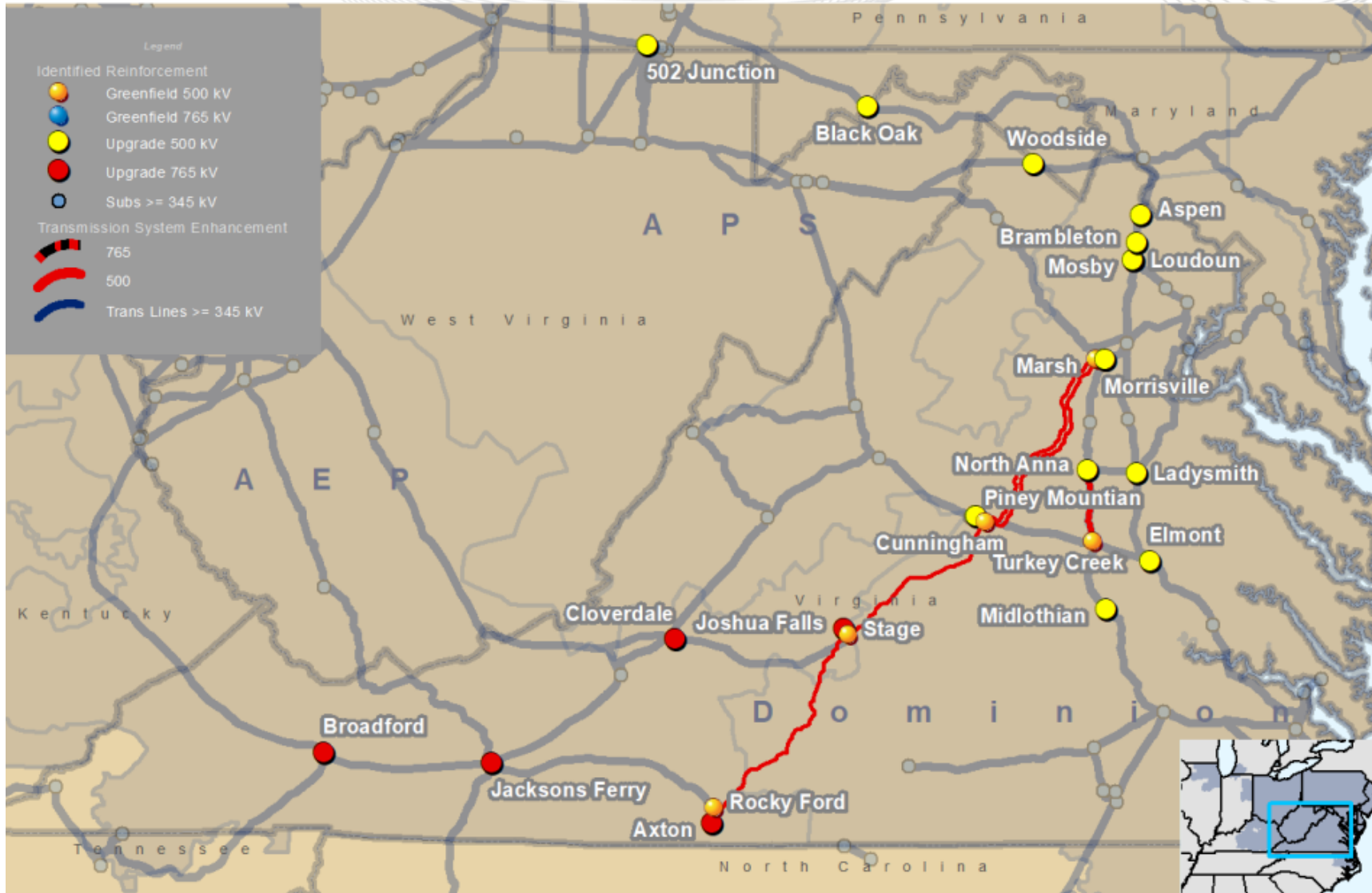


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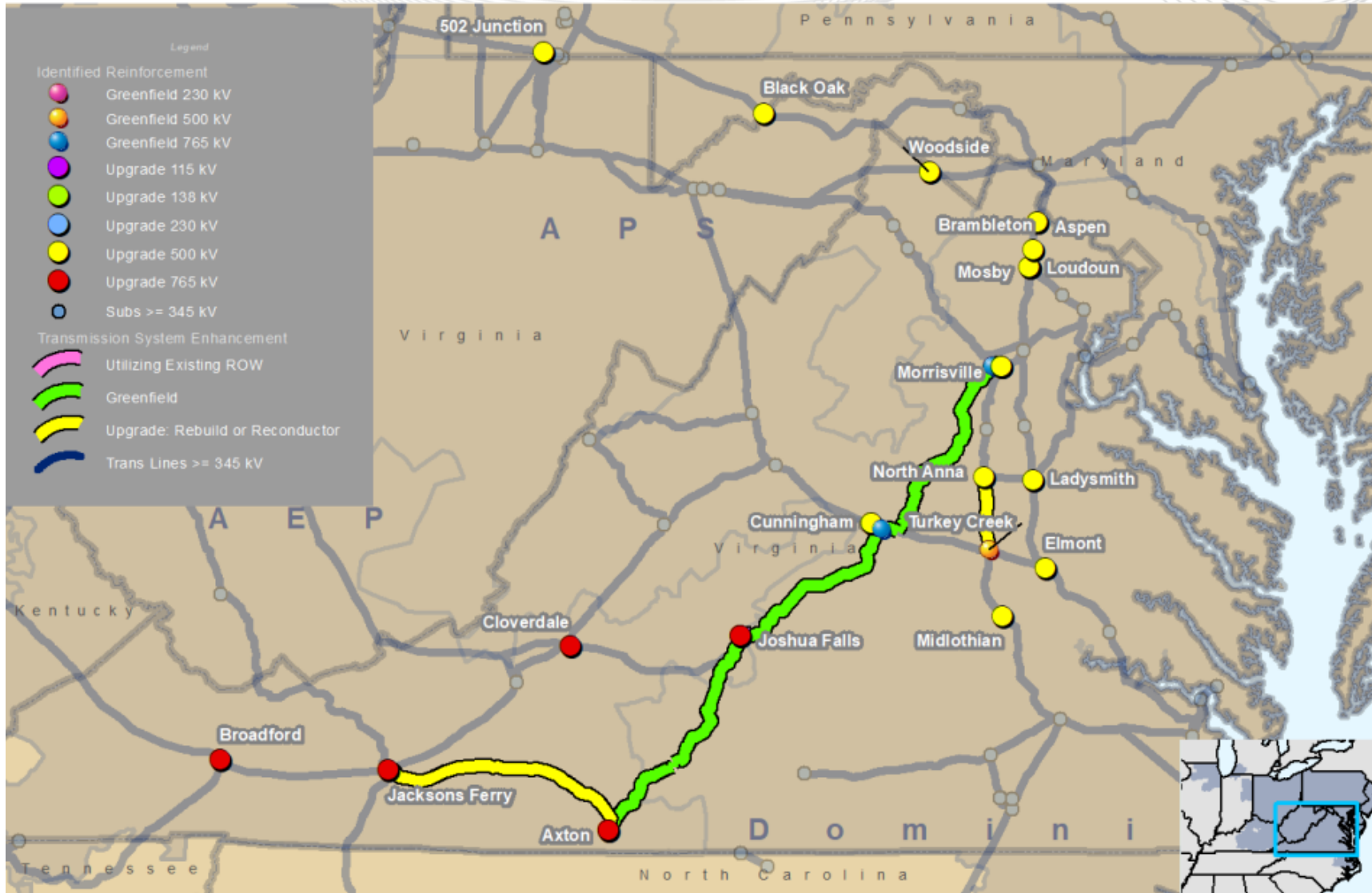




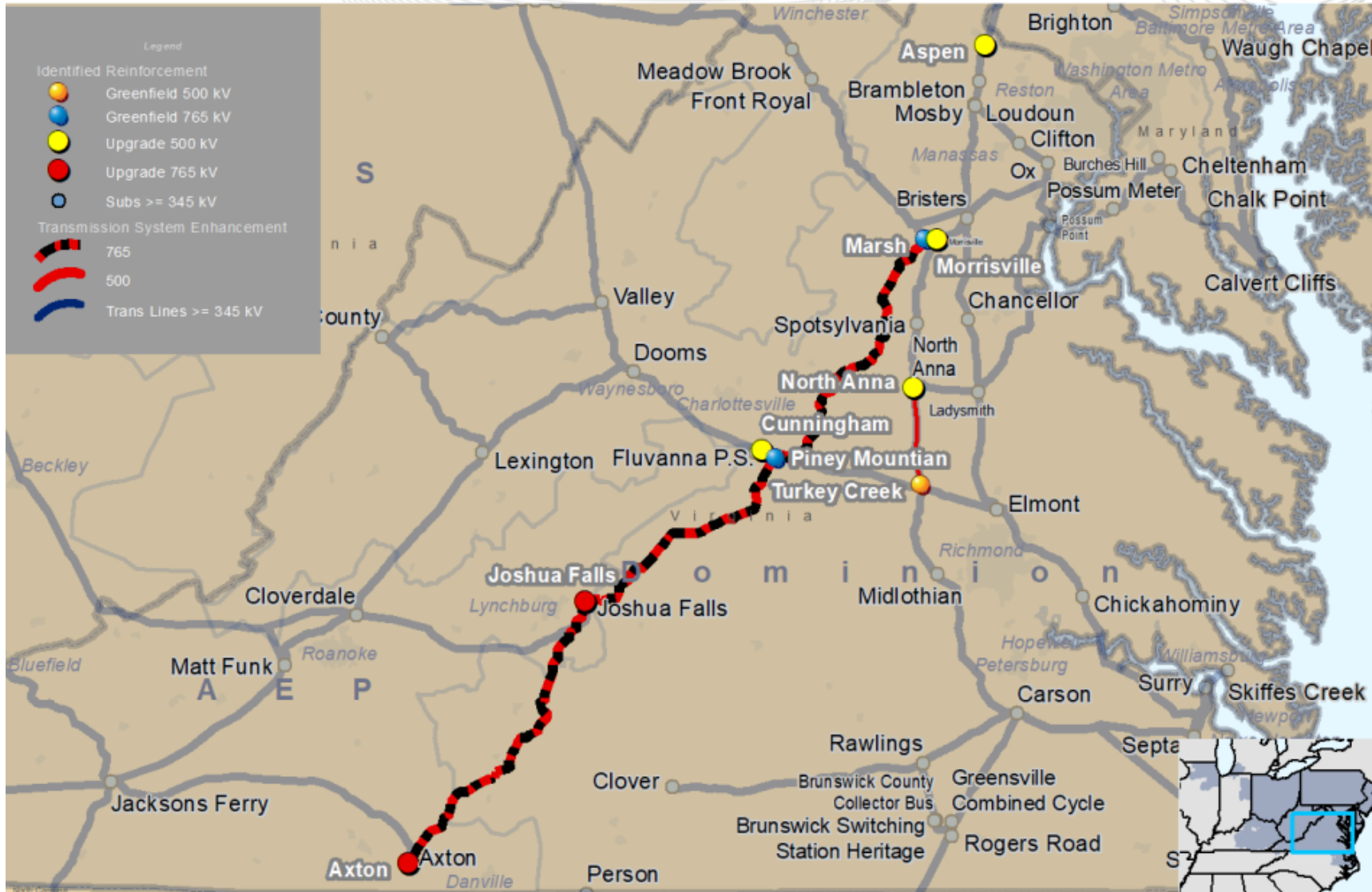
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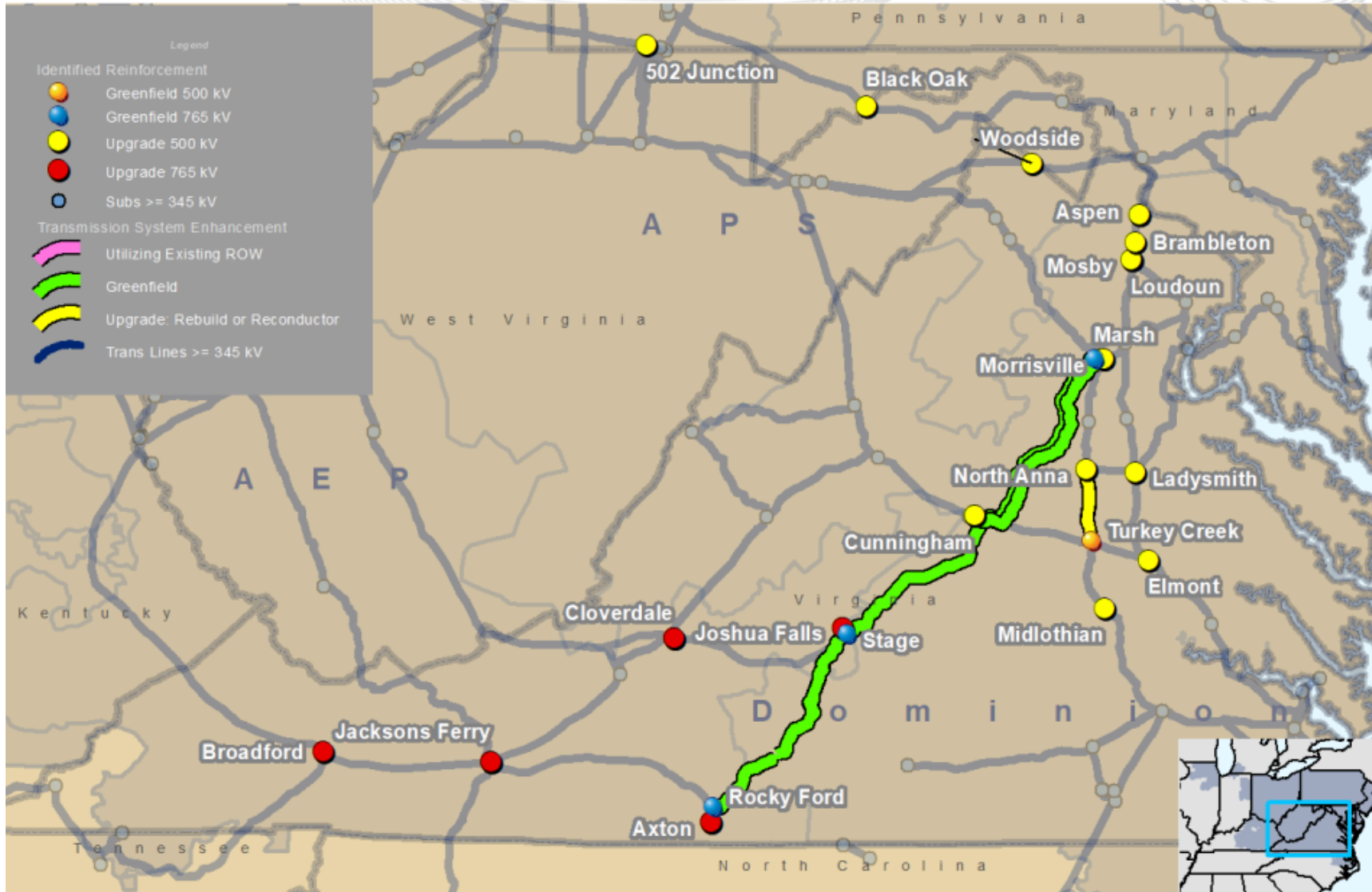
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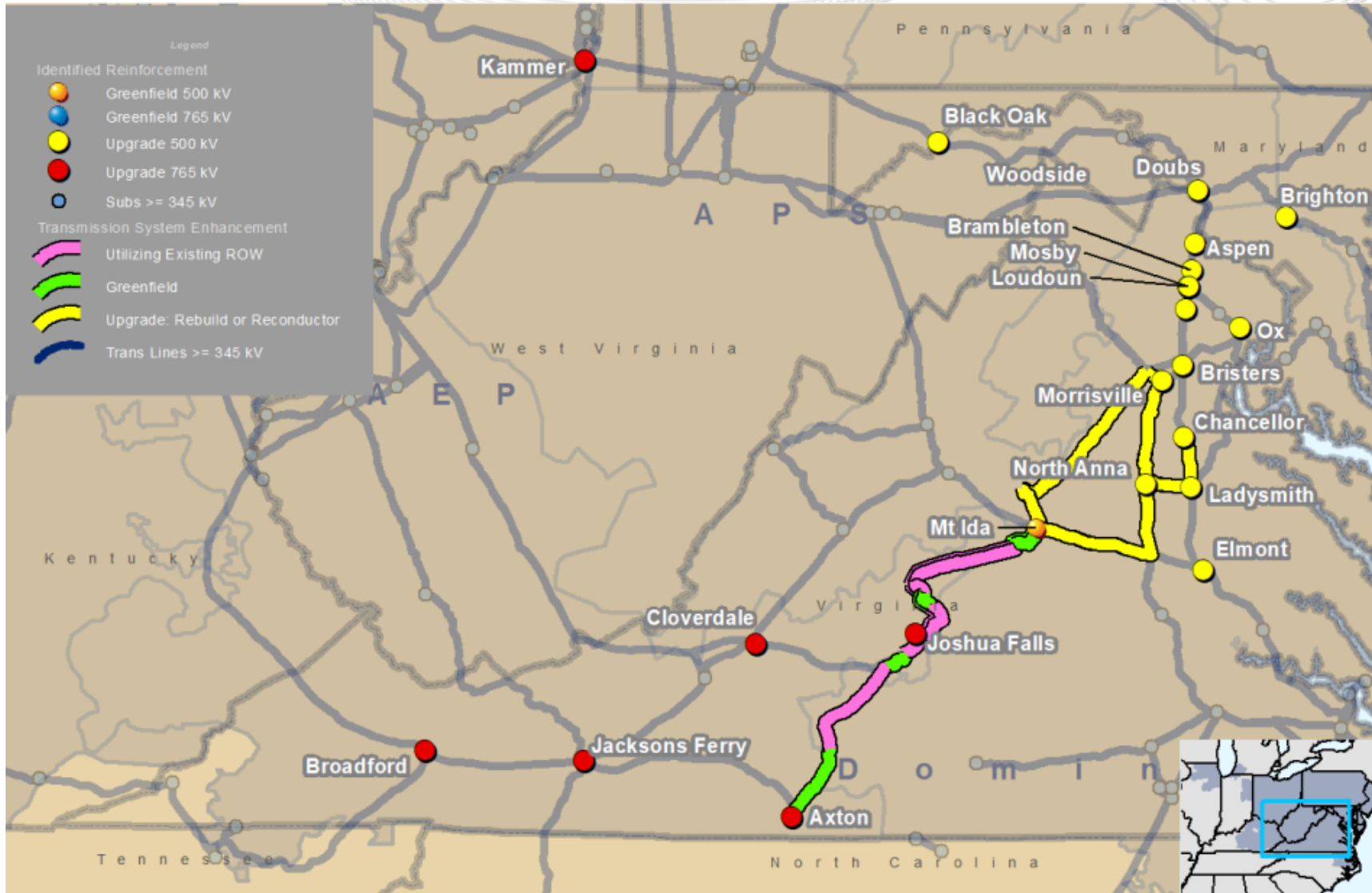


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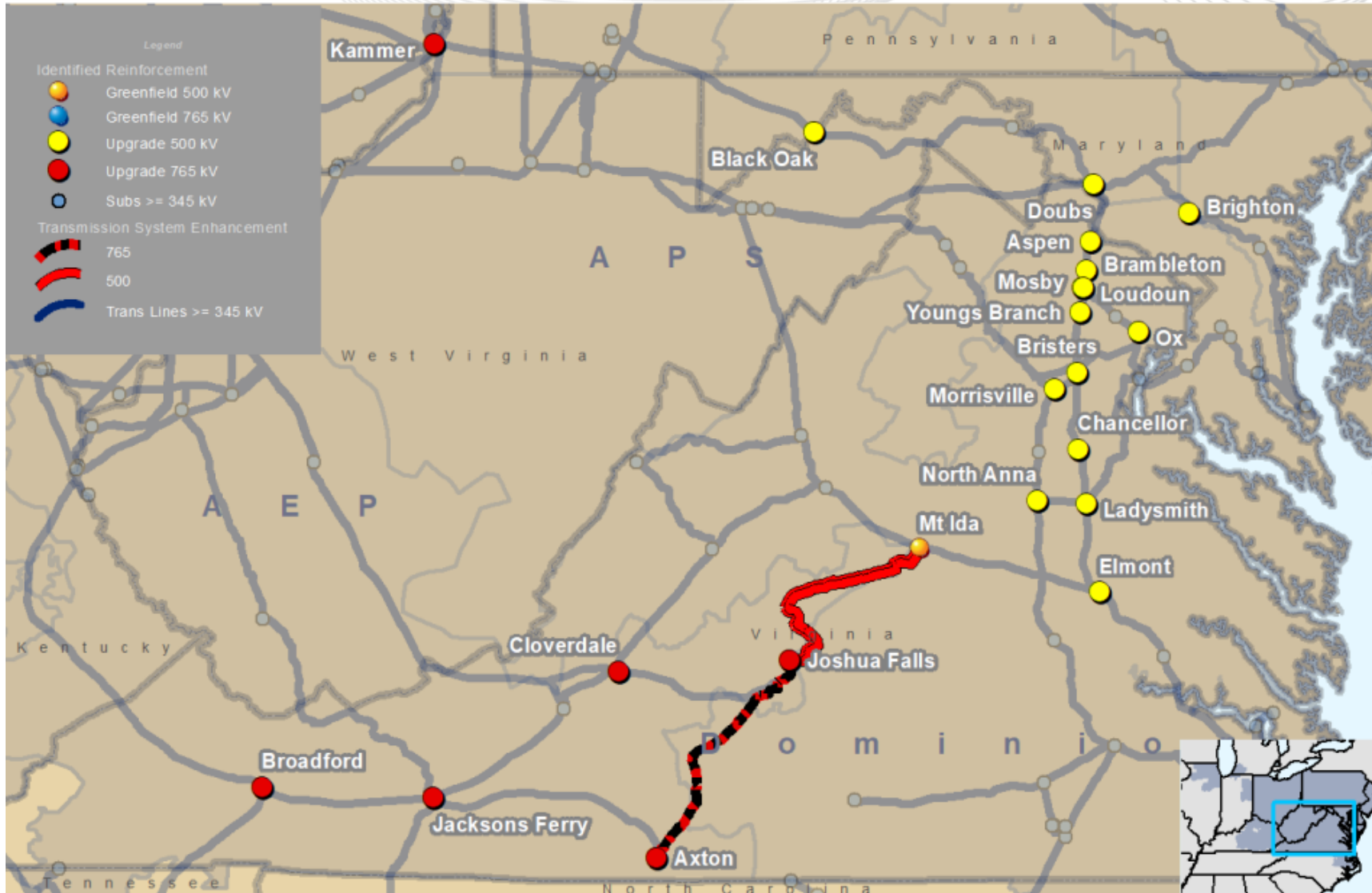


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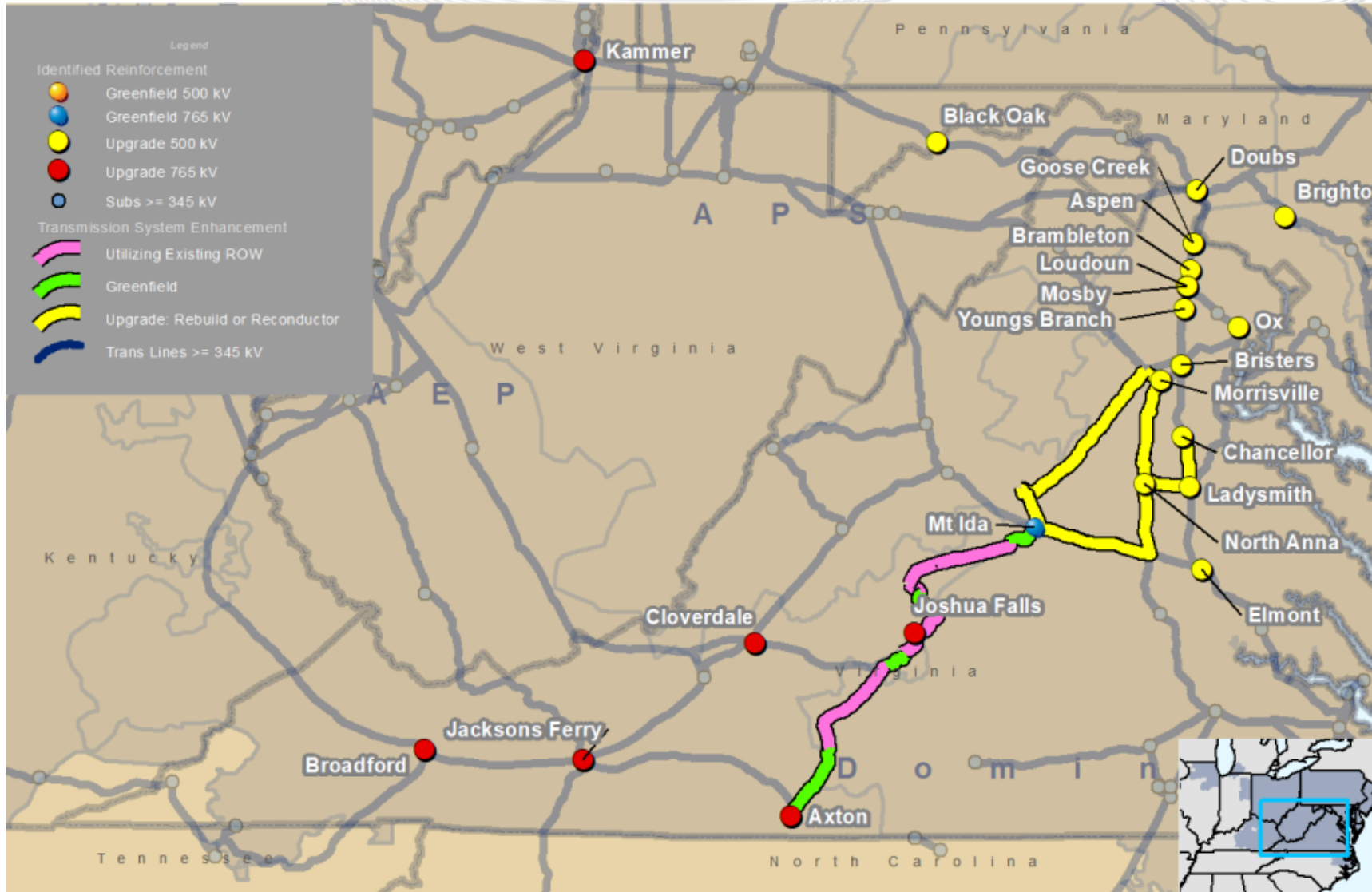
NEETMH- Proposals



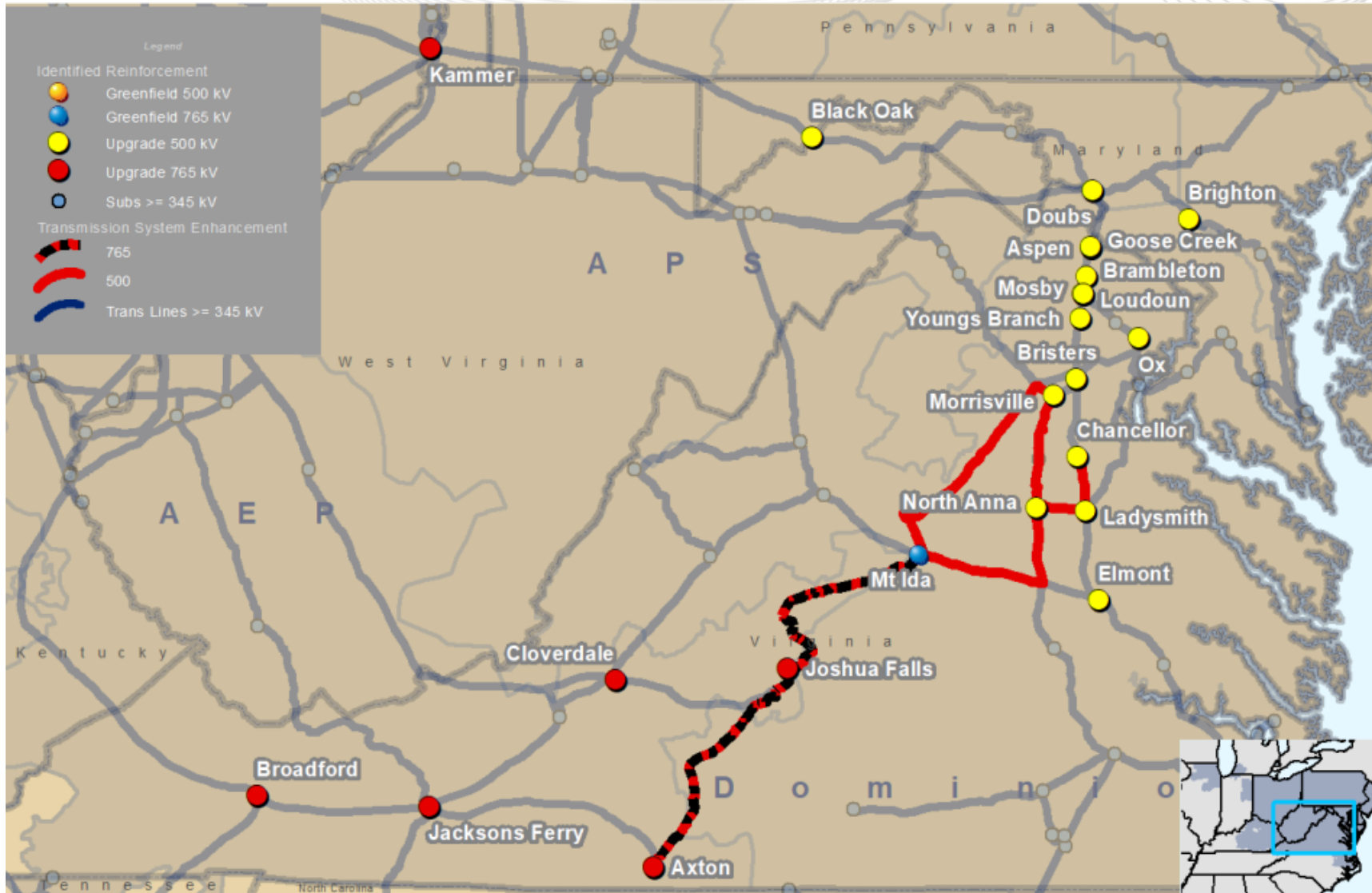
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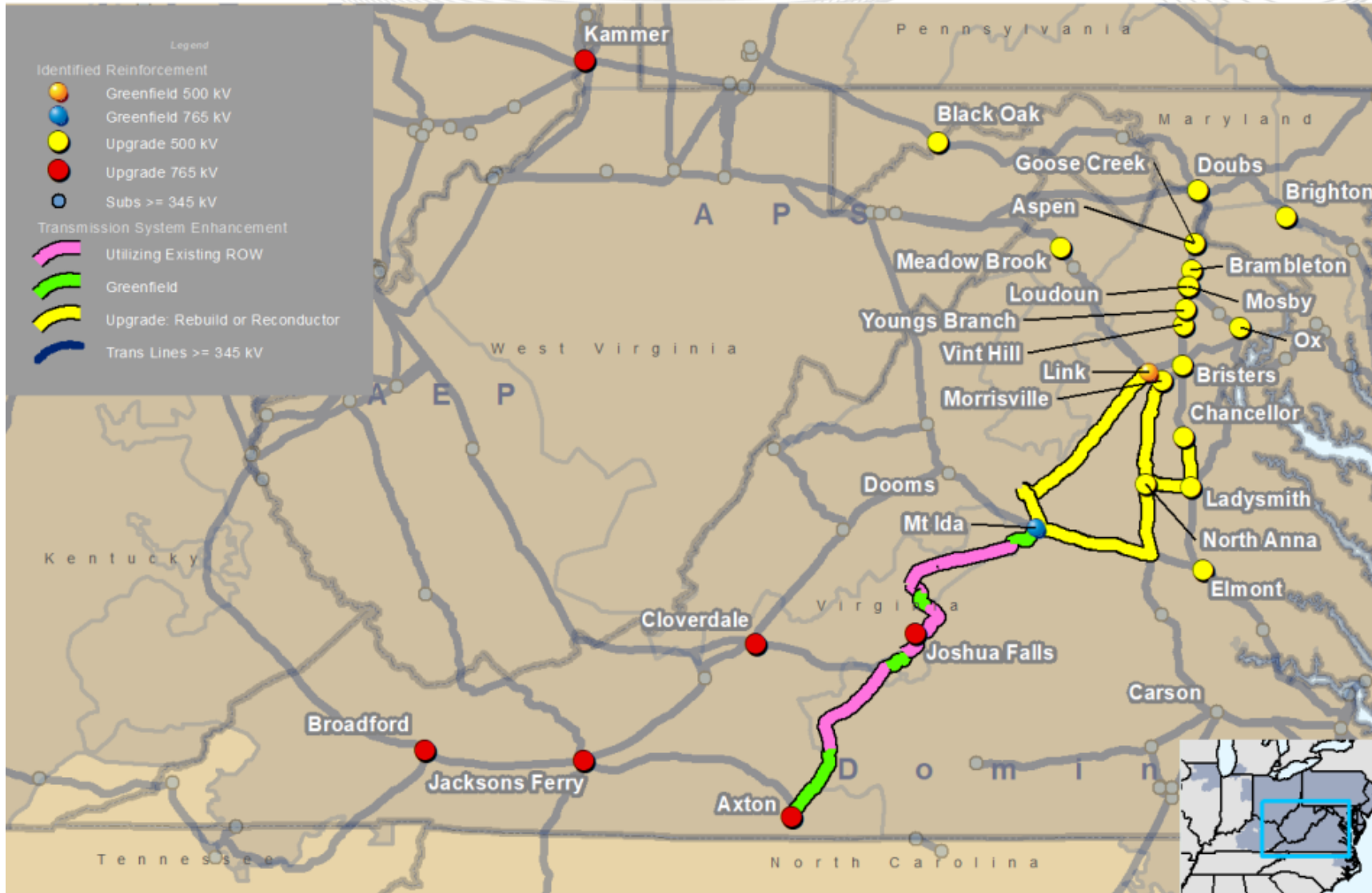
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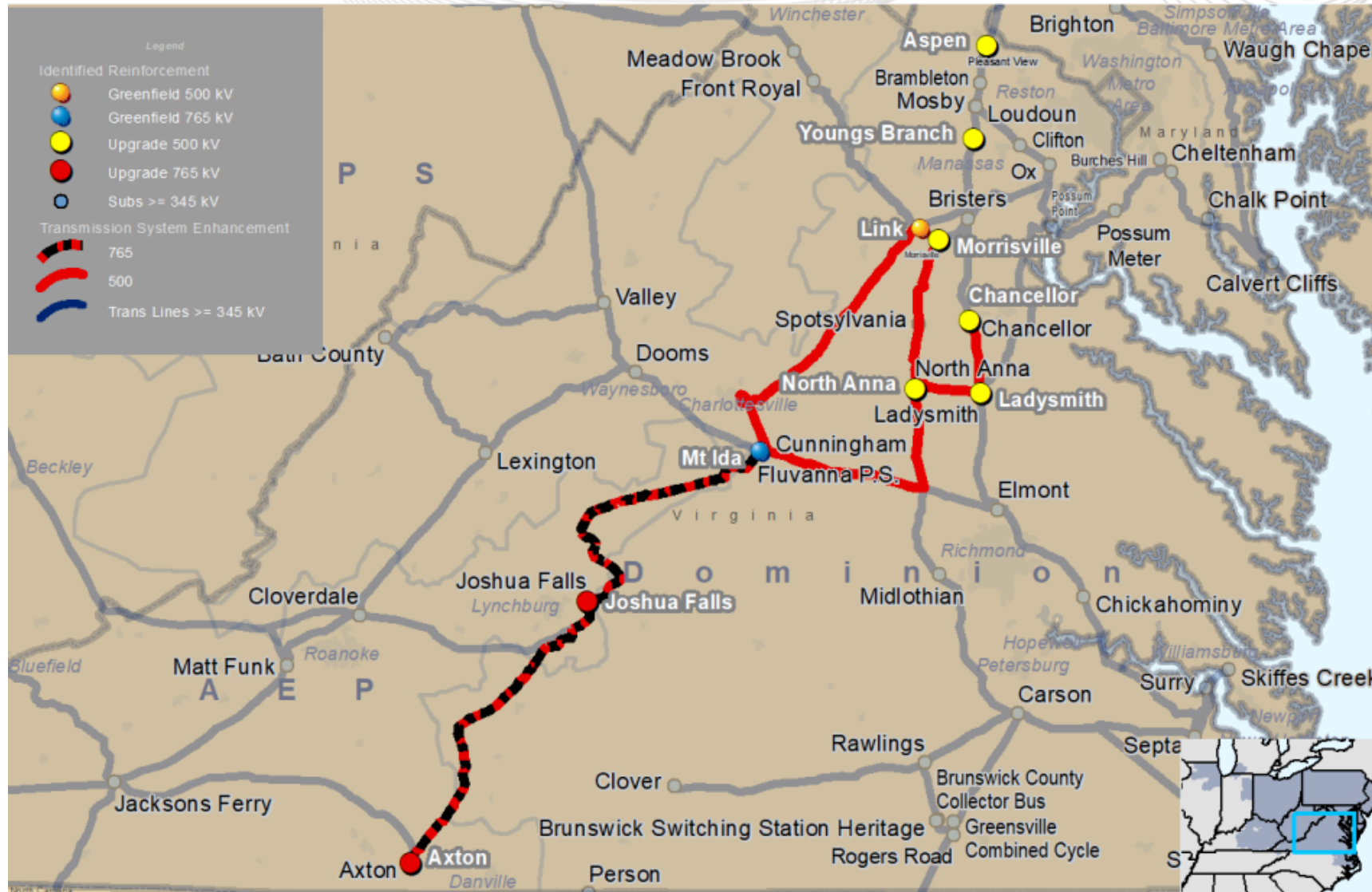
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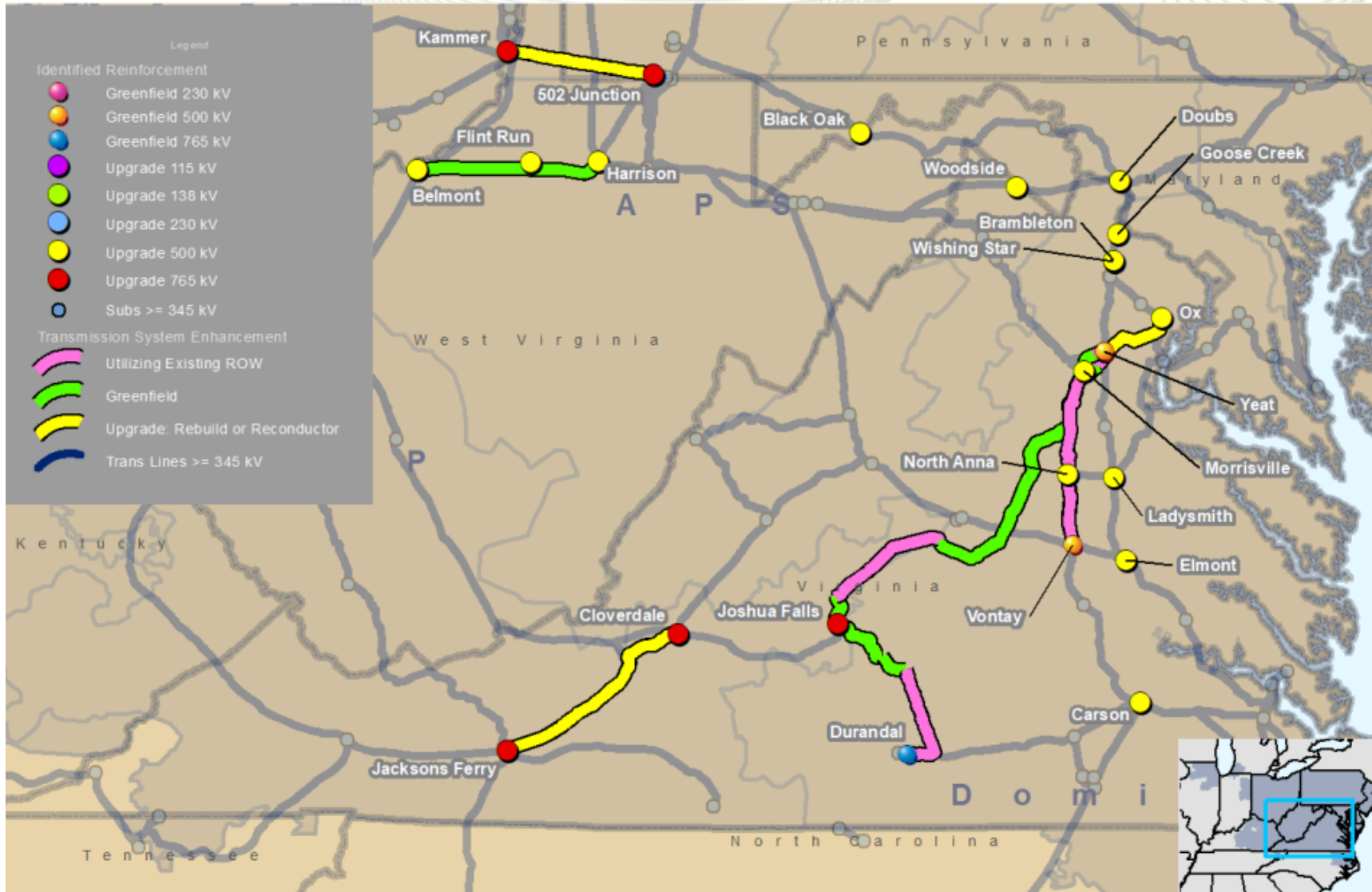


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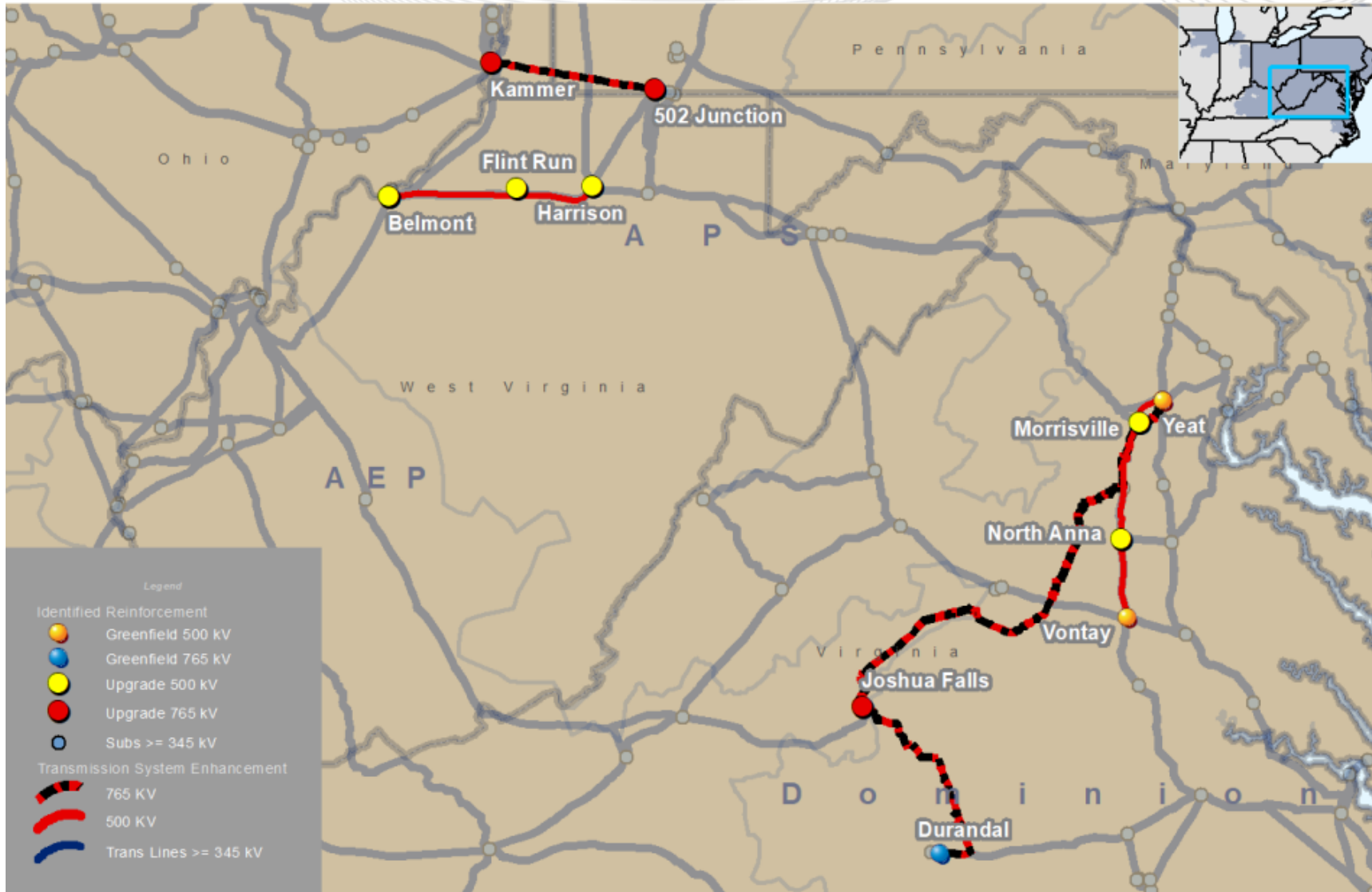
Joint Proposals

Joint Proposal – 114

DOM / FE / Transource



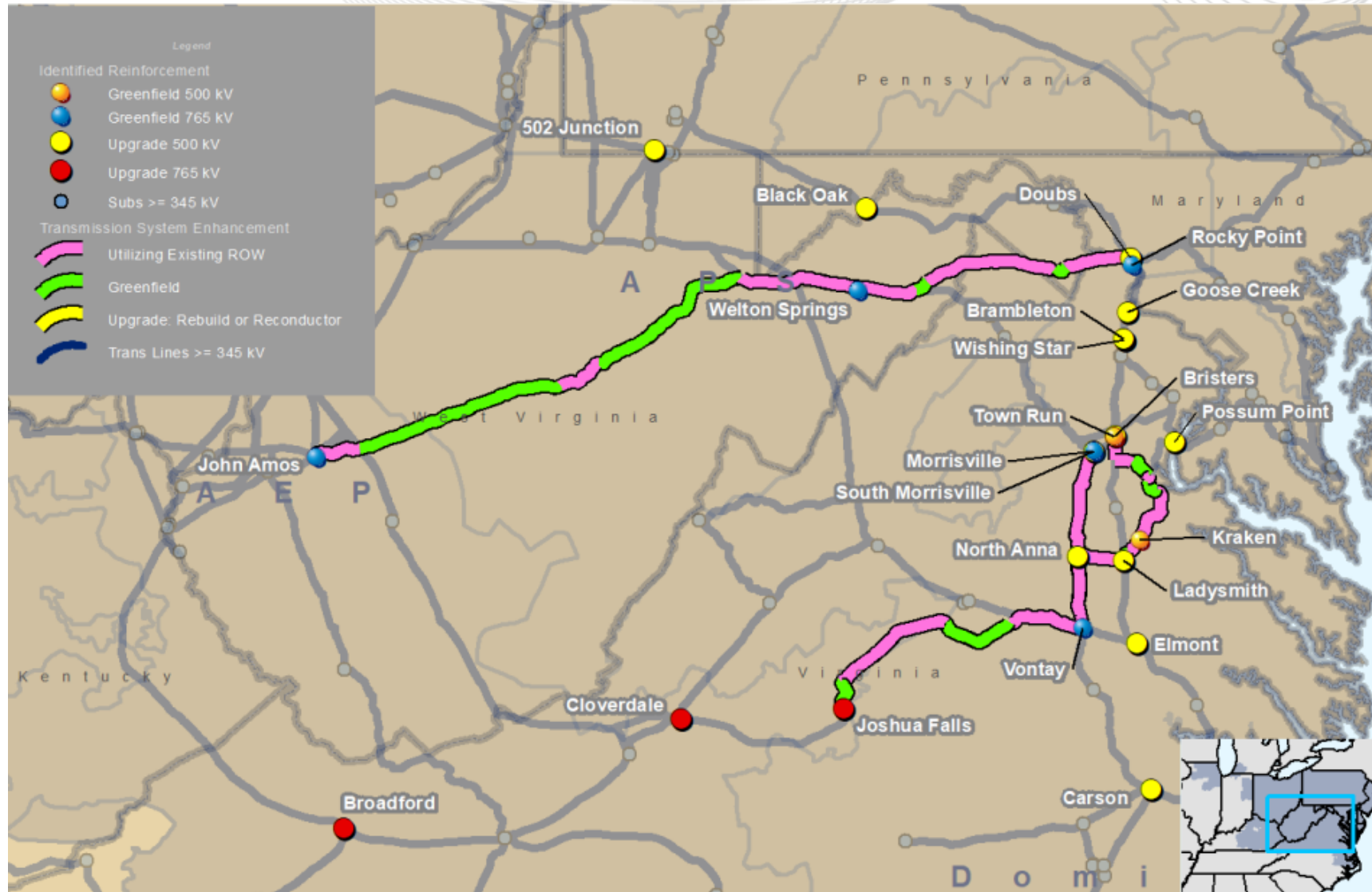
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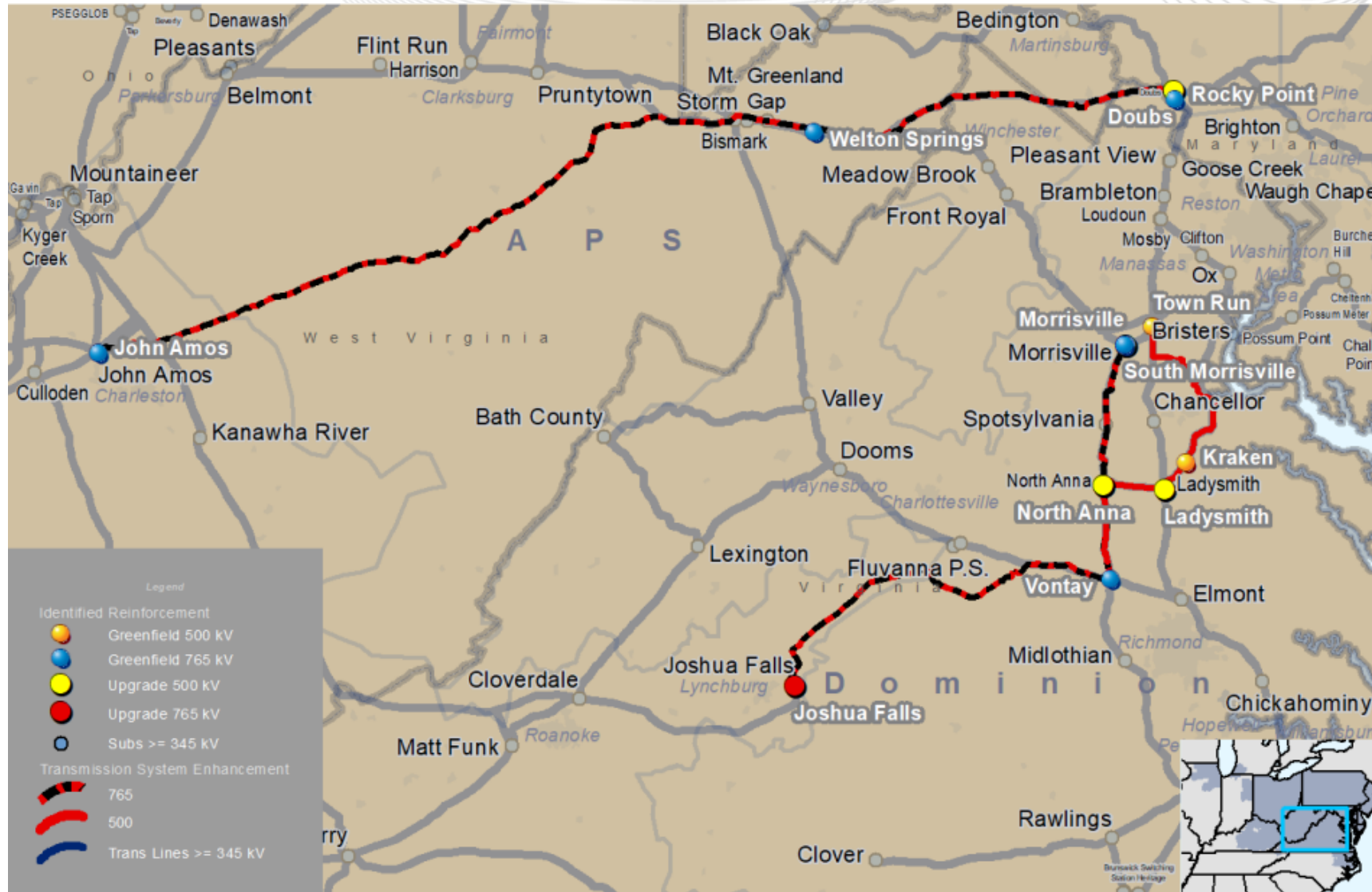
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Joint Proposal – 262

Dom / FE / Transource



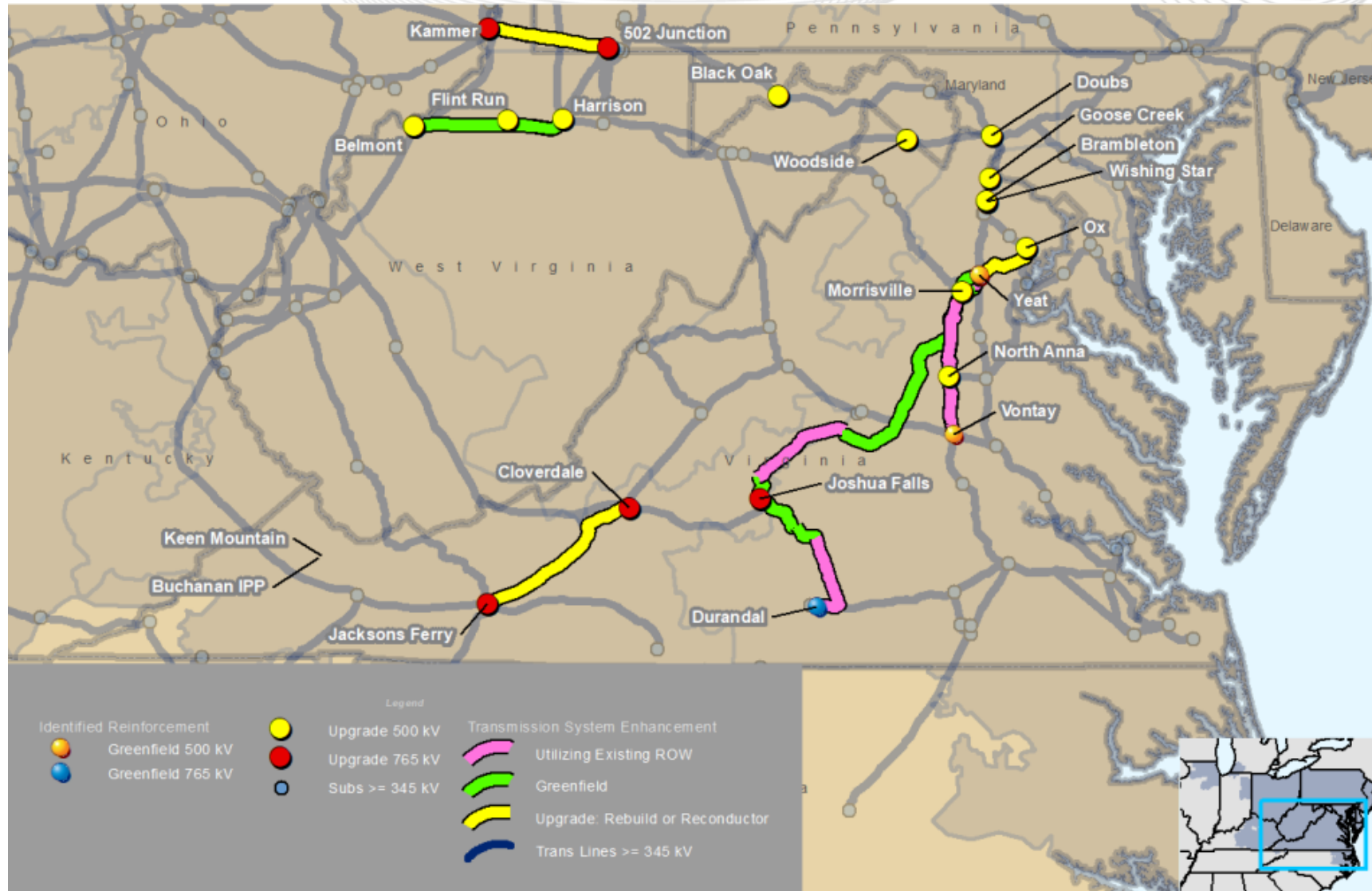
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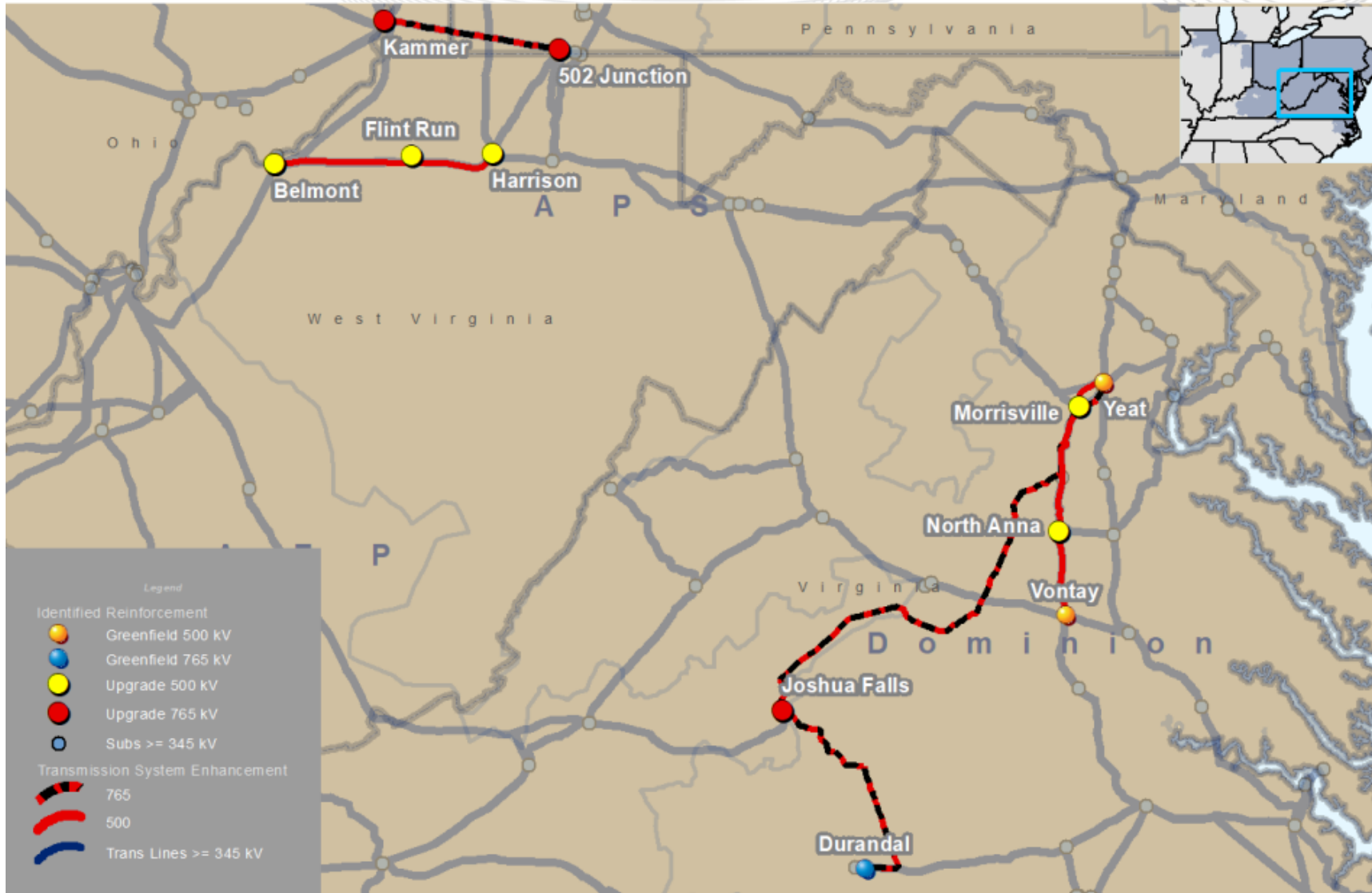
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Joint Proposal – 279

DOM / FE / Transource



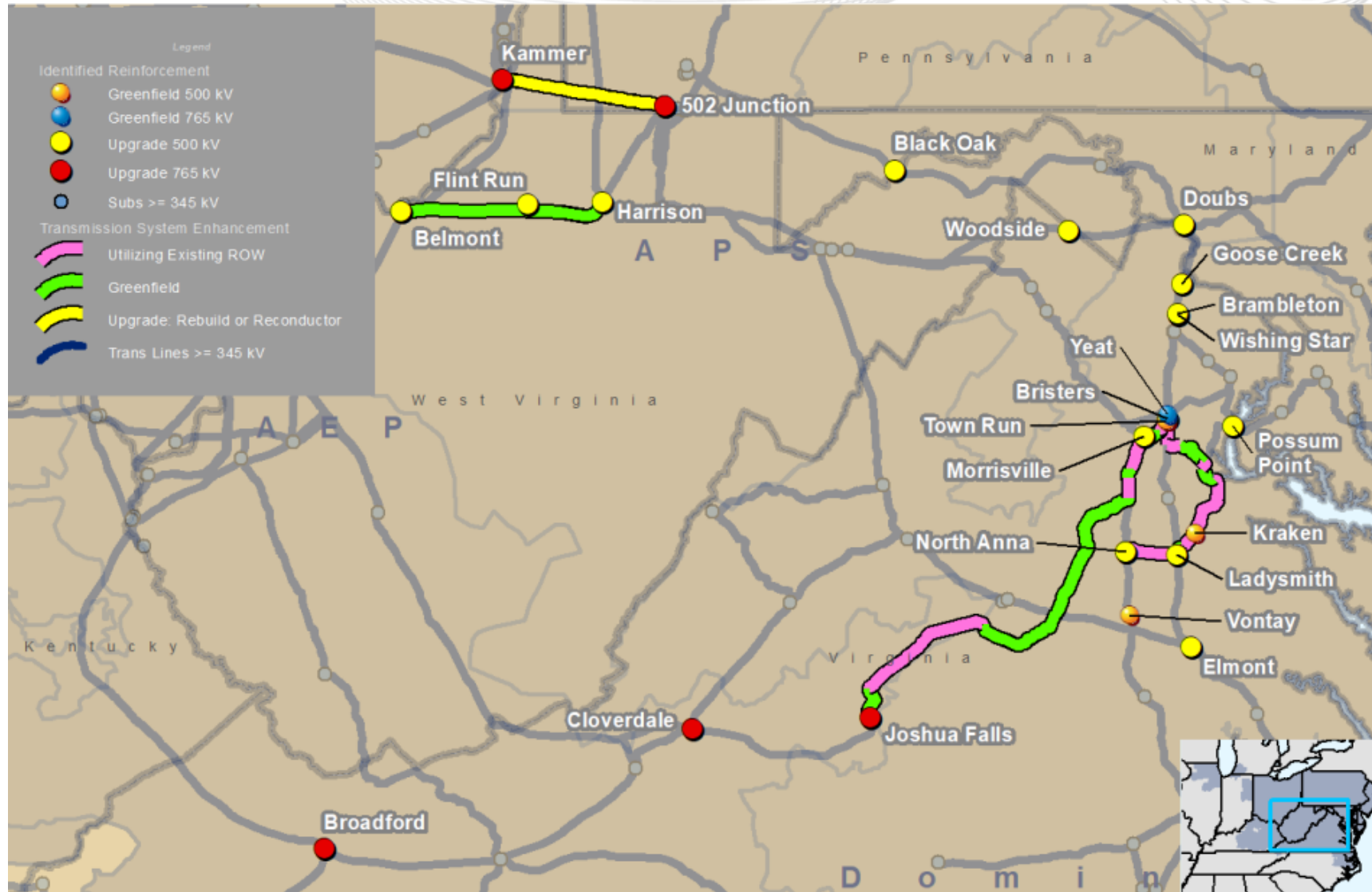
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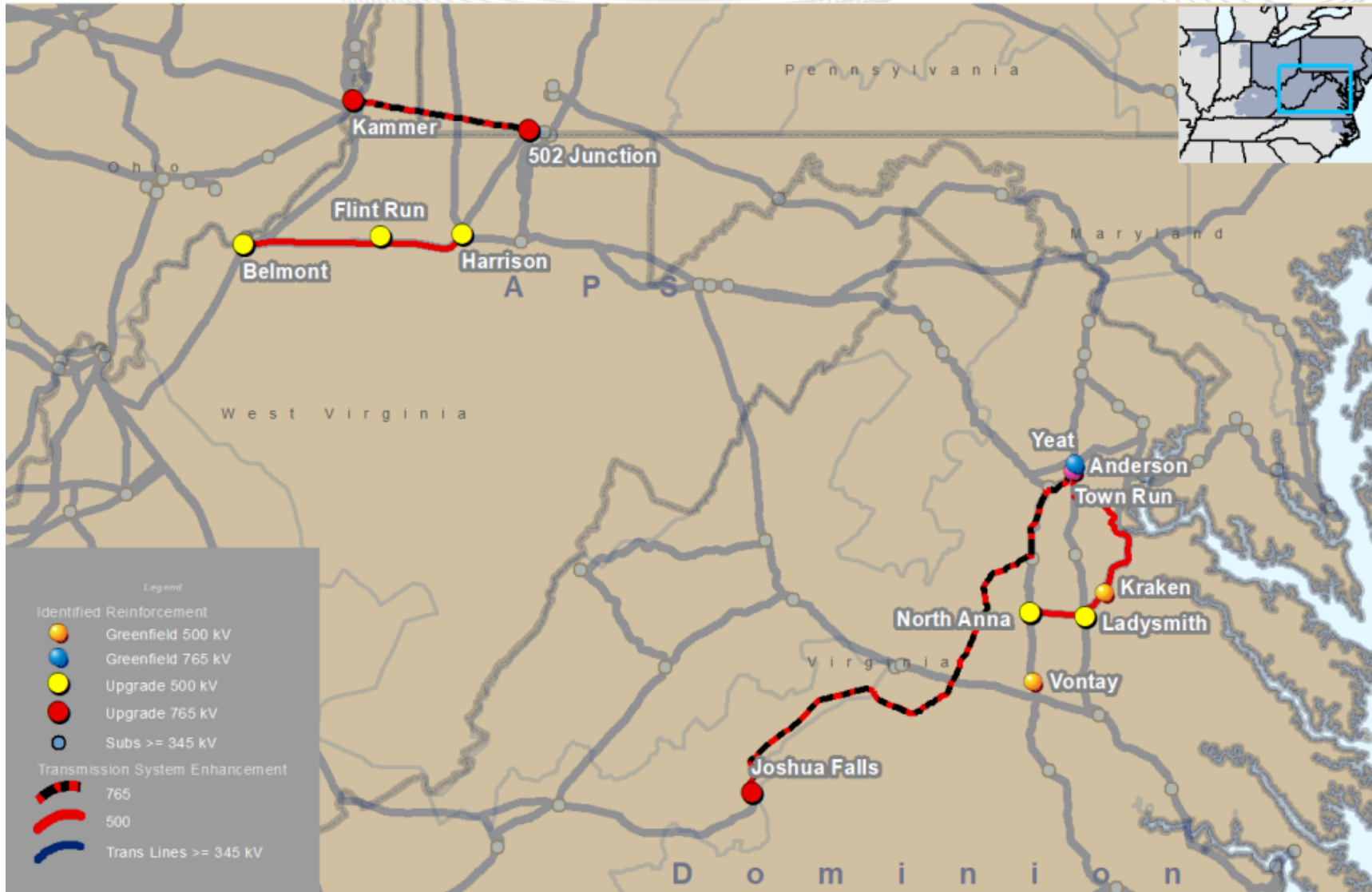
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Joint Proposal – 610

Dom / FE / Transource



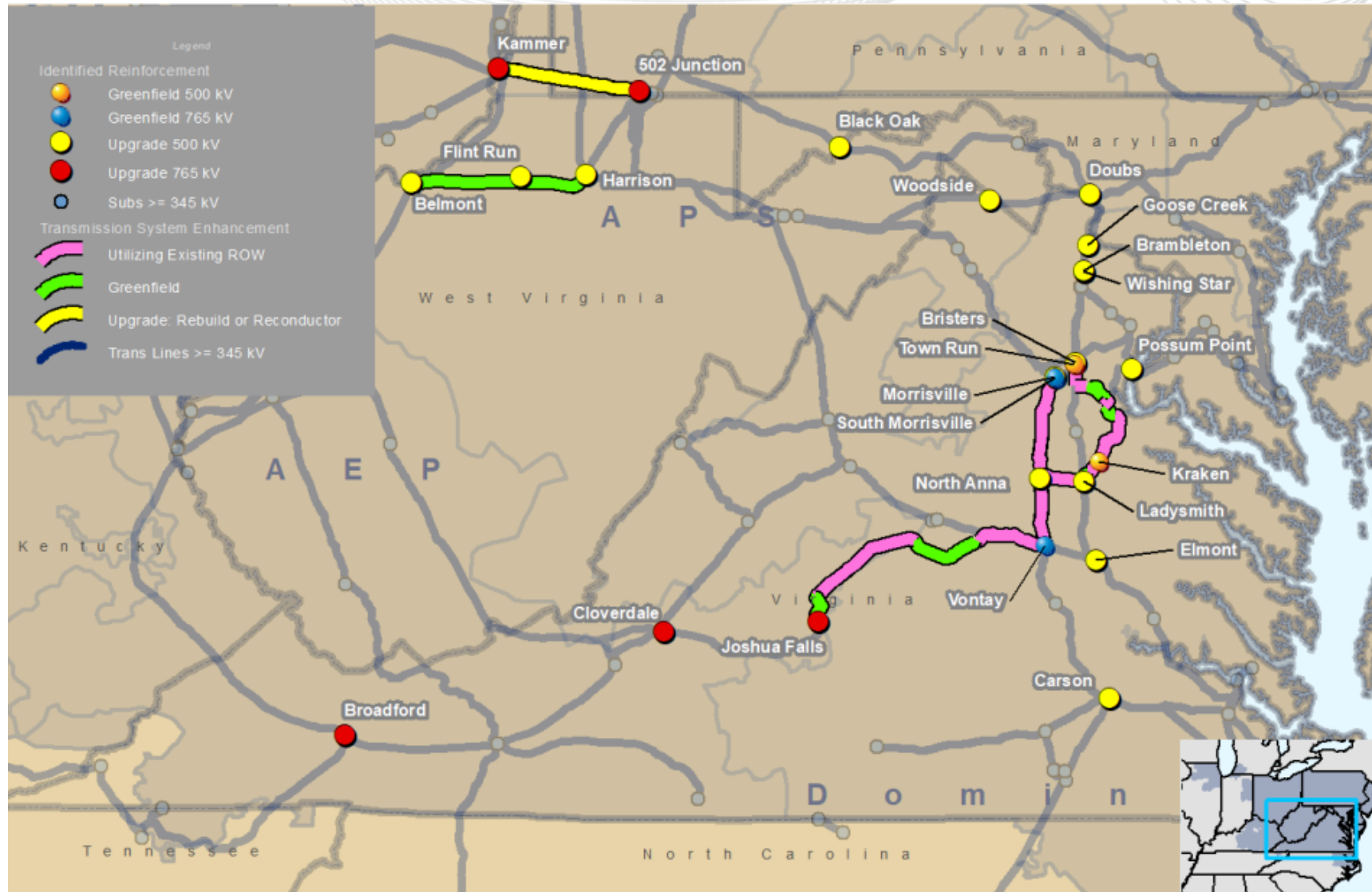
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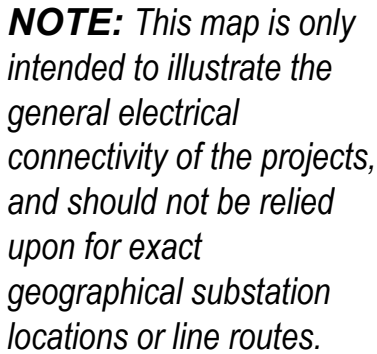
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Joint Proposal – 636

DOM / FE / Transource

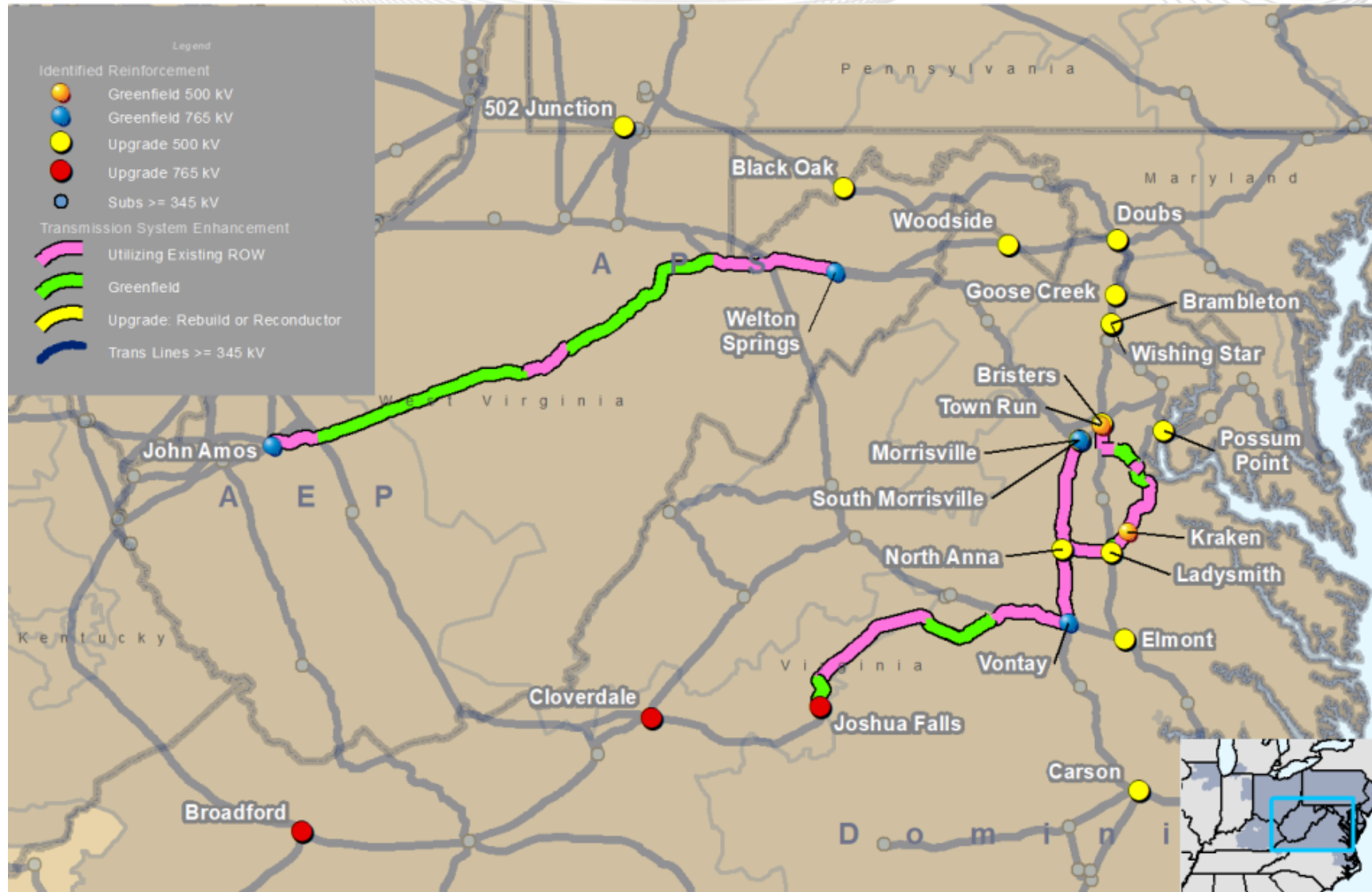


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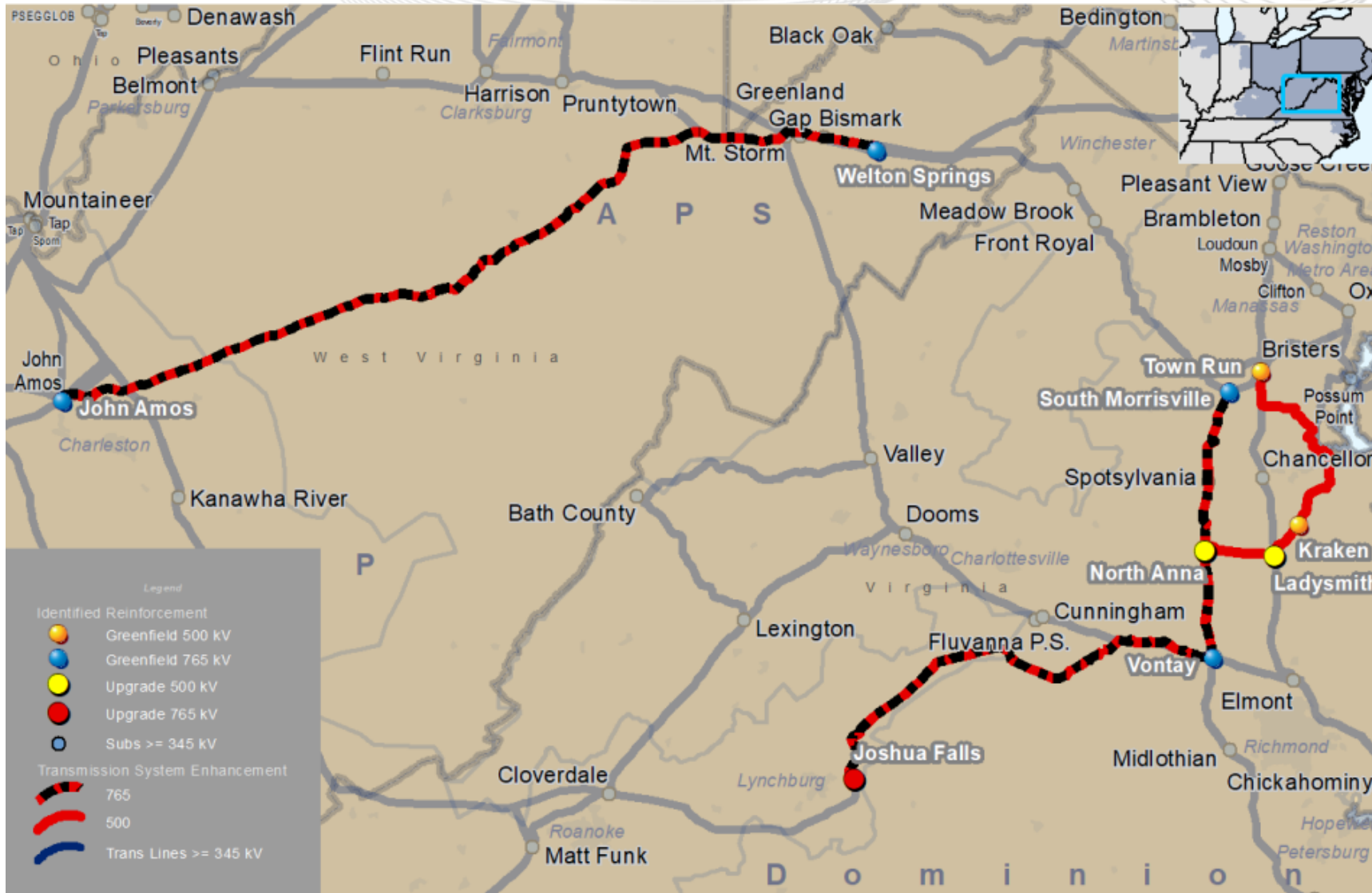


Joint Proposal – 759

DOM / FE / Transource



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Questions?

Facilitator:

Jason Connell,
Jason.Connell@pjm.com

Secretary:

Joshua Stephenson,
Joshua.Stephenson@pjm.com

SME/Presenter:

Sami Abdulsalam,
Sami.Abdulsalam@pjm.com

Reliability Analysis Update

A green speech bubble containing a white question mark, positioned above a blue speech bubble with three horizontal lines, indicating a question or contact point.

Member Hotline

(610) 666-8980

(866) 400-8980

custsvc@pjm.com

Version No.	Date	Description
1	10/3/2024	<ul style="list-style-type: none">• Original slides posted
2	10/4/2024	<ul style="list-style-type: none">• Maps and minor slide format changes
3	10/18/2024	<ul style="list-style-type: none">• Updated maps added

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YOU CLICK!**



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Report suspicious email activity to PJM.
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