

PJM 'Data Center Planning Initiative'

2022 RTEP Window 3

Regional Transmission Expansion Planning

Transmission Planning & Potential Impacts to Loudoun County, VA

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This Deck: Provides maps and high-level breakdown of information provided by PJM

(only as correct as the information which has been provided):

- Sources of information
- Description, What is Being Proposed, Where is Power Generated
- Scope, Purpose, Objective of Initiative
- What is 'Reliability'?
- Costs, Competitive Bids, Timeline
- Magnitude of Proposals: Transmission Lines, Substations, ROW
- Maps – PJM Transmission service Area, PJM Virginia Transmission service area
- **Loudoun County, VA impacting proposals – 28**
 - Waterways, Historic Communities, Parks impacted
 - Maps, Scope components, Costs, Impacts
 - **Data Center Alley Area**
 - **4 State Solution (VA, MD, WVA, PA)**
 - **Loudoun->WVA Corridor**
 - **Loudoun->PA Peach Bottom Corridor**
 - **Loudoun->PA Hunterstown Corridor**
 - **Loudoun->MD**
- Prince William, Fauquier, Fairfax, All Other areas - Overviews

PJM Descriptions of Regional Transmission Expansion Program 2022 RTEP Window 3 Proposals – Source Documents

- [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals
 - 72 Proposals
- **MAPS:**
 - [20230808-item-07---reliability-analysis-update.ashx \(pjm.com\)](#) Updated “complete” deck: August 30, 2023
 - **However, there are still multiple issues with maps in this version as will be noted.**
 - Maps were also provided on August 25, 2023 and July 11 2023, but had many errors, discrepancies, and omissions.
- [PJM Regional Transmission Expansion Planning Update \(pjm.com\)](#)
 - Powerpoint deck (March 27, 2023) explaining the 2022 RTEP Window 3 initiative – Purpose, Objective, Requirements (pages 3-7). ***Data Centers a factor on every page.***
- [PJM 2022 Regional Transmission Expansion Plan - dated March 14, 2023](#)
 - Section 1 - Page 2 -- PJM Backbone Transmission System (as of March 2023) (included on Slide 12)
 - Section 6.11 - Page 221 -- PJM Service Area in Virginia - map of 345, 500, 765 kV transmission lines (as of March 2023). (Included on Slide 13)
 - **Page 44:** (emphasis added)
 - *“In the PJM 2022 Load Forecast Report, Dominion requested that PJM consider a forecast adjustment to account for the growth of data centers in northern Virginia. This adjustment has been in place in some form since the 2014 Load Forecast Report. The rationale for making an adjustment for data centers is that these centers have a load impact that is disproportionate with their economic impact. Data centers generally require minimum staffing and thus would not have a significant impact on economic variables, but do have a considerable impact on energy demand.”*
- **Other presentation decks accessed from PJM and Dominion websites:**
 - [20230207-item-09---2022-window-3-update.ashx \(pjm.com\)](#) Dated Feb. 7, 2023
 - [item-04---data-center-load-planning.ashx \(pjm.com\)](#) Dated Jan. 10, 2023
 - [item-04---data-center-industry-digital-realty.ashx \(pjm.com\)](#) Dated Sept. 12, 2022
 - [item-09---reliability-analysis-update.ashx \(pjm.com\)](#) Dated Aug. 9, 2022
 - [item-08---dominion-northern-virginia---immediate-need.ashx \(pjm.com\)](#) Dated July 12, 2022
 - [reliability-briefing---dominion-data-centers-alley.ashx \(pjm.com\)](#) Dated June 7, 2022
 - Dominion IRP – [2023 Integrated Resource Plan](#) Filed May 1, 2023
- **Access more published information:** [‘PJM’s Data Center Planning Initiative’ / ‘NoVa Dominion Data Center Alley’ – The Coalition to Protect Prince William County \(protectpwc.org\)](#)

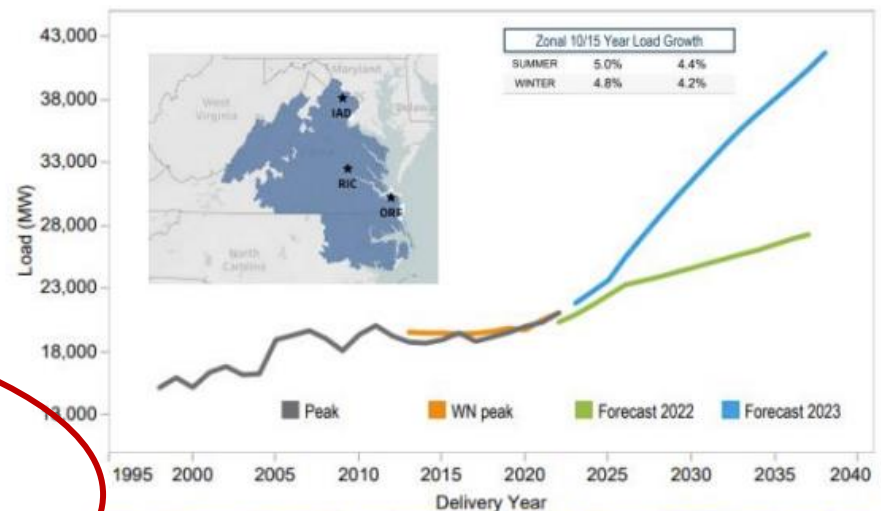
- Energy providers (PJM, Dominion, et al) are openly declaring that this transmission expansion initiative is to address overload violations on the grid caused by *currently operating* Data Centers...
- → **Violations** occurring on the grid -- **which could cause blackouts** -- **primarily because of all the Data Centers being brought onto the grid in Northern Virginia**
 - **NOTE: Data Centers**, which require many more times the power than ANY OTHER Industrial use, are being approved and tapping into the electrical grid all across the state of Virginia
- → Data Centers in Prince William County, VA, being *approved and supported by the current Chair and majority Supervisors on the PWC Board, are significantly contributing to the grid issues*; as well as approvals coming out of Loudoun County, VA
- Although SOME proposals in this initiative would add grid functionality which MAY benefit SOME Data Center applications making their way through the PWC/regional consideration pipeline...
- The power for more yet-to-be approved Data Centers will be served by OTHER and ADDITIONAL PJM/Dominion transmission line and substation projects -- when and if any *other* Data Center plans are approved
- → **As more Data Center applications are approved, there will be EVEN MORE transmission lines and substations added to what is proposed here – This was CONFIRMED by PJM in a 9/5/23 meeting**
- **NOTE:** Data Centers required for AI (Artificial Intelligence) are predicted to require 7-8 times MORE than the power required by today's Data Centers

PJM RTEP Planning Update – Dated March 27, 2023



2022 Competitive Window 3 – Data Center Load Planning Update

- Earlier in 2022, PJM shared its forecast for 2022 and indicated high Data Center Load growth activity, particularly in Northern VA
- In July 2022, PJM directed an Immediate Need transmission project to enable the integration of the forecasted load within the Dominion Data Center Alley up to and including year 2025
- Since then, Data Center Loads within Northern Virginia has been increasing at an unprecedented rate (2022 Summer Peak recorded 21,156 MW – Forecast 20,424 MW)
- The 2028 timeframe load will require major transfer reinforcements into the Doubs/Northern Virginia region to support high flows and VAR requirements
- PJM is working towards opening a competitive window in early February 2023 to address the identified violations



<https://pjm.com/-/media/library/reports-notices/load-forecast/2022-load-report.ashx>

What Is Being Proposed in the 'PJM Data Center Planning Initiative' 2022 RTEP Window 3?

- Add more NEW transmission lines
 - 230kV
 - 500kV
 - 765kV
- Add more NEW substations
 - 230kV/500kV
 - 500kV
 - 765kV
- Upgrade existing transmission lines from 230kV to 500kV
- Upgrade existing 230kV and 500kV substations with more 500kV functionality
- Increase Amps to 4000 or 5000 Amps; more
- Replace aging equipment
- **Connecting the Dots - What Will Be On New PJM Lines?**

What and Where is the Power Generated for MOST of these Transmission Proposals?

- **Ohio, West Virginia from the West**
 - First Energy's coal-fired Fort Martin Power Station, Fort Martin, WV
 - First Energy's coal-fired Harrison Power Station, Haywood, WV
 - AEP's Ohio fossil fuel plants
- **Pennsylvania from the Northeast**
 - Peach Bottom Atomic Power Station in Delta, PA
 - Gas-fired York Energy Center, Delta, PA
- **Why are new electrical transmission lines having to originate from outside of Virginia?**
- **We are also experiencing a POWER GENERATION problem**

Scope – PJM RTEP Update dated March 27, 2023 - (direct quotes)

Window Opened; February 24, 2023

- PJM posted preliminary planning basecases on January 31st 2023
- Window Closed – May 10, 2023

Purpose:

- **Address reliability needs in the Dominion and APS zones primarily associated with Data Center Load forecasts (up to 7,500 MWs by 2027-28)**
- Seeking robust and flexible solutions to address the reliability needs in those specific areas

Objective:

- Develop robust, holistic and expandable solutions that address the **2027-28 baseline violations** associated with:
 - **Local constraints: resulting from directly serving the data center loads in APS and Dominion zones through the respective 230 kV networks and into the points of delivery:**
 - Goose Creek- Ashburn – Mars - Wishing Star and Brambleton – Loudoun Co VA
 - **Regional constraints resulting from imports into load center areas (500 kV primarily):**
 - Doubs - Goose Creek – Frederick MD-Loudoun Co VA
 - Front Royal - Morrisville – Vint Hill – Loudoun/Mosby - Warren Co-Fauquier Co-Loudoun Co VA
 - Meadow Brook - Loudoun/Mosby – Loudoun Co VA
 - Morrisville – Bristers - Ox – Fauquier Co-Fairfax Co VA
 - Peach Bottom – Conastone – Brighton – Doubs – Maryland
 - **Needed reactive power VAR reinforcements, both static and dynamic as deemed necessary, to address the reactive power needs of the system for the 2027-28 baseline scenario**

Requirements:

- Holistic solutions are to be designed such that they are robust and **expandable as the load grows within the area.**
- **A scalable solution ensures, at a minimum, near-term reliability needs are addressed while also enabling future expansion (beyond the 2027-28 baseline levels) as data center load increases in the Dominion and APS zones.**
 - Consider flexibility, robustness and scalability of 2027-28-baseline solutions against the Interim 2027-28 Summer, Winter and Light Load basecases.
 - Evaluate proposals for **their effectiveness towards existing reactive interfaces in the area, particularly those supporting the Dominion and APS zones.**
 - Evaluate the **effectiveness of the proposed solutions towards the transmission system load deliverability into the Dominion and APS zones (CETL).**

What is 'Reliability'?

- PJM has identified MULTIPLE N-1-1 violations in their transmission region
- N-1-1 means that you could experience interruptions of power on MORE than one transmission line
- N-1-1 = Threats of significant violations that could cause power disruptions ie: BLACKOUTS

2022 RTEP Window 3 – 72 Proposals

Estimated Costs - \$51,192,146,194 - \$51.1B

- Not all proposals, or all components in proposals, will be selected
- Some components and costs are repeated and counted multiple times across multiple proposals

- **PWC** Directly Impacting Proposals - **15**: **\$19,586,399,352 - \$19.5B** [Overview](#)
 - Include impacts to other Counties and States
- **Loudoun County** Directly Impacting Proposals - **28**: **\$26,745,769,448 - \$26.7B** [This Deck](#)
 - Include impacts to other Counties and States
 - Loudoun County is also impacted by multiple PWC proposals
- **Fauquier County** Directly Impacting Proposals - **1**: **\$320,266,203 - \$320.2M** [Overview](#)
 - Include impacts to other Counties and States
 - Fauquier County is also impacted by multiple PWC and Loudoun proposals
- **Fairfax County** Directly Impacting Proposals - **2**: **\$895,459,401 - \$895.4M** [Overview](#)
 - Include impacts to other Counties and States
 - Fairfax County is also impacted by multiple PWC and Loudoun proposals
- **All Other Va. Counties and MD & PA** Directly Impacting Proposals - **26**: **\$3,644,251,790 - \$3.6B** [Overview](#)
 - These others are also impacted by multiple PWC, Loudoun, Fauquier, and Fairfax proposals

Competitive Bids

- Many TO (Transmission Operator) energy providers have submitted bids to PJM in this 2022 RTEP Window 3 (72 proposals)
- *Not all work possibly to be awarded in the Dominion Zone will be done by Dominion Energy*
- Bids from competitors:
 - AEP - [AEP.com](https://www.aep.com)
 - Exelon - [Exelon Corporation - Home - Exelon](https://www.exeloncorp.com/)
 - First Energy - [FirstEnergy Corp. Home](https://www.firstenergy.com/)
 - LS Power - [LS Power | Innovation and Investment in Energy](https://www.lspower.com/)
 - Nextera - [NextEra Energy](https://www.nexteraenergy.com/)
 - PPL - [PPL Corporation \(pplweb.com\)](https://www.pplweb.com/)
 - PSEG - [PSE&G \(pseg.com\)](https://www.pseg.com/)
 - Transource - [About Us \(transourceenergy.com\)](https://www.transourceenergy.com/)

Timeline

- PJM selection process:
 - **Oct. 3:** Announce top 3-4 “scenarios”- made up from 72 proposals
 - **Oct. 3 – 31:** Stakeholder feedback on “scenarios”
 - 1st read
 - 2nd read
 - **Dec. 5:** PJM TEAC bring final recommended solution to PJM Board from 3-4 scenarios
 - **TBD: Board approval**
 - Dec. 2023 in original timeline – not clear if that is still the plan
 - After PJM Board approval, winning providers take filings to their respective State Commissions (ie VA SCC)

NEW Transmission Lines & NEW Substations

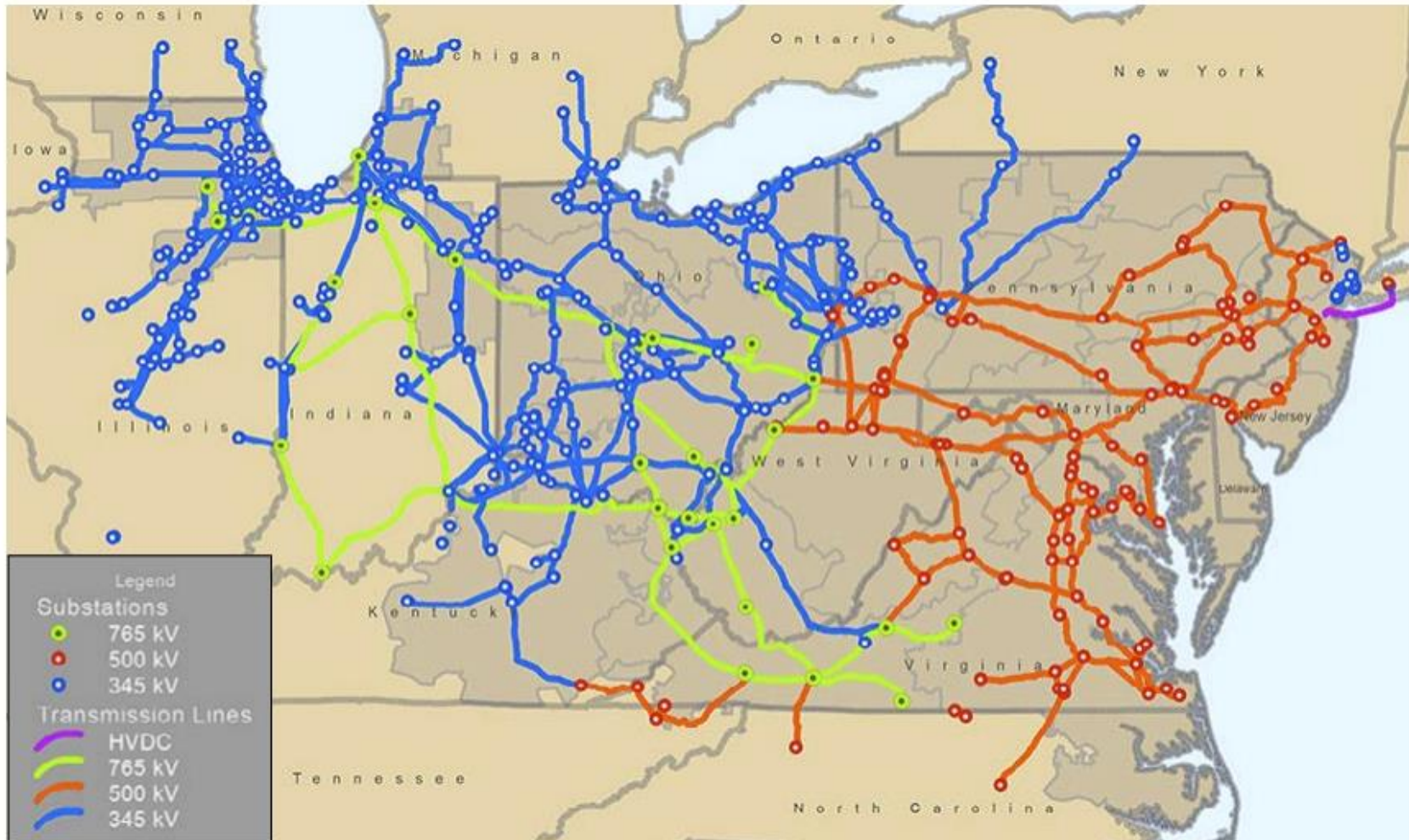
- *Totals are still being verified*
- **NEW 500 kV** transmission lines in **~43 of the 72 proposals**
- **New 500kV** substations in **~37 of the 72 proposals**
- Remaining scope is mostly bringing 500kV upgrades to existing lines and substations **across Virginia and in NJ, DEL, PA, WVA, MD**
- ALL bringing greater capacity to Loudoun and PWC to support current data center load demands and the grid reliability violations they are causing
- **Undergrounding**: Primarily in Loudoun County or under waterways
 - **7 NEW 500kV transmission lines proposed solutions - complete or partial undergrounding: #419, 445, 548, 691, 728, 846, 858**
 - **3 NEW partially undergrounded 230kV lines: 385, 564, 948**

NEW ROWs (Right of Way) & Land Acquisitions

- **NO ROUTES OR LOCATIONS IN THE PLAN ARE FIRMLY ESTABLISHED**
- Transmission providers will not finalize new line or substation routes/locations until later in the process. PJM does not determine routes or substation locations.
- Maps only serve as an *estimate* of line corridor, not a firm route. And a *hoped-for location* for new substation.
- Many proposals are silent as to ROW or land acquisitions
- Much of the specific ROW/Real Estate information is redacted
- Even upgraded substations and lines may require larger footprint/wider ROW
- **ASSUME NEW ROW AND LAND ACQUISITIONS FOR ANYTHING NEW - AND FOR MANY UPGRADES**
- Will involve condemnations and eminent domain “takes” across the region

PJM Backbone Transmission System Map - Existing

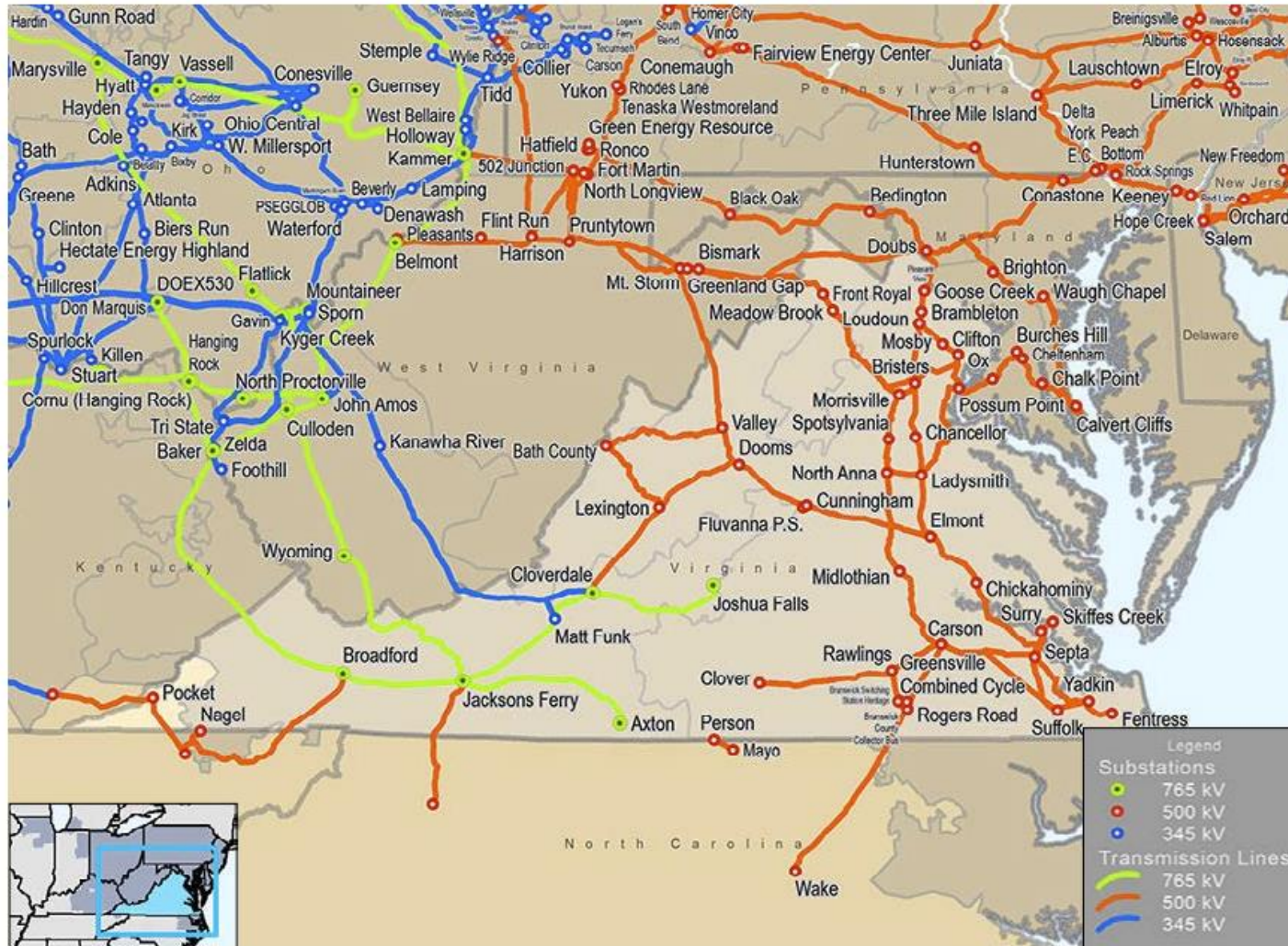
Map 1.1: PJM Backbone Transmission System



- Source: [2022-rtep-report.ashx \(pjm.com\)](https://www.pjm.com/2022-rtep-report.ashx) Dated March 13, 2023 Page 2
- Does NOT show existing 230kV lines and substations

PJM Service Area in Virginia – Existing

Map 6.46: PJM Service Area in Virginia



- Source: [2022-rtep-report.aspx](https://www.pjm.com/2022-rtep-report.aspx) ([pjm.com](https://www.pjm.com)) Dated March 13, 2023 Page 221
- Does NOT show ANY existing 230kV lines and substations

Loudoun County Va Impacting Proposals

- PROPOSALS = 28

Many proposals are VERY SIMILAR:
ie They are different variations of the same

- Loudoun VA 'Data Center Alley' Area = 3
 - Dominion – 2: 692, 516
 - Transource – 1: 858
- 4 State Solution (VA, MD, WVA, PA) = 1
 - Transource: 487
- Loudoun VA -> West Virginia Corridor = 10
 - First Energy – 2: 23, 837
 - Nextera – 8: 642, 853, 719, 685, 676, 951, 347, 279
- Loudoun VA -> Pennsylvania – Peach Bottom Corridor = 7
 - Nextera – 3: 948, 564, 385
 - PSEG – 2: 962, 741
 - Exelon – 2: 600, 660
- Loudoun VA -> Pennsylvania – Hunterstown Corridor = 6
 - Nextera: 255, 419, 116, 28, 846, 445
- Loudoun VA -> Maryland – Barnhart Corridor = 1
 - Nextera: 728

- TOTAL COSTS = \$26.7 BILLION (\$26,745,769,448.00)
 - *Not all proposals, or all components in proposals, will be selected*
 - *Components and costs are repeated and counted multiple times across multiple Loudoun Co. and PWC impacting proposals*
- Loudoun County is also impacted by Prince William VA impacting proposals
- Proposals impacting Loudoun County VA include Lines/Substations *also* impacting other Va. counties &/or other states:
 - Other VA counties: Fairfax, Frederick Co VA, Fauquier, Warren
 - Other states: Frederick MD, MD, PA, WVA, DEL

Impacted Waterways – as noted in 28 Loudoun VA-impacting proposals

[\(see more in Prince William VA-impacting proposals review\)](#)

- Potomac River
- Youghiogheny River
- Shenandoah River
- Monocacy River
- Monongahela River
- North River
- Chesapeake Bay
- Cheat Lake
- Chesapeake and Delaware Canal
- Broad Run
- Goose Creek
- Millville Dam

Impacted Historic Communities and Parks

– as noted in 28 Loudoun VA-impacting proposals

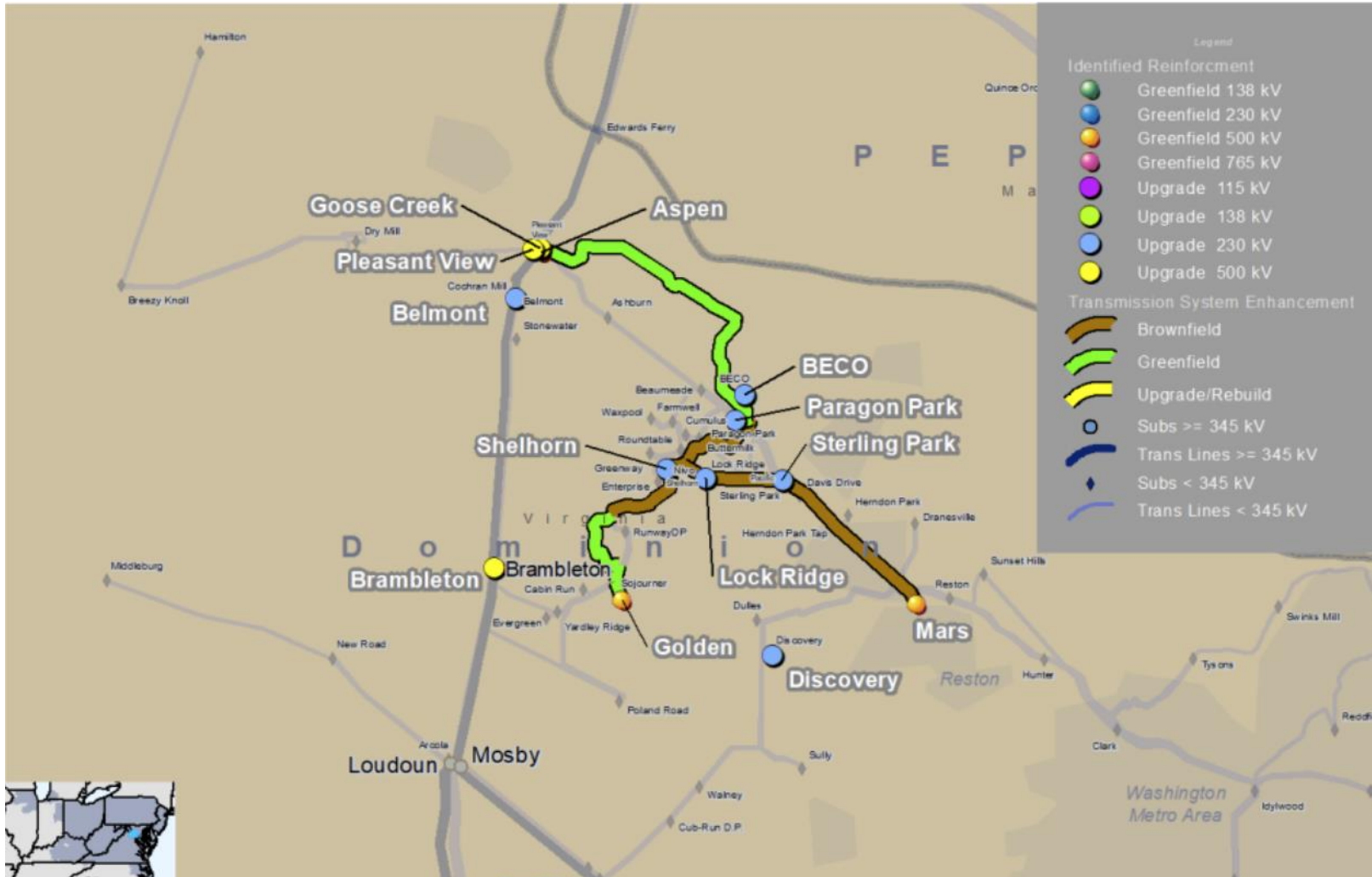
[\(see more in Prince William VA-impacting proposals review\)](#)

- Waterford Historic District
- Beverly Mills historic district
- Belmont & Ashburn Presbyterian Church
- C&O Canal National Historic Park
- Dickerson Conservation Park
- Capon Chapel
- Appalachian Trail
- Catoctin Mountain
- Sugarloaf Mountain Historic Landmark
- Appalachian Mountains
- W&OD Trail
- Potomac Heritage National Scenic Trail

Loudoun VA 'Data Center Alley' Area = 3

- **Dominion – 2: 692, 516**
- **Transource – 1: 858**

Dominion 692 Loudoun VA 'Data Center Alley' Area



Impacts: All in Loudoun County

• 'Data Center Alley Local Solution'

- Ignore Brownfield – scope is NEW Greenfield lines

- Map calls out Mars as Greenfield 500kV substation – proposal component 19 is substation upgrade

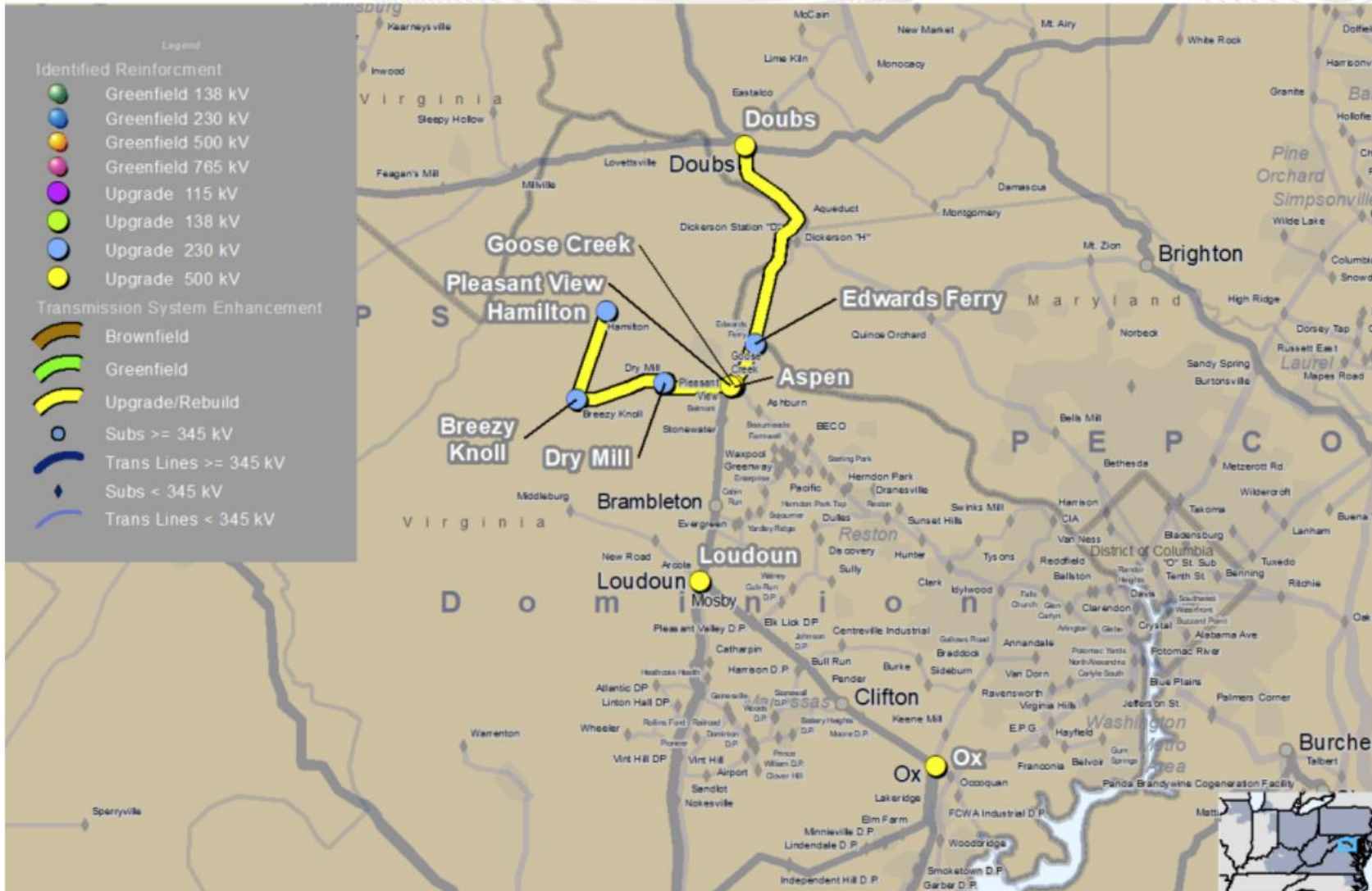
Dominion 692 Loudoun VA

'Data Center Alley' Area Components

1. Aspen - Golden 500kV Line Build (99-2971)
2. Mars 500-230 kV Transformer Installation (99-3197)
3. Line #2150 (Golden to Paragon Park Circuit 1) Reconductoring (99-3188)
4. Line #2081 (Golden to Paragon Park Circuit 2) Reconductoring (99-3188)
5. Paragon Park Substation Equipment Rating Upgrade (99-3188)
6. Golden Relay Setting Upgrade Reset (99-3188)
7. Line #2207 (Paragon Park - Beco) Reconductoring (99-3200)
8. Paragon Park Substation Equipment Rating Upgrade (99-3200)
9. Beco Substation Equipment Rating Upgrade (99-3200)
10. New Mars-Lockridge -Golden 230 kV Lines Construction (99-2970)
11. New Mars-Golden 500 kV Line Construction (99-2970)
12. 500kV Line # 558 (Brambleton-Goose Creek) Cut-In to Aspen (99-2971)
13. New 500kV Line from Aspen to Goose Creek (99-2971)
14. Line #2150 (Sterling Park to Paragon Park Circuit 1) Cut-In to Golden (99-2971)
15. Line #2081 (Sterling Park to Paragon Park Circuit 2) Cut-In to Golden (99-2971)
16. New 230kV Line from Aspen - Golden (99-2971)
17. Golden Substation (99-2970)
18. Lockridge Substation (99-2970)
19. Mars Substation (99-2970)
20. Beaumeade Substation Overdutied Breaker Replacement (99-3208)
21. Beco Substation Overdutied Breaker Replacement (99-3208)
22. Belmont Substation Overdutied Breaker Replacement (99-3208)
23. Discovery Substation Overdutied Breaker Replacement (99-3208)
24. Pleasant View 230 kV Substation Overdutied Breaker Replacement (99-3208)
25. Shellhorn Substation Overdutied Breaker Replacement (99-3208)
26. New Aspen 500/230 kV Substation (99-2971)
27. New Golden 500/230 kV Substation (99-2971)
28. Brambleton Substation (99-2971)
29. Goose Creek Substation (99-2971) 2022-W3-692 2
30. Paragon Park Substation (99-2971)
31. Sterling Park Substation (99-2971)
32. Sycolin Creek Substation (99-2971)

- **Yellow** are Loudoun impacts
- **Green** are NEW
- All in Loudoun County
- 4 NEW lines in Loudoun Co:
 - Aspen-Golden 230kV
 - Mars-Golden 500kV
 - Aspen-Goose Creek 500kV
 - Mars-Lockridge-Golden 230kV
- 2 NEW 500kV substations in Loudoun Co
 - Aspen
 - Golden
- Multiple 500kV upgrades to other lines and substations in Loudoun
- Each substation upgrade will support new conductor rating of 4000 Amps
- **ROW-Land Acquisitions:**
 - **ROW 8.3 miles** 150' width Mars-Lockridge-Golden 230kV line and Mars-Golden 500kV line
 - **NEW ROW** for Aspen-Goose Creek 500kV line – no dimensions provided
 - NEW Golden 230/500kVsubstation lists Real Estate and Permitting Summary
- **Waterways/History/Parks:** Goose Creek, Broad Run
- **Estimated Cost:** \$1,060,579,078 - \$1.0B
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Dominion 516 Loudoun VA 'Data Center Alley' Area



Impacts: Loudoun, Fairfax, Frederick MD

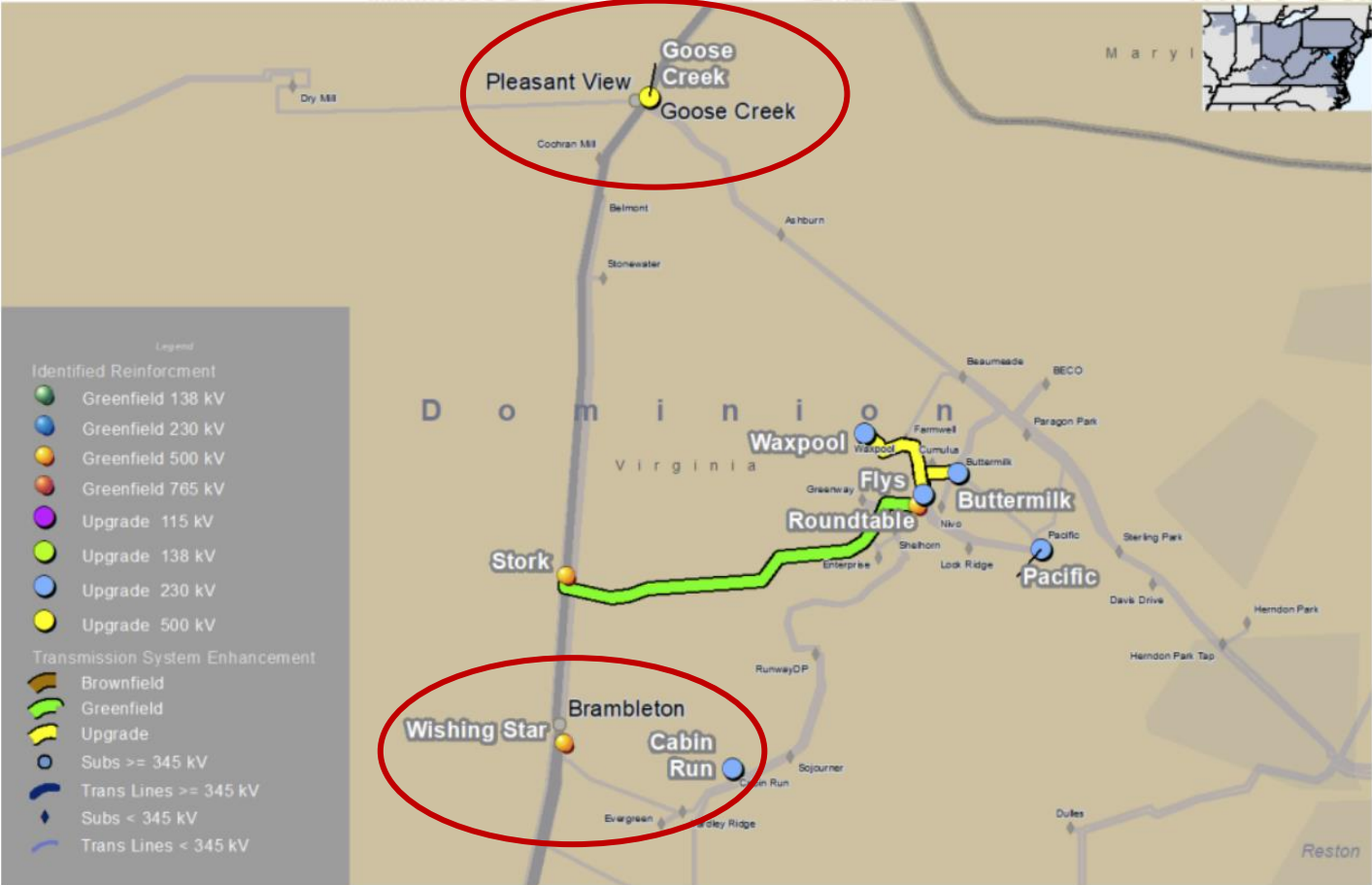
- Why is 765kV in this map legend – Aspen?
- Maps, dated 8/30/23, for FE 23 and 837 showed Aspen as 765kV Greenfield substation?
- Aspen 765kV not in scope of any proposal

Dominion 516: Loudoun VA 'Data Center Alley' Area Components

1. Aspen Substation Terminal Equipment Installation for 5000A Line to Doubs
2. Breezy Knoll Relay Reset
3. Dry Mill South Relay Reset
4. Goose Creek Substation Equipment Upgrade
5. Hamilton Relay Reset
6. Pleasant View Substation Equipment Upgrade
7. Line #203 (Pleasant View - Dickerson) Rebuild
8. New 500 kV Line (Aspen to Doubs)
9. Line #514 (Goose Creek - Doubs) Rebuild
10. Line #2098 (Pleasant View - Hamilton) Partial Rebuild
11. Loudoun Substation Overdutied Breaker Replacement
12. Ox Substation Overdutied Breaker Replacement
13. Pleasant View Substation Overdutied Breaker Replacement
14. Edwards Ferry Substation Equipment Upgrade

- **Yellow** are Loudoun impacts
- **Green** are NEW
- No PWC impacts
- NEW 500kV line from Doubs in Frederick, MD to Aspen substation in Loudoun
- Multiple 500kV upgrades to other lines and substations in Loudoun
- Line and substation upgrades in and around **Hamilton, VA**
- 500kV upgrade to Ox (Occoquan) substation in Fairfax Co.
- **ROW:** 3.1 miles 25' width Aspen-Doubs 500kV line
- **Waterways/History/Parks:** **Goose Creek**
- **Estimated Cost:** \$66,105,092
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Transource 858 Loudoun VA 'Data Center Alley' Area



Impacts: Loudoun VA

- **NEW 500kV UNDERGROUND Line to NEW Stork-Flys substations**
- **Upgrades to 5 230kV substations**
- **Rebuilds of 3 230kV lines**

Transource 858: Loudoun VA 'Data Center Alley' Area Components

1. Stork 500kV Greenfield Substation
2. Stork - Flys 500 kV Underground Line
3. Flys 500/230kV Substation
4. Roundtable - Buttermilk 230kV Line Rebuild
5. Roundtable - Waxpool 230kV Line Rebuild
6. Waxpool - Farmwell 230kV Line Rebuild
7. Roundtable Station Upgrade
8. Wishingstar Station Upgrade
9. Cabin Run Station Upgrade
10. Pacific Station Upgrade
11. Goose Creek Station Upgrade

- **Yellow** are Loudoun impacts
- **Green** are NEW

- **ROW:**
 - Stork substation: 8.1 acres, purchased in fee
 - Stork-Flys underground: 5.04 miles, multiple tributaries and streams, within road ROW, 50' wide
 - Flys substation: 15 acres, purchased in fee

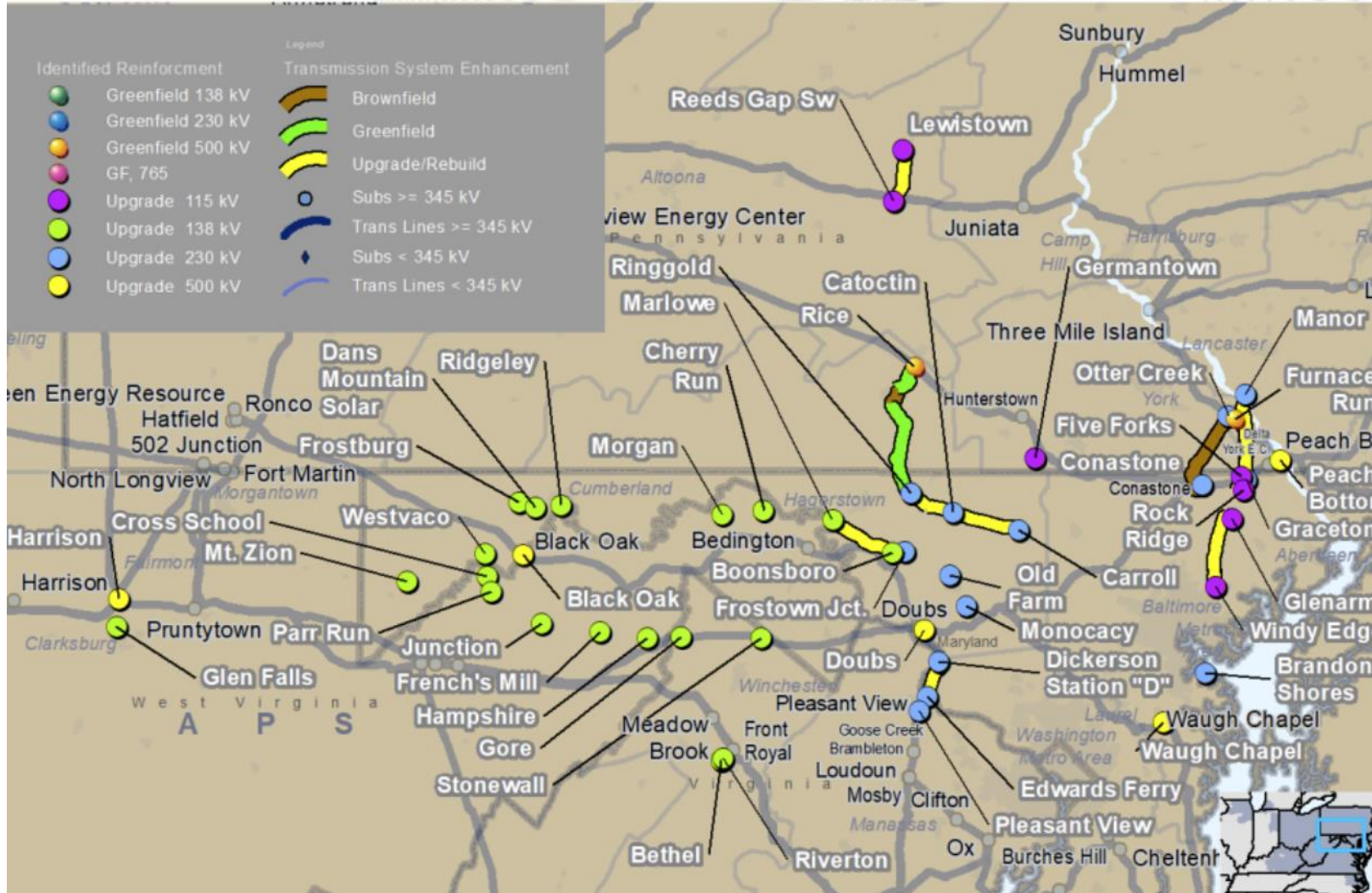
- **Waterways/History/Parks:** Beaverdam Creek?, Broad Run
- **Estimated Cost: \$592,564,487**

- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows : >2022 Window 3 Redacted Proposals](#)

4 State Solution = 1

- **Transource: 487**

Transsource 487 – 4 State Solution



- Impacts: Loudoun, Warren, Frederick MD, MD, WVA, PA
- Independence Energy Connection (IEC) Project
 - (1) IEC West, ~29-miles of new double-circuit 230kV AC overhead transmission line between the existing Potomac Edison Ringgold Substation in Washington County, Maryland to a new Rice Substation in Franklin County, Pennsylvania;
 - (2) reconfigured IEC East, is primarily comprised of adding 230kV AC overhead transmission lines between a new Furnace Run Substation in York County, Pennsylvania, and the existing BGE Conastone (via Baltimore County) and Graceton Substations in Harford County, Maryland
 - Multiple line and substation upgrades and tie-in lines – 115kV->500kV
- Loudoun scope
- Ignore Brownfield - line is Upgrade (Yellow) in proposal

Transource 487 4 State Solution - Components

1. Rice – Ringgold 230 kV Greenfield Transmission Line - ~29 miles
2. Ringgold 230/138 kV Station Upgrade
3. Rice 500/230 kV Greenfield Station
4. Manor - Graceton 230 kV Upgrade
5. Conastone – Otter Creek 230 kV Transmission
6. Graceton Station Line Upgrade
7. Furnace Run 500/230 kV Greenfield Station Upgrade
8. Conastone Station Upgrade
9. Ringgold - Catoctin Line Upgrade (138 kV to 230 kV)
10. Dickerson Station Upgrade
11. Conemaugh - Hunterstown 500 kV line Tie-in
12. Peach Bottom - Three Mile Island Tie-in
13. Catoctin to Carroll Line Upgrade (138 kV to 230 kV)
14. Catoctin Station Upgrade
15. Carroll Station Upgrade
16. Glen Arm 2 – Windy Edge 1 115 kV Line Upgrade
17. Five Forks – Rock Ridge 1 115kV Line Upgrade
18. Upgrade Terminal Equipment as necessary at Ringgold, Frostown, Doubs, Old Farm, and Monocacy
19. Peach Bottom Station Upgrade
20. Upgrade Terminal Equipment as necessary at Brandon Shores and Waugh Station
21. Marlowe - Boonesboro 138 kV Series Reactor
22. Germantown Station Capacitor Upgrade
23. Garrett to Garrett Tap 115 kV Line Upgrade
24. Lewiston – Reed Tap 115 kV Terminal Equipment Upgrade
25. Dickerson - Edwards Ferry - Twin Creek – Pleasant View 230 kV Rebuild and Terminal Equipment Upgrade
26. Morgan – Cherry Run 138 kV Terminal Equipment Upgrade
27. French Mill - Hampshire 138 kV Terminal Equipment Upgrade
28. Hampshire - Gore 138 kV Terminal Equipment Upgrade
29. Gore - Stonewall 138 kV Terminal Equipment Upgrade
30. Glen Falls – Harrison Tap 138 kV Terminal Equipment Upgrade
31. Ridgely - Hampshire 138 kV Terminal Equipment Upgrade
32. Frostburg – Ridgely 138 kV Terminal Equipment Upgrade
33. Meadowbrook - Bartonsville 138 kV Terminal Equipment Upgrade
34. Dans Mountain - Ridgely 138 kV Terminal Equipment Upgrade
35. Mt Zion – West Valley 138 kV Terminal Equipment Upgrade
36. West Valley – Cross School 138 kV Terminal Equipment Upgrade
37. Cross School – Black Oak 138 kV Terminal Equipment Upgrade
38. Parr Run - Junction 138 kV Terminal Equipment Upgrade
39. Riverton - Bethel 138 kV Terminal Equipment Upgrade

- Yellow are Loudoun Co. impacts
- Green are NEW
- **Scope:** “Comprehensive solution for the current requirements in the area”
- **ROW**
 - Rice-Ringgold: Parallels existing rights of way. “Proposing Entity has been able to obtain 70% of the required ROW, via option agreements or easements”
 - Ringgold substation: “230 kV substation will need to be expanded 84 feet by 190 feet on the southeast side of the station”
 - “Proposed site for the Rice Station has already been obtained by the Proposing Entity”
 - Upgrades & Tie-ins: “All of the necessary rights-of-way have been acquired in both Pennsylvania and Maryland for...” “All necessary land rights are acquired”
 - Furnace Run 500/230kV station: “The proposed station is approximately 890 feet by 480 feet on approximately 42 acres of land, which the Proposing Entity has under option for purchase.”
 - Any detailed land acquisition plans redacted
- **Waterways/History/Parks:** None called out in components
- **Estimated Cost:** \$553,046,011
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

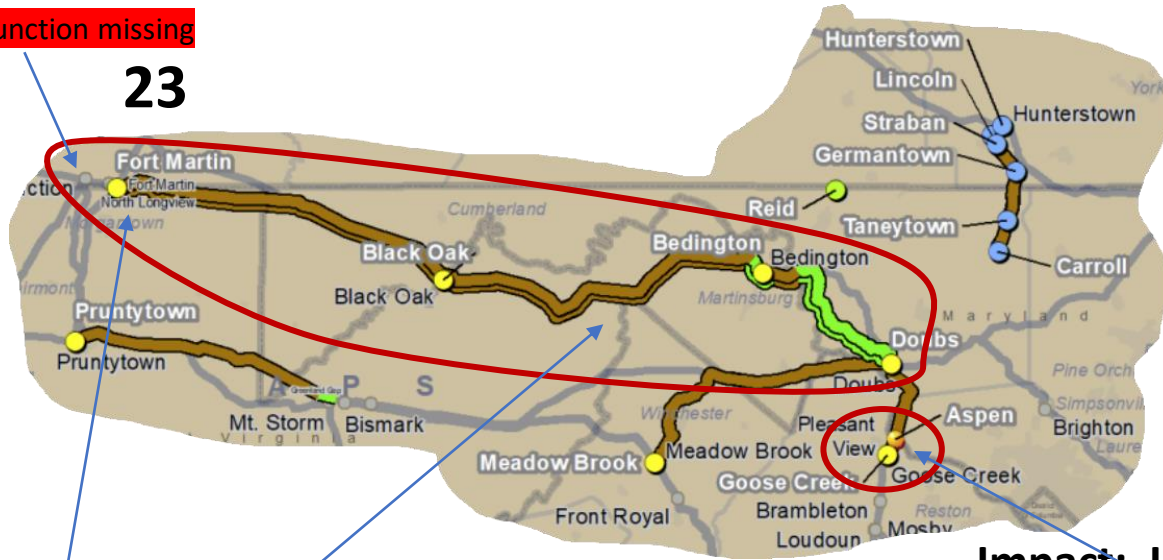
Loudoun -> WVA Corridor = 10

- **First Energy – 2:** 23 - 837
- **Nextera – 8:** 642, 853, 719, 685, 676, 951, 347, 279

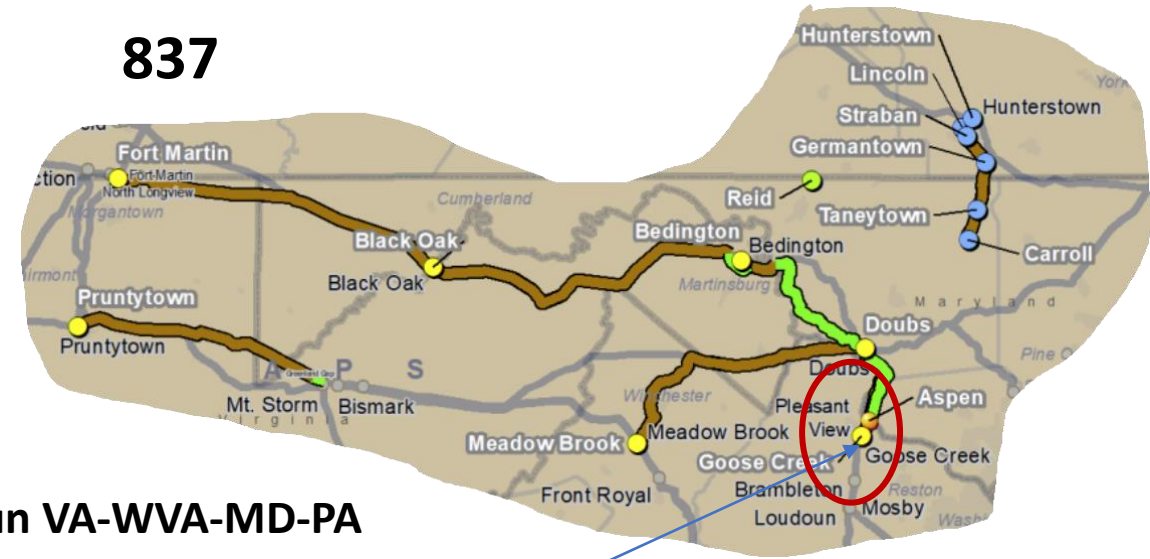
First Energy - Loudoun-WVA Corridor – 2 similar proposals

Junction missing

23



837



Impact: Loudoun VA-WVA-MD-PA

MAP & legend of 8/30/23 DEPICTED ASPEN AS 765kV GREENFIELD SUBSTATION

- PJM changed map and legend to 500kV on 9/6/23 after being challenged – Neither proposal includes scope for Aspen 765kV

- Is there an eventual plan afoot within PJM and providers to extend a NEW 765kV line from the NEW Yeat substation in Fauquier Co. (in the Transource 904 proposal), to an Upgraded Aspen 765kV substation in Loudoun Co??

- The **ONLY difference** between the two proposals: FE 23 scope also includes:
 - Fort Martin Substation – Expand 500 kV (Component 31)
 - Fort Martin-Doubs adds #2 500kV line for entire length (Component 32)

Ignore Brownfield lines on maps – All lines are NEW or Upgrades



First Energy: Loudoun VA-WVA Corridor- Components

23 & 837 IDENTICAL SCOPE:

1. Doubs Substation - Install 500 kV Breaker
2. Doubs Substation - Expand 500 kV Switchyard
3. Meadow Brook Substation - Expand 500 kV Switchyard
4. Fort Martin Substation - Install 500 kV Breaker
5. Pruntytown Substation - Expand 500 kV Switchyard
6. Bedington Substation - Rebuild & Install 600 MVAR STATCOM
7. Fort Martin - Doubs 500 kV #1 Line
8. Meadow Brook - Doubs 500 kV Line
9. Meadow Brook - Pruntytown 500 kV Line
10. Black Oak Substation - Install Redundant Relaying
11. Reid Substation - Install Redundant Relaying
12. Pruntytown - Install Redundant Relaying
13. Junction - Install Redundant Relaying (missing from map)
14. Doubs 500 kV - Overduty Breaker Replacements
15. Pruntytown - Rebuild 138 kV Switchyard Due to Over Duty Breakers
16. Doubs - Goose Creek 500 kV Rebuild
17. Doubs - Aspen 500 kV Line

23 & 837 IDENTICAL SCOPE (cont):

18. Rebuild the Germantown - Carroll 138 kV Line to 230 kV double circuit construction
19. Taneytown Substation terminal upgrade
20. Carroll 230 kV Substation Expansion
21. Rebuild the Germantown - Lincoln 115 kV Line for 230 kV double circuit construction
22. Rebuild the Hunterstown- Lincoln 115 kV Line for 230 kV double circuit construction
23. Construct New 230 kV Hunterstown - Carroll Line (MAIT section) #2 Line
24. Rebuild the Germantown - Carroll 138 kV Line for 230 kV double circuit construction (MAIT)
25. Revise Relay Settings at Germantown Substation
26. Install new 230 kV line terminal at Hunterstown Substation
27. Revise Relay Settings at Lincoln Substation
28. Install DTT relaying at Straban Substation
29. Network Upgrades at Carroll Substation
30. Construct New 230 kV Hunterstown - Carroll Line (APS-PE section)
31. Fort Martin Substation - Expand 500 kV
32. Fort Martin - Doubs 500 kV #2 Line

23 ADDITIONAL SCOPE:

31. Fort Martin Substation - Expand 500 kV
32. Fort Martin - Doubs 500 kV #2 Line

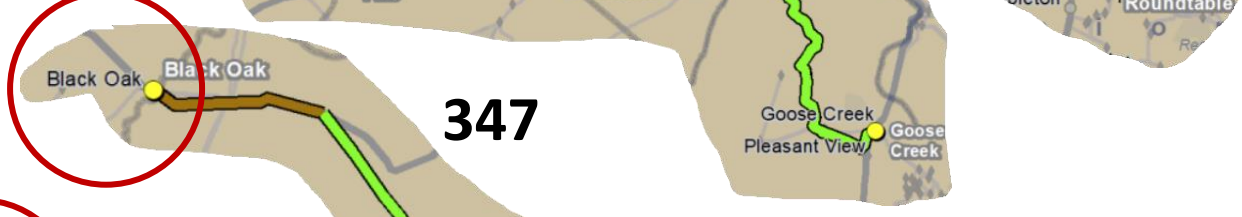
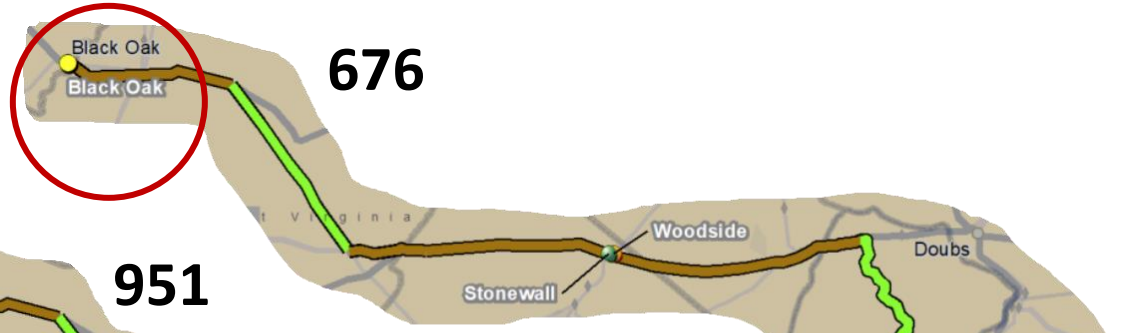
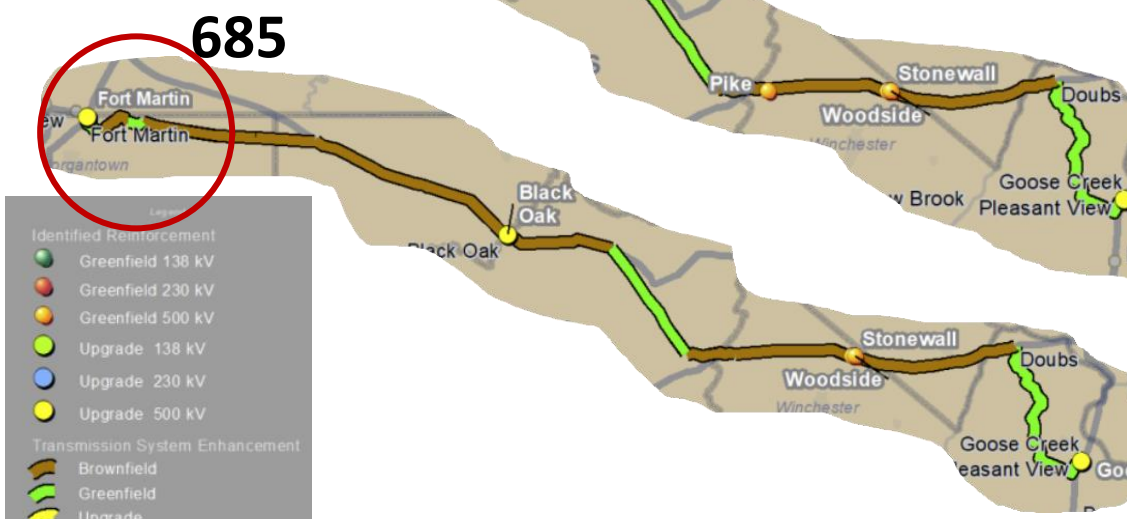
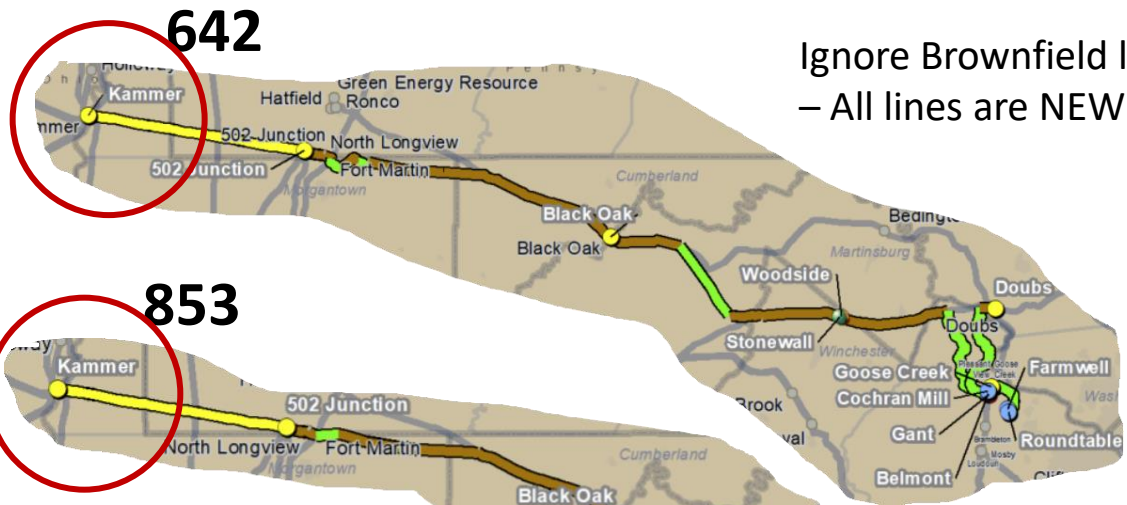
- **Yellow** are Loudoun Co. impacts
 - Impacts across WVA, MD, PA + Loudoun, VA
- **Green** are NEW
- **Scope:** "...address Window 3 violations and accommodate future load growth." "...will place new transmission facilities in proximity to existing transmission infrastructure which will provide opportunities to improve the reliability and resilience of the transmission system as the transmission system changes."
 - **NEW Meadow Brook-Doubs** (Fauquier VA-Frederick MD) 55.3 miles and Pruntytown (Fauquier-WVA) 50.8 miles 500kV lines
 - **NEW Doubs-Aspen** (Frederick-Loudoun) 500kV Line: "NOTE: The proposing entity has worked closely with other PJM TOs in developing a transmission solution and this component as well as the overall proposal should be reviewed in conjunction with proposal 2022-W3-129 and proposal 2023-W3-660."
 - **NEW Hunterstown-Carroll** (PA-MD) (MAIT) 230kV Line: "Note: Components 18-30 are all a single project."
 - **NEW Fort-Martin-Doubs** (WVA-Frederick) 1st & 2nd 500kV line Black Oak Substation: "resolve TPL-001-5 identified violations. This project will resolve all P5 contingencies at Black Oak Substation" Same statement made for other substation upgrades.
 - **NEW Hunterstown-Carroll** (PA-MD) (APS-PE) 230kV Line: 11.2 miles. Will use existing ROW??
 - All others are upgrades for 138 thru 500kV across MD, WVA, PA
- Continued on next slide:
 - ROW
 - Waterways/History/Parks
 - Estimated Cost

First Energy: Loudoun VA-WVA Corridor Components (continued)

- **ROW:**
 - **Doubs, Fort Martin:** “It is assumed that the existing substation bay can be utilized without expanding...”
 - **Pruntytown:** “...no property acquisition is required” but: “acquisition of 1 access road and 1 yard” = Land acquisition??
 - **Ft. Martin-Doubs** – 158 miles new ROW – 200’ wide – may vary
 - **Meadow Brook-Doubs** – 55.3 miles new ROW – 200’wide. “Each crossing will not be listed as the route is subject to change.”
 - **Meadow Brook-Pruntytown:** “require the acquisition of 50.8 miles of new right-of-way” “Approximately (170) parcels will be affected by the line route. Assumed 3% condemnation (5 parcels)” “Alternative access and construction may need to be considered”
 - **Carroll 230kV Substation:** “Land will need to be acquired for this expansion”
 - **New Hunterstown-Carroll APS-PE section 230kV line:** “Will use existing ROW” and then says: “An environmental review will be required to identify any additional construction constraints or additional permitting requirements” - ??
 - Wetland mitigation called out for numerous substation upgrades
- **Waterways/History/Parks:** Substation upgrades don’t name streams or wetlands needing mitigation; 14 WVA, VA, MD Rivers (not named), Youghiogheny state scenic River, C&O Canal National Park, 9 wetlands, 5 parks, Shenandoah River, Potomac River, Appalachian Trail, Monongahela National Forest and State Park Land, Dickerson Conservation Park, Monocacy River
- **Estimated Cost:**
 - **First Energy 23:** \$3,976,547,533 - \$3.9B
 - **First Energy 837:** \$3,400,292,159 - \$3.4B
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Nextera – Loudoun-WVA Corridor – 8 similar proposals

Ignore Brownfield lines on maps
– All lines are NEW or Upgrades



- Identified Reinforcement
- Greenfield 138 kV
- Greenfield 230 kV
- Greenfield 500 kV
- Upgrade 138 kV
- Upgrade 230 kV
- Upgrade 500 kV
- Transmission System Enhancement
- Brownfield
- Greenfield
- Upgrade

Nextera - Loudoun-WVA Corridor - Common Components

642, 853, 676, 347, 279

4CA - New 500kV transmission line from existing Black Oak substation and new Woodside substation

10C1A - New 500kV transmission line from new Woodside substation to Goose Creek substation

642, 853, 676, 347, 279, 685

23s5 - New Woodside 500kV Substation - 6 terminal

23sb - Stonewall substation two 138kV breaker expansion

642, 853, 676, 347

10C3 - New 500kV line between new Woodside substation and new Gant substation

642, 853

46b - 502 Junction substation two 500 kV circuit breaker expansion

642, 853, 719, 685

04AE - Black Oak substation 500kV six breaker and new transformer expansion

642, 676

36F - Belmont substation two 230kV circuit breaker expansion

39E - Farmwell substation two 230kV circuit breaker expansion

39G - Roundtable substation single 230kV circuit breaker expansion

39a1 - New Gant 500/230kV substation - 5 terminal

39D - New 230kV transmission line from new Gant substation to existing Farmwell substation

39F - New 230kV transmission line from Cochran Tap to Roundtable

642, 853

46a - New 500kV line from existing 502 Junction substation to existing Black Oak substation

46b1 - Kammer to 502 Junction 500kV upgrade

- **Yellow** are Loudoun Co. impacts
 - Impact Frederick Co, VA, Frederick, MD, WVA, MD,
- **Green** are NEW
- **Scope:**
 - **642 & 853** – Kammer WVA to Loudoun VA corridor
 - **719 & 685** – Fort Martin WVA to Loudoun VA corridor
 - **677, 951, 347 & 279** – Black Oak WVA to Loudoun VA corridor
 - NEW or Upgrades to 2320kV & 500kV; some 138kV breaker expansions
 - **3 NEW substations:** Gant, Pike, Woodside
 - **5 NEW 500kV transmission lines:** Woodside-Gant (25 mi.), Black Oak-Pike, Pike-Goose Creek, Fort Martin-Black Oak, Woodside-Goose Creek (22 mi.), Black Oak-Woodside (53 mi.)
 - **2 NEW 230kV transmission lines:** Gant-Farmwell, Cochran Tap-Roundtable

Nextera – Loudoun-WVA Corridor – Common Components

853, 347

39a3 - New Gant 500kV substation - 3 terminal

676, 951, 347, 279

04A1 - Black Oak substation 500kV five breaker and new transformer expansion

719, 685, 951, 279

10C2 - New 500kV transmission line between new Woodside (or Pike) substation and the Goose Creek substation

10A - Goose Creek 500kV single breaker expansion

719, 951

4C - New 500kV Transmission line from Allegheny Black Oak substation to new Pike substation

23s3 - New Pike 500kV Substation - 5 terminal

23s4 - Gore substation single 138kV breaker expansion

10C1 - New 500kV transmission line from new Pike substation to Dominion Goose Creek substation.

719, 685

28B - Fort Martin substation single 500kV breaker expansion

28A - New 500kV transmission line from Allegheny's Fort Martin substation to Allegheny's Black Oak substation.

- **Yellow** are Loudoun Co. impacts
- **Green** are NEW
- **Scope:**
 - **642 & 853** – Kammer WVA to Loudoun VA corridor
 - **719 & 685** – Fort Martin WVA to Loudoun VA corridor
 - **677, 951, 347 & 279** – Black Oak WVA to Loudoun VA corridor
 - NEW or Upgrades to 2320kV & 500kV; some 138kV breaker expansions
 - **3 NEW substations:** Gant, Pike, Woodside
 - **5 or 6 NEW 500kV transmission lines:** Woodside-Goose Creek, Black Oak-Pike, Pike-Goose Creek, Fort Martin-Black Oak, Black Oak-Woodside, Woodside (or Pike)-Goose Creek
 - **2 NEW 230kV transmission lines:** Gant-Farmwell, Cochran Tap-Roundtable

Nextera – Loudoun VA-WVA Corridor

- **ROW:**

- 642, 853, 676, 347, 279:

- **Black Oak-Woodside 500kV** – new ROW 70% of 53 mi, 125-165’ wide
 - **Woodside-Goose Creek 500kV** – new ROW 80% of 22 mi, 115-165’ wide
 - **Woodside 500kV switchyard** – Land Acquisition, details redacted
 - **Gant 500-230kV substation** – 3 & 5 terminal – Land Acquisition, details redacted
 - **Woodside-Gant 500kV** – new ROW length not included in redacted info for 25 mi length; 165’ wide
 - **Gant-Farmwell 230kV** – new ROW “majority” of 11 mi, 45’ wide
 - **Cochran Tap-Roundtable 230kV** – new ROW “majority” of 11 mi, 45’ wide
 - **502 Junction-Black Oak 500kV** – new ROW expand existing ROW “majority of 67 mi, 165’ wide 95%, 75’ wide “where crossing constrained areas for 5% of length

719, 685, 951, 279:

- **Woodside (or Pike)-Goose Creek 500kV** – new ROW for 25 mi, 165’ wide
- **Allegheny Black Oak-Pike 500kV** – new ROW expand existing ROW, 165’ wide 75% of length, 125’ wide 25% of length in congested areas
- **Pike 500kV substation** - Land Acquisition, details redacted
- **Pike-Goose Creek 500kV** – new ROW expand existing ROW ~45% of 37 mi length, 30’ addl width required beyond existing; 40% of length existing ROW utilized; 15% of length new ROW width 115’ (10%) and 165’ (5%). NOTE: *All this doesn’t add up clearly.*
- **Fort Martin-Black Oak 500kV** – *“The new right of way will be an expansion of an existing transmission line corridor for approximately 85% of the route length, will be 125 ft wide, with select congested areas where the ROW width was reduced to 75 ft. The route will have its own right of way corridor for approximately 15% of its length with a width of 165 ft and 120 ft in select congested areas.”*

- **Waterways/History/Parks:** Potomac River, North River, Capon Chapel, Appalachian Mountains, Shenandoah River, Millville Dam, Appalachian Trail, Waterford Historic District, Belmont & Ashburn Presbyterian Church, Monongahela River, Cheat Lake, *“An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources”* – proposal statement in many components.

- **Estimated Cost:**

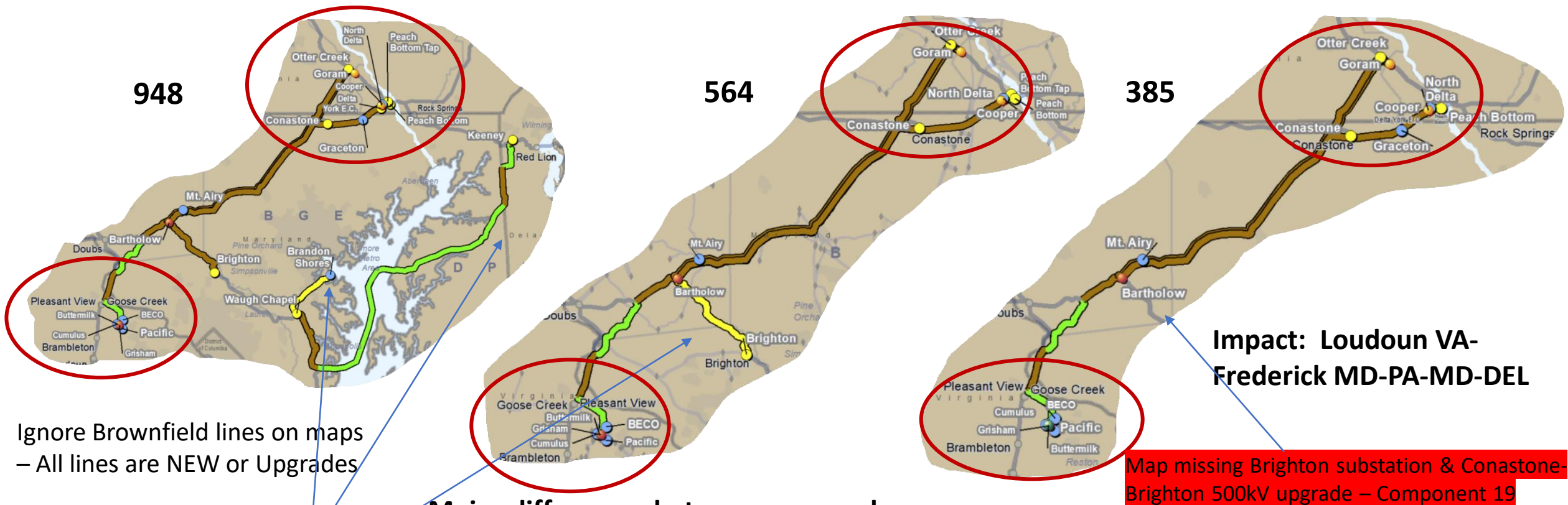
642: \$803,194,774	853: \$730,797,212
719: \$645,460,272	685: \$655,036,501
676: \$591,487,436	951: \$448,962,117
347: \$519,089,894	279: \$296,366,167

- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Loudoun VA-PA – Peach Bottom Corridor = 7

- **Nextera – 3:** 948, 564, 385
- **PSEG – 2:** 962, 741
- **Exelon – 2:** 600, 660

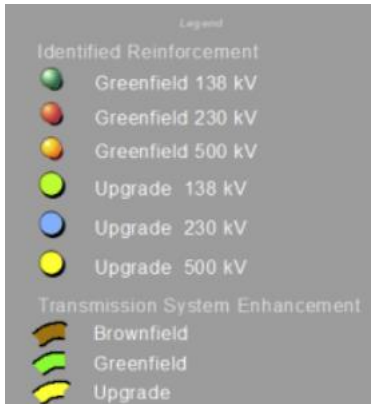
Nextera: Loudoun VA-PA Peach Bottom – 3 similar proposals



Ignore Brownfield lines on maps
– All lines are NEW or Upgrades

Major differences between proposals:

- **948** includes 500 and 230kV substations and line (NEW & Upgraded) Brandon Shores MD to Red Lion DEL
- **564** includes Upgraded 230kV line from Bartholow-Brighton MD
- All proposals include new 500kV line or lines Loudoun VA to Peach Bottom and to Goram and Otter Creek PA
- All proposals come into Loudoun Co VA; **all include different substation upgrades across the proposals** (see Component detail in next slides)



Nextera Loudoun VA-PA Peach Bottom Components

948:

Yellow are Loudoun Co. impacts

1. 24e - North Delta to Cooper 230kV rebuild
2. 24f - North Delta to Graceton 230kV rebuild
3. 26A - New 500kV transmission line from new North Delta substation to BGE's Conastone substation.
4. 40AB1 - New two single circuit 230kV transmission lines from new Bartholow substation to new Grisham substation
5. 27d - North Peach Bottom to South Peach Bottom 500kV upgrade
6. 39H1 - New Grisham Substation- 6 terminal
7. 45F1 - New Bartholow Substation - 12 terminal
8. 26b2 - New North Delta Substation - 10 terminal
9. 26c2 - Conastone substation 500kV and 230kV substation expansion
10. 39h1a - Nimbus to Buttermilk 230kV loop in/out work
11. 39h1b - Pacific to Beco 230kV loop in/out work.
12. 47ab - New 230kV transmission from new Goram substation to existing Otter Creek substation
13. 47abc - New 500kV transmission line from new Goram substation to new Bartholow substation
14. 47ad - New 230kV transmission line from existing Otter Creek substation to new Bartholow substation
15. 47b - New double circuit 230kV transmission from the existing Conastone substation to new Bartholow substation
16. 47A - New Goram substation
17. 47ax - Loop in Conastone to Brighton 500kV line to new Bartholow substation
18. 43EF - Mt Airy 230kV substation single breaker expansion
19. 43e - New 230kV transmission line from new Bartholow substation to existing Mt. Airy substation
20. 48b - Two (2) new 230kV single circuit transmission lines from the existing Keeney substation to existing Waugh Chapel substation
21. 47ac - Otter Creek 230kV four circuit breaker expansion
22. 48C - Keeney substation two (2) new 230kV terminations
23. 48d - Waugh Chapel substation two (2) new 230kV terminations
24. 50B - Peach Bottom to North Delta 500kV Upgrade

564:

1. 24e - North Delta to Cooper 230kV rebuild
2. 24f - North Delta to Graceton 230kV rebuild
3. 26A - New 500kV transmission line from new North Delta substation to BGE's Conastone substation.
4. 40AB1 - New two single circuit 230kV transmission lines from new Bartholow substation to new Grisham substation
5. 27d - North Peach Bottom to South Peach Bottom 500kV rebuild
6. 39H1 - New Grisham Substation- 6 terminal
7. 26b2 - New North Delta Substation - 10 terminal
8. 26c2 - Conastone substation 500kV and 230kV substation expansion
9. 47ab - New 230kV transmission from new Goram substation to existing Otter Creek substation
10. 47abc - New 500kV transmission line from new Goram substation to new Bartholow substation
11. 47ad - New 230kV transmission line from existing Otter Creek substation to new Bartholow substation
12. 47b - New double circuit 230kV transmission from the existing Conastone substation to new Bartholow substation
13. 50AA - Conastone to Brighton 500kV Upgrade
14. 50B - Peach Bottom to North Delta 500kV Upgrade
15. 47ax - Loop in Conastone to Brighton 500kV line to new Bartholow substation
16. 39h1a - Nimbus to Buttermilk 230kV loop in/out work.
17. 39h1b - Pacific to Beco 230kV loop in/out work.
18. 47A - New Goram substation
19. 47ac - Otter Creek 230kV four circuit breaker expansion
20. 43EF - Mt. Airy 230kV substation single breaker expansion
21. 43e - New 230kV transmission line from new Bartholow substation to existing Mt. Airy substation
22. 45FF1 - Bartholow - 10 terminal

Green are NEW

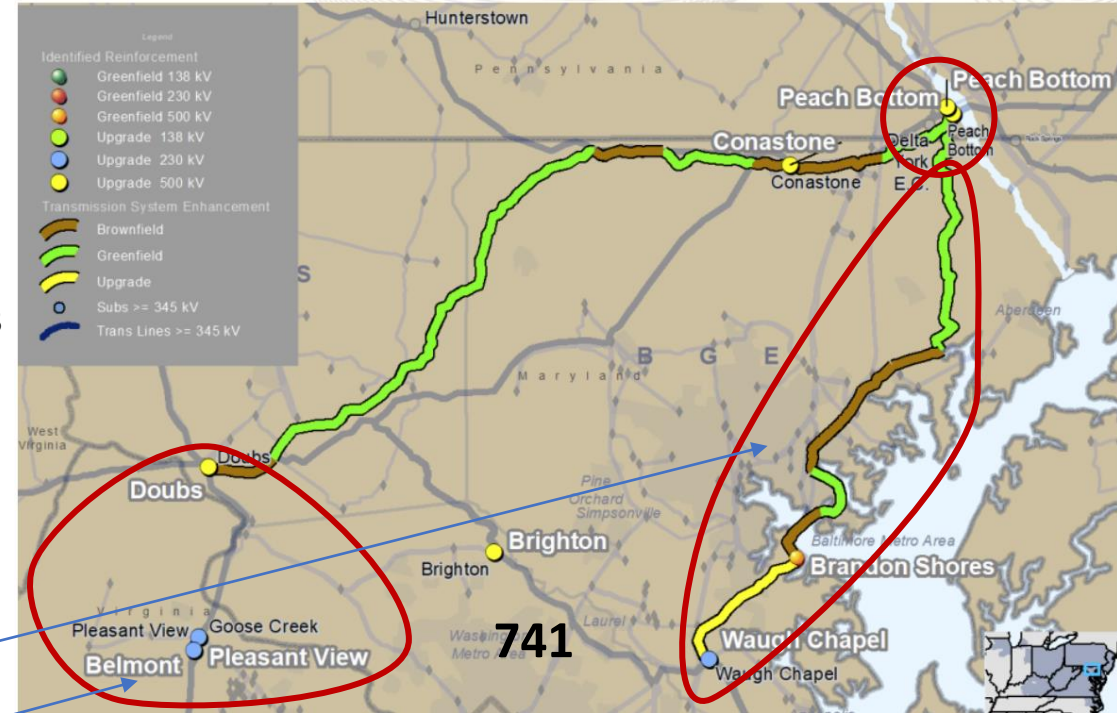
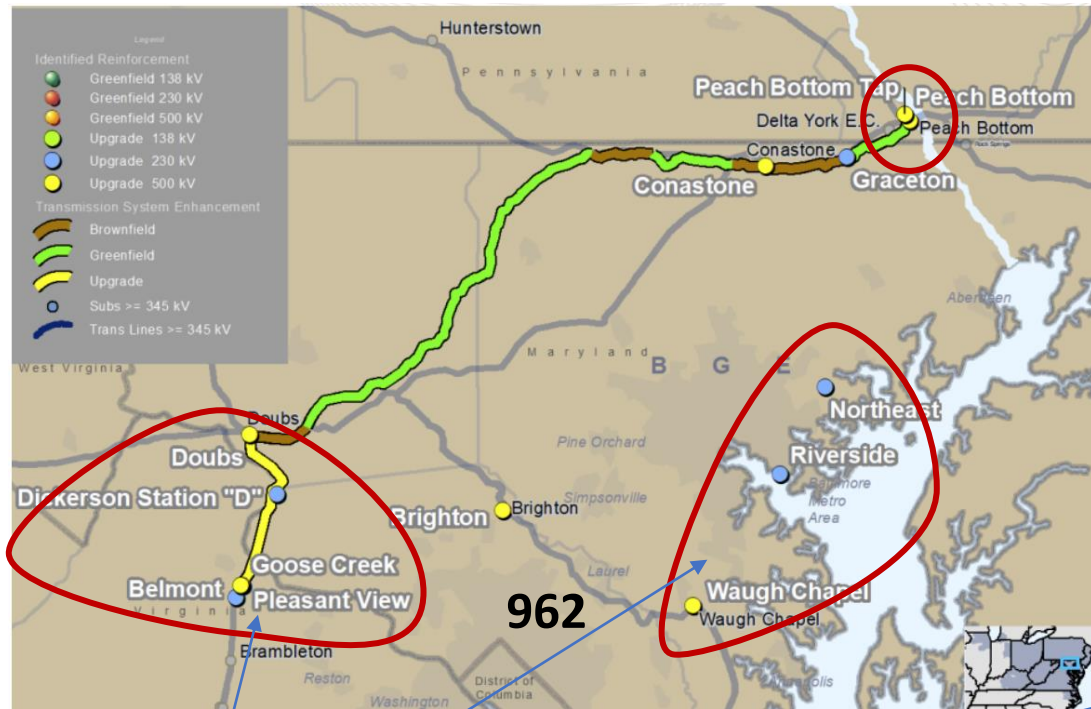
385:

1. 24e - North Delta to Cooper 230kV rebuild
2. 24f - North Delta to Graceton 230kV rebuild
3. 26A - New 500kV transmission line from new North Delta substation to BGE's Conastone substation.
4. 40AB1 - New two single circuit 230kV transmission lines from new Bartholow substation to new Grisham substation
5. 27d - North Peach Bottom to South Peach Bottom 500kV upgrade
6. 39H1 - New Grisham Substation- 6 terminal
7. 26b2 - New North Delta Substation - 10 terminal
8. 26c2 - Conastone substation 500kV and 230kV substation expansion
9. 39h1a - Nimbus to Buttermilk 230kV loop in/out work.
10. 39h1b - Pacific to Beco 230kV loop in/out work
11. 47ac - Otter Creek 230kV four circuit breaker expansion
12. 43EF - Mt. Airy 230kV substation single breaker expansion
13. 43e - New 230kV transmission line from new Bartholow substation to existing Mt. Airy substation
14. 47ab - New 230kV transmission from new Goram substation to existing Otter Creek substation
15. 47abc - New 500kV transmission line from new Goram substation to new Bartholow substation
16. 47ad - New 230kV transmission line from existing Otter Creek substation to new Bartholow substation
17. 47b - New double circuit 230kV transmission from the existing Conastone substation to new Bartholow substation
18. 47ax - Loop in Conastone to Brighton 500kV line to new Bartholow substation
19. 50A - Conastone to Brighton 500kV Upgrade (Conastone-Brighton line scope missing from map)
20. 50B - Peach Bottom to North Delta 500kV Upgrade
21. 47A - New Goram substation
22. 45F1 - New Bartholow Substation - 12 terminal

Nextera Loudoun VA-PA Peach Bottom Components (cont)

- **Scope: Loudoun VA north to Peach Bottom PA:**
- **ROW:**
 - **New North Delta-Conastone 500kV:** New ROW expansion of existing 15 miles, 135' addl width.
 - **New Bartholow-Grisham 230kV:** Underground 5% of length under Potomac River, new ROW 60% of 35 mi 60' wide, 35% expansion of existing ROW
 - **New Grisham 230kV substation:** Land acquisition, no details provided
 - **New Bartholow 500/230kV substation:** Land acquisition, no details provided
 - **New North Delta 500/230 kV substation:** *"The substation is being proposed to be built on a parcel that is already under purchase option."*
 - **New Goram-Otter Creek 230kV:** New ROW 1 mi, 45' wide
 - **New Goram-Bartholow 500kV:** New ROW expansion of existing 61 mi, 55' wide
 - **New Otter Creek-Bartholow 230kV:** New ROW expansion of existing 61 mi, 40-45-60' wide. 60' will accommodate an additional greenfield line within it
 - **New Conastone-Bartholow 230kV:** New ROW expansion of existing 48 mi, 45' wide
 - **New Goram 500/230kV substation:** Land acquisition, no details provided
 - **New Bartholow-Mt. Airy 230kV:** New ROW expansion of existing ROW 90% of 5 mi, new ROW 10 of length, 40-45-60' wide
 - **Two New Keeney-Waugh 230kV:** Submarine 34 miles (30%) under Chesapeake Bay; new ROW 85% of 104 mi, expansion of existing 15% of length, 60' wide
- **Waterways/History/Parks:** Potomac River, C&O National Historic Park, Sugarloaf Mountain Historic Landmark, Chesapeake Bay, Chesapeake and Delaware Canal – many components provide no detail on these aspects
- **Estimated Cost:**
 - 948:** \$1,724,434,379 \$1.7B
 - 564:** \$947,353,571
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

PSEG: Loudoun VA-PA - Peach Bottom – 2 similar proposals



Ignore
Brownfield
lines on maps
– All lines are
NEW or
Upgrades

IMPACT: Loudoun VA-Frederick MD-MD-PA

Major differences between proposals:

- **962** includes upgrades to 3 MD substations along the Bay
- **741** includes upgrades to 2 MD substations as well as connecting NEW and upgraded transmission lines up to Peach Bottom PA
- **962** upgrades Loudoun VA substations and includes upgraded 230KV transmission lines up to Doubs Frederick MD
- **741** upgrades Loudoun VA substations but DOES NOT include any new or upgraded transmission lines to Doubs Frederick MD
- Both proposals include upgrade to Brighton MD substation
- Both proposals include Greenfield 500KV line Doubs Frederick MD to Peach Bottom PA
- See Component detail in next slides

PSEG Loudoun VA-PA – Peach Bottom - Components

962:

1. New 500kV line from Doubs Station to Peach Bottom Station Circuit 1
2. Reconductor 500kV line from Doubs station to Goose Creek station
3. Reconductor Peach Bottom North to Peach Bottom South Tie #1 and #2
4. Peach Bottom 500kV Upgrade
5. Graceton 230kV Upgrade
6. Doubs 500/230kV Upgrade
7. New 500kV line from Doubs Station to Peach Bottom Station Circuit 2
8. Conastone/Brighton 500kV Upgrade
9. Waugh Chapel/Brighton 500kV Upgrade
10. North East/Riverside 230kV Upgrades
11. Dickerson 230kV Upgrade
12. Pleasant View/Belmont 230kV Upgrade

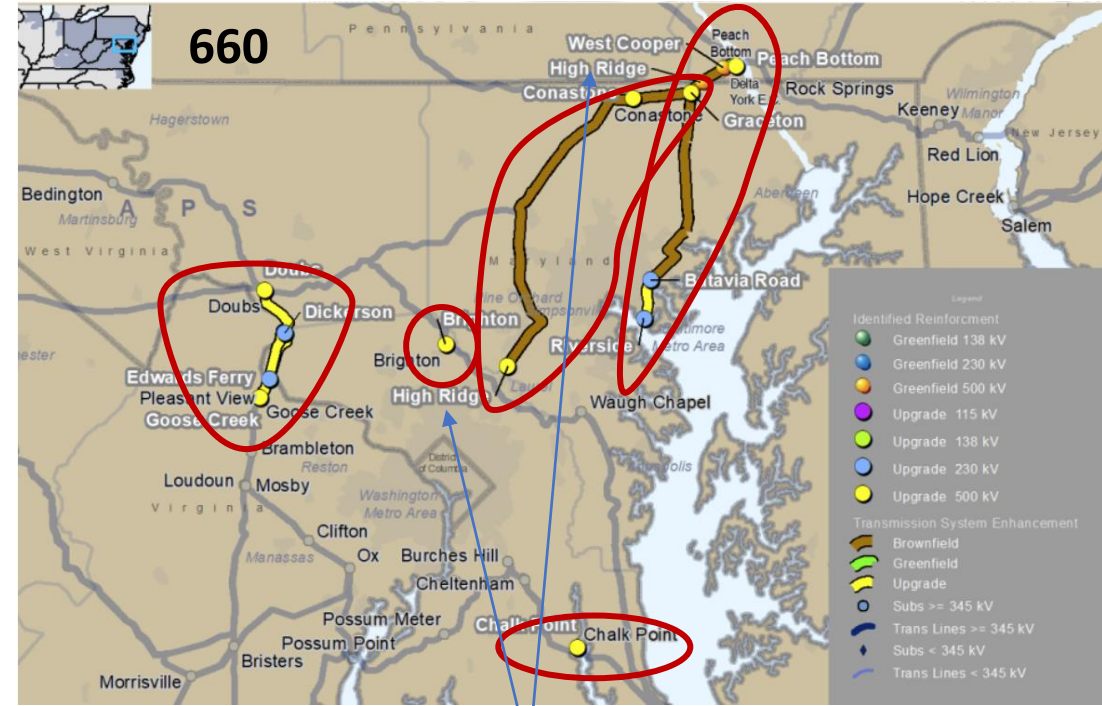
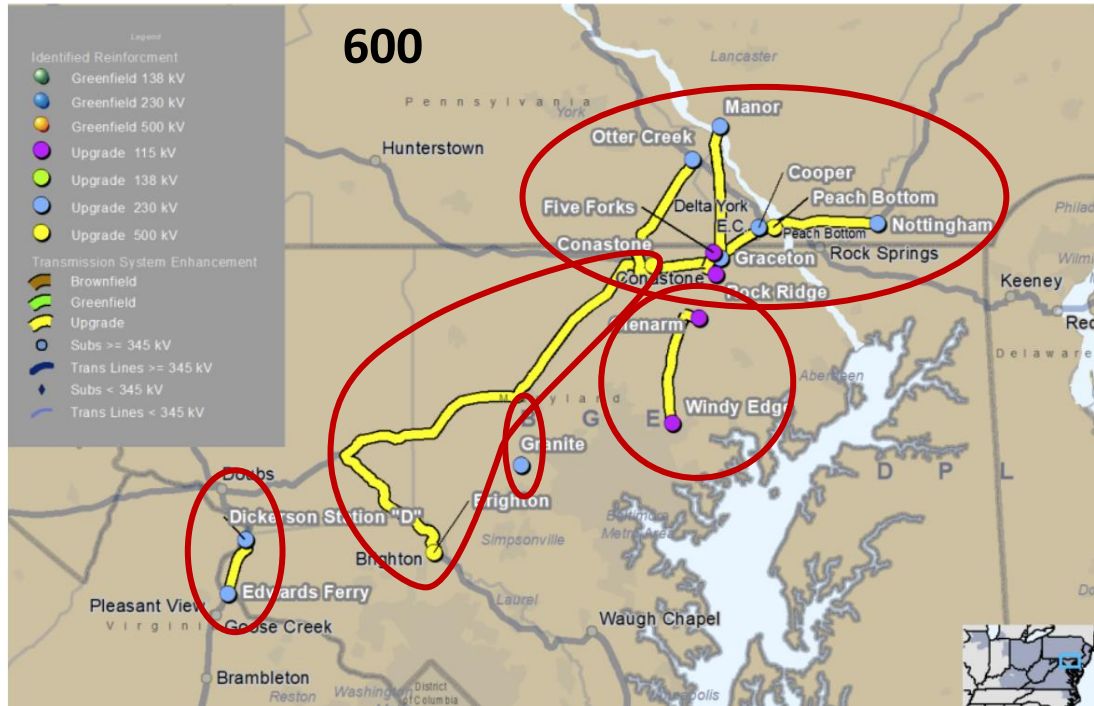
741:

1. New 500kV line from Peach Bottom station to Brandon Shores station
2. New 500kV line from Doubs Station to Peach Bottom Station
3. Reconductor 230kV line from Brandon Shores to Waugh Chapel
4. Reconductor Peach Bottom North to Peach Bottom South Tie #1 and #2
5. New Brandon Shores 500kV station
6. Peach Bottom 500kV Upgrade
7. Doubs 500/230kV Upgrade
8. Brandon Shores 230kV Upgrade
9. Conastone/Brighton 500kV Upgrade
10. Pleasant View/Belmont 230kV Upgrade

- **Yellow** are Loudoun Co. impacts
- **Green** are NEW
- **IMPACT:** Loudoun VA, Frederick MD, MD, PA
- **Scope:** North-South Loudoun VA through MD to Peach Bottom PA; 741 includes line Waugh Chapel MD to Peach Bottom PA
- **ROW:**
 - **New Doubs-Peach Bottom 500kV – Circuits #1 and #2:** New ROW 86.3 mi 150' wide for each
 - **New Peach Bottom-Brandon Shores 500kV:** 56 miles: "New ROWs 80-85' in residential areas, 125-130-150' in farmland, 170' at the Patapsco River"
 - **New Brandon Shores 500kV substation: Land acquisition:** "PSEG has identified several properties suitable for proposed solution"
- **Waterways/History/Parks:** 962: No details provided: 741: No details provided
- **Estimated Cost:**

962:	\$1,071,041,738	\$1.0B
741:	\$1,166,518,086	\$1.1B
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Exelon: Loudoun VA-PA - Peach Bottom – 2 similar proposals



Ignore Brownfield lines on maps – All lines are NEW or Upgrades

IMPACT: Loudoun VA-Frederick MD-MD-PA

Major differences between proposals:

- **600** transmission lines are all upgrades to 230kV – NO Greenfield lines in proposal
- **600** upgrades Brighton-Conastone
- **600** upgrades Loudoun VA Dickerson Station-Edwards Ferry
- **600** upgrades multiple substation and lines from Conastone MD out to Nottingham PA, Manor PA, Otter Creek PA; upgrades Granite MD substation
- **600** upgrades Glenarm-Windy Edge MD

660 map has a High Ridge substation in two places on the same map – one in MD near Brighton and the other on the MD-PA border – only near Brighton MD location is correct

- **660** transmission lines include 3 NEW 500kV transmission lines: West Cooper PA-High Ridge MD, Peach Bottom PA-Graceton MD, Doubs MD-Goose Creek Loudoun VA; and 1 NEW 230kV transmission line: Graceton MD-Batavia Rd MD
- **660** includes 2 NEW 500kV substations and 1 NEW 230KV switching station
- **660** upgrades Chalk Point and Brighton MD substations
- **660** upgrades Doubs Frederick-Dickerson-Edwards Ferry-Goose Creek

Exelon Loudoun VA-PA – Peach Bottom Components

600:

1. Reconductor Peach Bottom South (PECO) - Conastone (BGE) 500kV Line: PECO Portion
2. Reconductor Peach Bottom (PECO) - Conastone (BGE) 500kV Line: BGE Portion
3. Peach Bottom 500 kV Bus Tie #1 Upgrades: PECO
4. Reconductor Cooper (PECO) - Graceton (BGE) 230kV Line: PECO Portion
5. Reconductor Cooper (PECO) - Graceton (BGE) 230kV Line: BGE Portion
6. Reconductor Nottingham - Cooper 230kV Line: PECO
7. Nottingham Substation Upgrades: PECO
8. Brighton Substation Upgrades for 5011 Line: PEPCO
9. Conastone Substation Upgrades for 5011 Line: BGE
10. Reconductor Brighton - Conastone 500 kV line: BGE
11. Peach Bottom Substation Upgrades to Accommodate 5012 Reconductor: PECO
12. Five Forks-Rock Ridge Substation Upgrades: BGE
13. Windy Edge - Glenarm Tap Rebuild: BGE
14. Windy Edge Substation Upgrades: BGE
15. Conastone Substation Upgrades for 5012 Line Reconductor: BGE
16. Graceton-Manor Line Rebuild: BGE Portion
17. Graceton-Manor Line Rebuild: PPL Portion
18. Conastone - Otter Creek Reconductor: BGE Portion
19. Conastone - Otter Creek Reconductor: PPL Portion
20. Conastone Substation Upgrades for Conastone - Otter Creek: BGE
21. Dickerson - Ed's Ferry Circuit Upgrades: PEPCO Portion
22. Dickerson Substation Upgrades for Dickerson - Ed's Ferry: PEPCO
23. Peach Bottom 500 kV Bus Tie #2 Upgrades: PECO

600: (continued)

24. Granite Substation Upgrades for 2311 Line Terminal: BGE
25. Granite Substation Upgrades for 2326 Line Terminal: BGE
26. Ed's Ferry Substation Upgrades for Dickerson - Ed's Ferry: Dominion
27. Dickerson - Ed's Ferry Circuit Upgrades: Dominion Portion
28. Conastone 500kV Capacitor Bank: BGE

660:

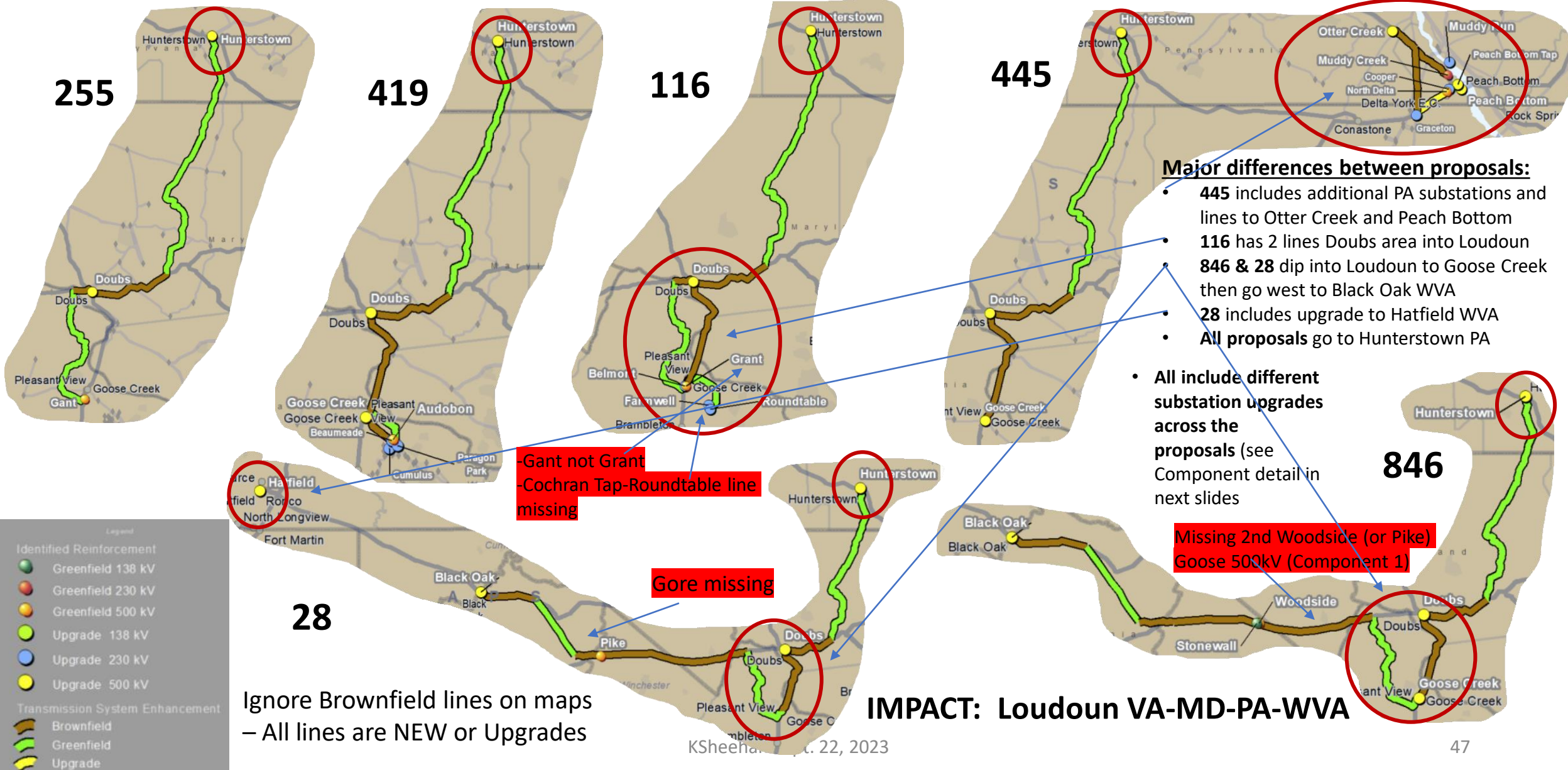
1. Graceton 500 kV Substation Expansion
2. Batavia Road 230 kV Switching Station
3. High Ridge 500 kV Substation Expansion
4. West Cooper - High Ridge (500 kV)
5. Graceton - Batavia Rd (230 kV)
6. Peach Bottom - Graceton (500 kV)
7. 5012 LINE REBUILD GRACETON-CONASTONE (BGE ONLY)
8. 5012 LINE REBUILD WEST COOPER -GRACETON (BGE ONLY)
9. 230 LINE REBUILD Batavia Road to Riverside
10. 230 kV DICKERSON STA H TO ED'S FERRY
11. GRACETON 230KV TERMINAL EQP. (BGE)
12. HIGH RIDGE 230KV TERMINAL EQP. (BGE)
13. CONASTONE 500KV CAP BANK (BGE)
14. CONASTONE 500KV 5012 LINE TERMINAL EQP. (BGE)
15. BRIGHTON 5053 TERMINAL EQP. (PEPCO)
16. BRIGHTON STATCOM (PEPCO)
17. BRIGHTON 500kV CAP BANK (PEPCO)
18. BRIGHTON 5011 TERMINAL EQP. (PEPCO)
19. DICKERSON TO ED'S FERRY TERMINAL EQP. (PEPCO)
20. CONASTONE 500KV 5011 TERMINAL EQP. (BGE)
21. CHALK POINT 500KV 5073 RELAY UPGRADE (PEPCO)
22. 500 kV DOUBS TO GOOSE CREEK (PEPCO Only)

- **Yellow** are Loudoun Co. impacts
- **Green** are NEW
- **IMPACT:** Loudoun VA, Frederick MD, MD, PA
- **Scope:**
 - 600:** Dickerson-Edwards Ferry 230kV upgrade: *"The two circuits include both underground and overhead sections to avoid the line crossings at Dickerson."*
 - 660:** 5 NEW 500kV lines; 2 NEW 230kV lines; remaining scope is 230 & 500kV upgrades
- **ROW:**
 - 600:** *"The right-of-way will not need to be expanded, and no new right-of-way will need to be identified." or "All construction work on the project will take place on BGE-owned property. Farm land / rural area along the ROW." or "Assume that there is no additional land acquisition..." or "Assume that the current Five Forks-Windy Edge reconductoring project will be completed in 2025 (prior to 2027 RTEP year)." Edward Ferry-Dickerson: "Assume that there is no additional land needed for this upgrade."*
 - 660:** *"TBD BGE land adjacent to existing station" Land Acquisition Redacted for new line in existing ROW, "Assumes that space is available in the existing substation"*
- **Waterways/History/Parks:** Potomac River near VA/MD state line - no other locations included in redacted information
- **Estimated Cost:**
 - 600:** \$457,896,831 **660:** \$1,223,353,876
- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Loudoun VA-PA – Hunterstown Corridor = 6

Nextera: 255, 419, 116, 28, 846, 445

Nextera: Loudoun VA-PA Hunterstown– 6 similar proposals



Nextera Loudoun VA-PA Hunterstown Components

Yellow are Loudoun Co. impacts

Green are NEW

255, 419, 116, 445, 28, 846:

21C - Doubs substation expansion with two new 500kV breaker and a half bays

21B - New 500kV transmission line between Hunterstown substation and Doubs substation

39a3 - New Gant substation - 3 terminal

21A - Hunterstown 500kV single breaker expansion

40X - New 500kV transmission line from existing Doubs substation to new Gant substation

255:

39a3 – New Gant substation – 3 terminal

255, 419:

21A – Hunterstown 500kV single breaker expansion

419:

21D - New 500kV transmission line between existing Doubs substation and new Audobon substation

21ee1 - New 230kV transmission line from Dominion Beaumeade substation to Dominion Nimbus substation

21ee2 - New 230kV transmission line from Dominion Beaumeade substation to Dominion Paragon Park substation

419: (continued)

21eeDCT - New 230kV DCT transmission line from Dominion Beaumeade substation to Dominion Paragon Park and Nimbus substations (SCT into each existing substation)

23MA - New 500kV transmission line from new Audobon substation to existing Goose Creek substation

21E - New Audobon Substation - 2 terminal

21EE - Beaumeade substation breaker and a half bay expansion

21ee3 - Nimbus new 230kV termination

21ee4 - Paragon Park new 230kV termination

419, 28, 846:

21GA - Goose Creek substation three 500kV breaker expansion

116:

36F - Belmont substation two 230kV circuit breaker expansion

39E - Farmwell substation two 230kV circuit breaker expansion

39G - Roundtable substation single 230kV circuit breaker expansion

39a1 - New Gant substation - 5 terminal

39D - New 230kV transmission line from new Gant substation to existing Farmwell substation

39F - New 230kV transmission line from Cochran Tap to Roundtable
(missing from map)

Nextera Loudoun VA-PA Hunterstown Components

Yellow are Loudoun Co. impacts

Green are NEW

116, 445:

35B - Hunterstown substation single 500kV circuit breaker expansion

445:

10A - Goose Creek 500kV single breaker expansion

24e - North Delta to Cooper 230kV rebuild

24f - North Delta to Graceton 230kV rebuild

25B - New double circuit 230kV transmission line from new Muddy Creek switchyard to the point where PPL's Manor - Graceton 230kV transmission line crosses Peach - Otter Creek 500kV transmission line

25F - Muddy Run to Peach Bottom 230kV upgrade

25C - New single circuit 230kV transmission line from where PPL's Manor - Graceton 230kV transmission line crosses Peach Bottom - Otter Creek 500kV transmission line to where the Otter Creek - Conastone 230kV transmission line begins

27d - North Peach Bottom to South Peach Bottom 500kV rebuild

25d - Graceton substation single 230kV breaker expansion

25a - New Muddy Creek Substation- 6 terminal

24a - New North Delta Substation- 4 terminal

25b2 - Muddy Creek to Graceton 230kV Brownfield Component

25c2 - Muddy Creek to Conastone 230kV Brownfield Component

25e - Conastone substation 230kV termination

445, 846, 28:

29A - New 500kV transmission line from BGE Doubs substation to Dominion Goose Creek substation

28:

4C - New 500kV Transmission line from Allegheny Black Oak substation to new Pike substation

10C1 - New 500kV transmission line from new Pike substation to Dominion Goose Creek substation

23s3 - New Pike Substation - 5 terminal

23s4 - Gore substation single 138kV breaker expansion (missing from map)

28, 846:

10C2 - New 500kV transmission line between new Woodside (or Pike) substation and the Goose Creek substation (missing from map)

35B - Hunterstown substation single 500kV circuit breaker expansion

04A1 - Black Oak substation 500kV five breaker and new transformer expansion

29H - Hatfield to Black Oak 500kV Terminal Equipment Upgrade

846:

4CA - New 500kV transmission line from existing Black Oak substation and new Woodside substation

10C1A - New 500kV transmission line from new Woodside substation to Goose Creek substation

23s5 - New Woodside Substation - 6 terminal

23sb - Stonewall substation two 138kV breaker expansion

Nextera Loudoun VA-PA Hunterstown

255, 419, 116, 28, 846, 445 Scope – ROW

- **Scope: Common Denominator:** Bring NEW 500kV lines between Loudoun VA and Hunterstown PA
 - **255, 419, 116** – North-South expansion solely between Loudoun VA-Hunterstown PA
 - **28 & 846** – also include East-West expansion between Loudoun VA-WVA (Black Oak & Hatfield)
 - **445** – includes NEW and Upgrades in PA (Otter Creek & Peach Bottom)
- **ROW:**
 - **New Doubs-Gant 500kV:** New ROW 85% of 27 mi, 165' wide
 - **New Hunterstown-Doubs 500kV:** New ROW 75% of 57 mi, 25% expansion of existing, 165' wide 85% of route, 75' wide 15% of route
 - **New Gant 500kV substation:** Land acquisition, no details
 - **New Doubs-Audobon 500kV:** **Underground** under Potomac River +2 mi under Rte 7 10% of route: New ROW 45% of 25 mi, 150' wide and expansion of existing ROW 45% of route, 165' wide
 - **New Beaumeade-Nimbus 230kV:** New ROW 1.3 mi, 40' wide
 - **New Beaumeade-Paragon Park 230kV:** New ROW .5 mi, 40' wide
 - **New Beaumeade-Paragon Park-Nimbus 230kV DCT line:** New ROW .6 mi, 45' wide
 - **New Audobon-Goose Creek 500kV:** 75% **Underground** from Audobon, Gloucester Pkwy, under WO&D to overhead at Belmont Ridge: New ROW 25% of 6.3 mi, 55' wide, partial use of road/private parcels.
 - **New Audobon 500kV substation:** Land acquisition ~14 acres
 - **New Gant-Farmwell 230kV:** New ROW 11 mi, 45' wide
 - **New Cochran Tap-Roundtable 230kV:** New ROW 11 mi, 45' wide **(missing from map)**
 - **North Delta-Graceton 230kV Rebuild:** 6.5 mi "Use of existing ROW to extent practicable."
- **ROW: continued**
 - **New 230kV switchyard from Muddy Creek to the point where PPL's Manor - Graceton 230kV transmission line crosses Peach - Otter Creek 500kV transmission line** – New ROW expansion of existing 45' additional width 6.1 mi
 - **New 230kV from where PPL's Manor - Graceton 230kV transmission line crosses Peach Bottom - Otter Creek 500kV transmission line to where the Otter Creek - Conastone 230kV transmission line begins:** New ROW expansion of existing 45' additional width 4.9 mi
 - **New Doubs-Goose Creek 500kV:** 20% **Underground** under Potomac River to Goose Creek: New ROW expansion of existing 60% of 19 mi, 165' wide, new ROW 20% of length, 150' wide.
 - **New Muddy Creek 230kV substation:** Land acquisition, no details
 - **New North Delta 500/230kV substation:** "The substation is being proposed to be built on a parcel that is already under purchase option."
 - **New Woodside-Goose Creek 500kV (10C2):** New ROW 25 mi, 165' wide – **(missing from 846 map)**
 - **New Hunterstown-Doubs 500kV:** New ROW 75% of 57 mi, 25% expansion of existing, 85% 165' wide, 15% 75' wide.
 - **New Black Oak-Pike 500kV:** New ROW expansion of existing 38 mi, 75% 165' wide, 25% 125' wide.
 - **New Pike-Goose Creek 500kV:** New ROW 15% of 37 mi, 115' wide (10%) and 165' (5%), new ROW expansion of existing 45% of 37 mi 30' addl width required.
 - **New Pike 500kV substation:** ~15 acres Land acquisition, no details
 - **New Black Oak-Woodside 500kV:** New ROW expansion of existing 70% of 53 mi 125' wide (40%), 165' wide (30%)
 - **New Woodside-Goose Creek 500kV (10C1A):** New ROW expansion of existing 80% of 22 mi 30' addl width, 20% new ROW 115' wide (10%), 165' wide (5%)
 - **New Woodside 500kV substation:** Land acquisition, no details

Nextera Loudoun VA-PA Hunterstown Waterways/History/Parks – Cost

- **Waterways/History/Parks:** Potomac River, Catoctin Mountain, Monocacy River, Appalachian Mountains, W&OD Trail, Belmont and Ashburn Presbyterian Church, Potomac Heritage National Scenic Trail, C&O National Historic Park, Muddy Creek, Waterford Historic District, North River, Shenandoah River, Millville Dam, Beverly Historic District, Capon Chapel

- **Estimated Cost:**

255: \$441,553,921

419: \$587,014,504

116: \$512,406,125

28: \$956,545,705

846: \$966,121,934

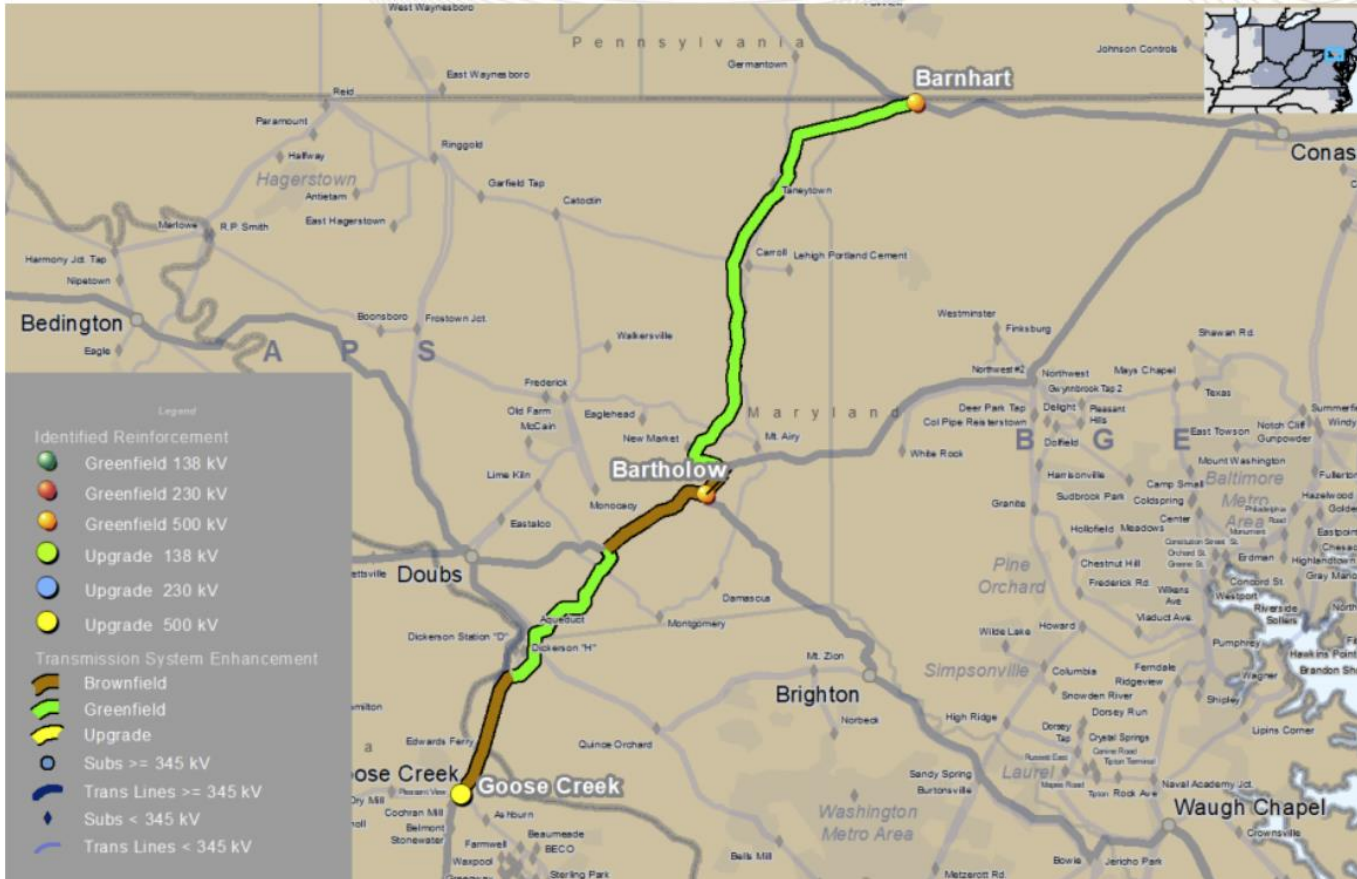
445: \$698,934,227

- Full details: [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Loudoun VA-MD – Barnhart Corridor = 1

Nextera: 728

Nextera 728 – Loudoun VA-MD - Barnhart Corridor



- IMPACTS: Loudoun VA, MD
- Creates new corridor from Loudoun to Barnhart MD
- Ignore Brownfield – Line is all NEW

Ignore Brownfield lines on maps – All lines are NEW or Upgrades

Nextera 728 Loudoun VA-MD Barnhart Components

1. 10A - Goose Creek 500kV single breaker expansion
2. 38A - New 500kV transmission line from new Barnhart substation to new Bartholow substation
3. 38B - New 500kV transmission line from new Bartholow substation to Goose Creek substation
4. 29d - New Barnhart Substation - 3 terminal
5. 38C - New Bartholow Substation - 4 terminal

- **Yellow** are Loudoun Co. impacts
- **Green** are NEW
- **Scope:**
 - New 500kV corridor Loudoun VA to Barnhart MD
 - 2 new 500kV lines
 - 2 new 500kV substations- Bartholow & Barnhart)
- **ROW:**
 - **New Barnhart-Bartholow 500kV:** New ROW 95% of 37 miles, expansion of existing 5%, 165' wide
 - **New Bartholow-Goose Creek 500kV:** New ROW 45% of 31 mi, expansion of existing 40%, 15% underground (under Potomac?). 75% 165' wide, 10% 150' wide
 - **New Barnhart 500kV substation:** Land acquisition, no details
 - **New Bartholow 500kV substation:** Land acquisition, no details
- **Waterways/History/Parks:** Potomac River, C&O National Historic Park, Sugarloaf Mountain Historic Landmark
- **Estimated Cost:** \$414,408,281
- **Full details:** [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Prince William County VA impacting Proposals

- [See PWC impacting proposals overview](#)
- Bring increased 500kV capacity to substations and more 500kV lines to PWC and surrounding counties and states
- **PROPOSALS = 15**
- Proposals: **24, 125, 129, 175, 231, 325, 548, 577, 598, 663, 691, 711, 766, 904, 977**
- **ESTIMATED TOTAL COSTS = \$19.5 BILLION (\$19,586,399,352.00)**
 - Do not include the proposal costs listed/counted in the Loudoun totals
- PWC proposals include Lines/Substations *also* in or through other Va. counties &/or other states:
 - Loudoun = 9 #175, 231, 325, 548, 577, 598, 663, 711, 766
 - Fauquier = 10 #175, 325, 548, 577, 598, 663, 711, 766, 904, 977
 - Fairfax = 2 #711, 977
 - Other VA counties and other states: Amherst, Albemarle, Augusta, Bedford, Buckingham, Campbell, Caroline, Culpeper, Fluvanna, Frederick Co. (VA), Lexington, Louisa, Nelson, North Anna, Orange, Rappahannock, Rockbridge, Saltville, Smyth, Spotsylvania, Stafford, Staunton, Warren, Washington; Frederick, MD, MD, PA, WVA, DEL, NJ
- [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

Fauquier & Fairfax Counties VA impacting Proposals

- [See Fauquier & Fairfax impacting proposals overview](#)
- Don't come into PWC or Loudoun, but bring increased 500kV capacity
- **Fauquier County VA:**
 - PROPOSALS = 1
 - **Proposal: #671**
 - Also impact Warren Co, VA, MD, PA
 - **ESTIMATED TOTAL COSTS = \$320,266,203.00**
 - Do not include the proposal costs listed/counted in the PWC, Loudoun, and Fairfax totals
 - Fauquier County is also impacted by PWC and Loudoun proposals – [see those overviews](#)
- **Fairfax County VA:**
 - PROPOSALS = 2
 - **Proposals: #229, 637**
 - Also impact Frederick Co MD, MD, PA
 - **ESTIMATED TOTAL COSTS = \$895,459,401**
 - Do not include the proposal costs listed/counted in the PWC, Loudoun, and Fauquier totals
 - Fairfax County is also impacted by PWC and Loudoun proposals – [see those overviews](#)
- [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals

All Other Va. Counties, MD, & PA impacting Proposals

- [See All Other: VA Counties, MD & PA impacting proposals overview](#)
- Don't come into PWC, Loudoun, Fauquier, or Fairfax, but bring increased 500kV capacity to substations and more 500kV lines
- PROPOSALS = **26**
- Proposals: **#9, 30, 55, 74, 181, 196, 202, 211, 217, 234, 344, 374, 410, 477, 524, 530, 537, 606, 629, 631, 704, 731, 808, 856, 923, 967**
- **PROPOSALS ESTIMATED TOTAL COSTS = \$3.6 BILLION (\$3,644,251,790.00)**
 - Do not include the proposal costs listed/counted in the PWC, Loudoun, Fauquier, and Fairfax totals
- VA counties: Amherst, Augusta, Albemarle, Bedford, Botetourt, Campbell, Caroline, Charlottesville, Fluvanna, Franklin, Fredericksburg, Giles, Gordonsville, Habersham, Leesville, Lexington, Lynchburg, North Anna, Petersburg, Rockbridge, Stafford = 21
- Frederick MD, MD, PA
 - Other Va. Counties and other States are also impacted by PWC, Loudoun, Fauquier, and Fairfax proposals
- [PJM - Redacted Public Proposals for Current and Closed Windows](#) : >2022 Window 3 Redacted Proposals