PSEG

Maryland Piedmont Reliability Project (MPRP) – Frederick County

October 9th, 2024

Agenda

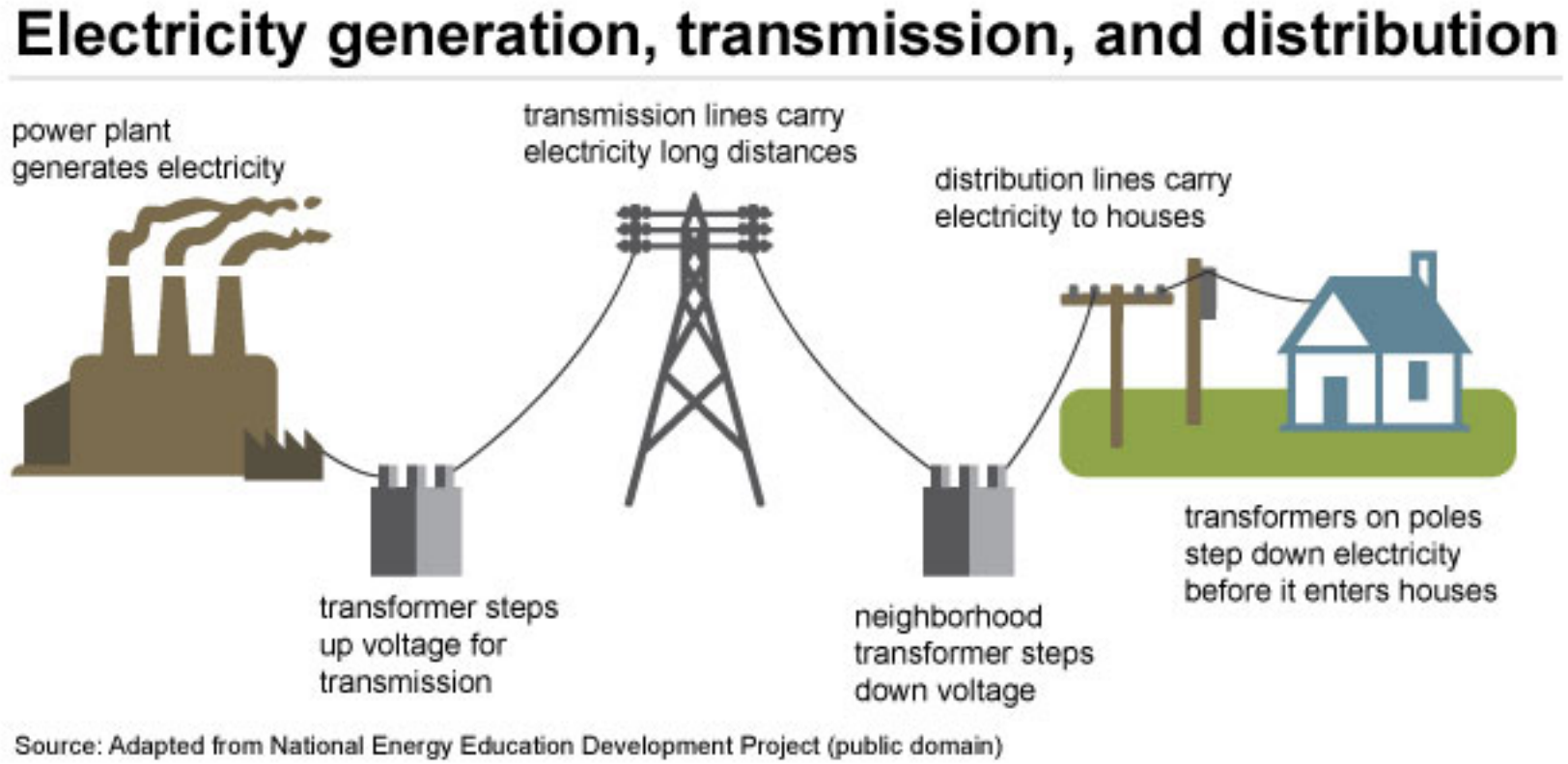
- How the Grid Works
- Why are we here today?
- Why MPRP?
- PJM Maryland Service Map
- Maryland Energy Landscape
- Energy Pricing Impacts
- Window 3 Maryland Projects
- Parallel Route – Reconductoring
- MPRP Project Description
- Farming Impacts
- Question & Answer

MPRP

Maryland Piedmont Reliability Project

PSEG

How does our Electric Grid work?



Sources:

- https://www.eia.gov/energyexplained/electricity/delivery-to-consumers.php
- https://www.pjm.com/-/media/about-pjm/newsroom/fact-sheets/the-value-of-transmission.ashx#:~:text=PJM%20estimates%20that%2027%2C000%20fewer,help%20one%20another%20in%20emergencies.
- https://atlas.eia.gov/apps/895faaf79d744f2ab3b72f8bd5778e68/explore

https://www.youtube.com/watch?v=2eU3BgrmzkY

Why are we here today?

- The growth rate of electricity demand is likely to continue to increase from electrification (Electric Vehicles, HVAC systems) coupled with the proliferation of high-demand data centers.

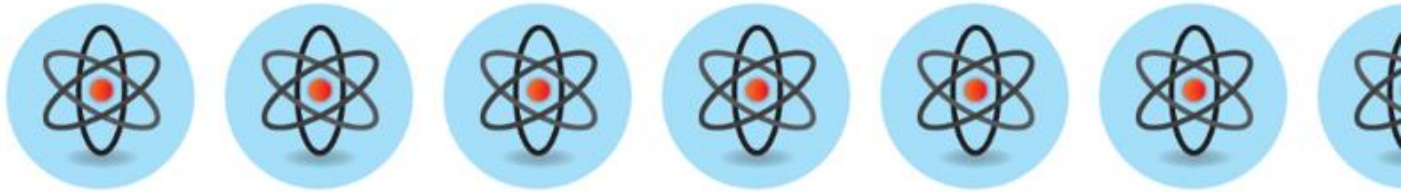
- Thermal generators are retiring at a rapid pace

- PJM's interconnection queue is composed primarily of intermittent and limited-duration resources. Given the operating characteristics of these resources, we need multiple megawatts of these resources to replace 1 MW of thermal generation.

- Retirements are at risk of outpacing the construction of new resources.

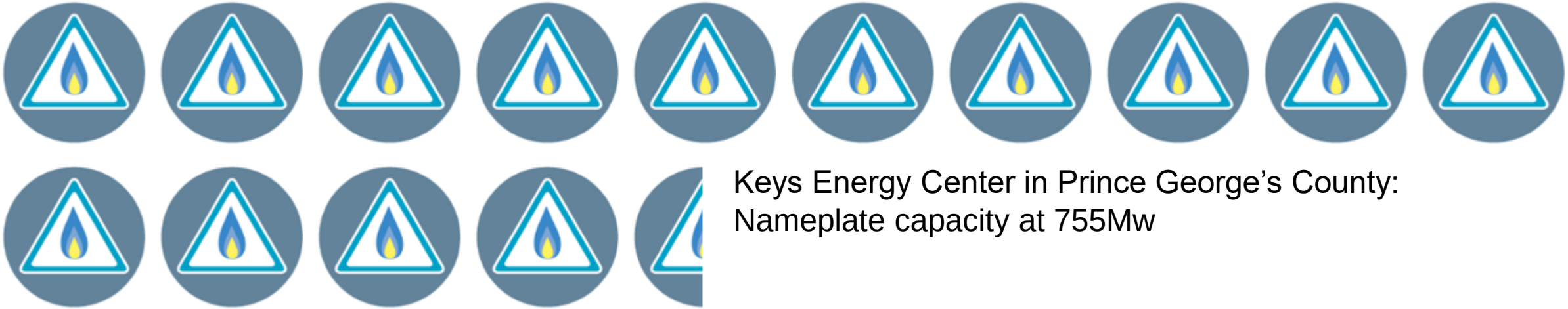
Energy Transition in PJM: Resource Retirements, Replacements & Risks February 24th, 2023.

What does 11,000MW of generation retirements look like?



Calvert Cliffs Nuclear Generating Station in Calvert County: Nameplate capacity 1,718Mw

Brandon Shores Generating Station in Anne Arundel: Nameplate capacity 1,370Mw

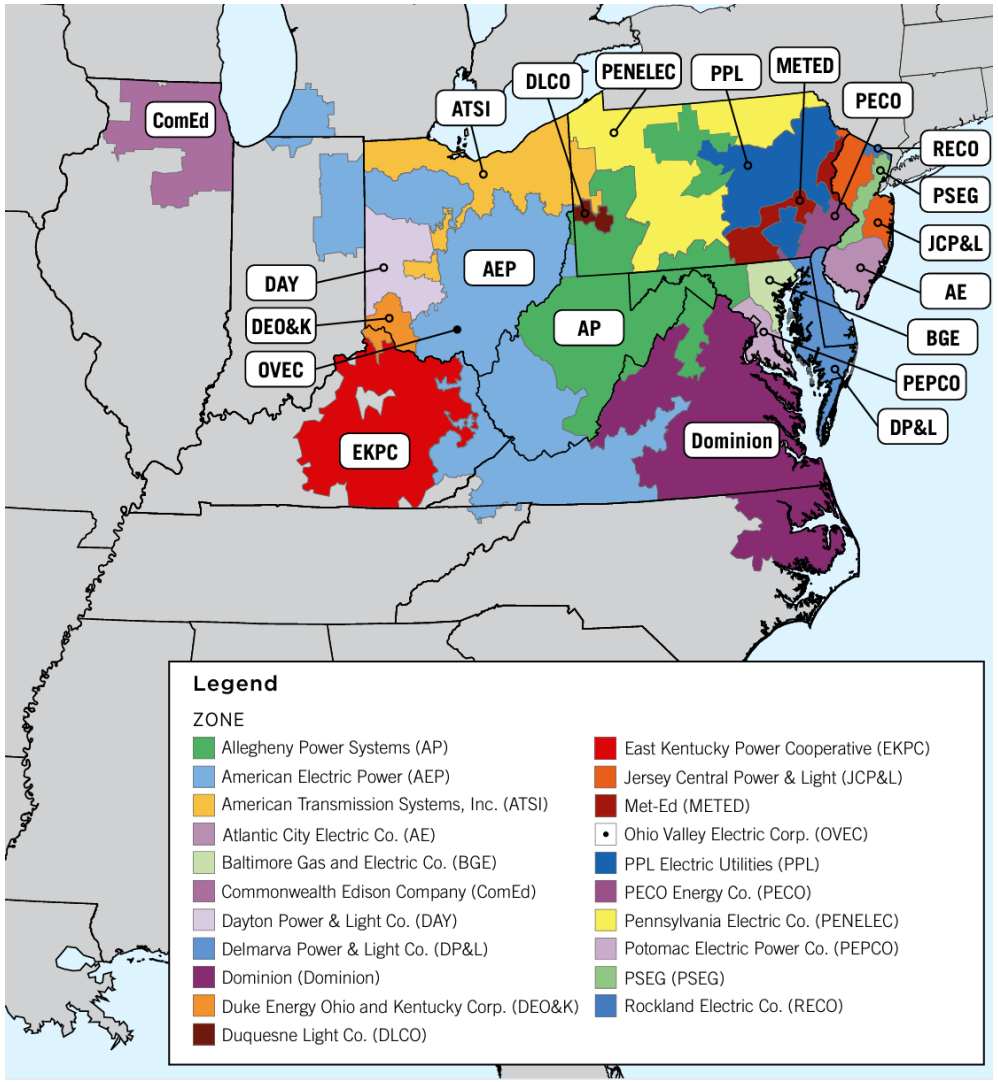


Keys Energy Center in Prince George's County: Nameplate capacity at 755Mw

Why MPRP?

- PJM: Load growth and generation retirements:
  - 11,100 MW* of generation retirements
  - 7,500 MW* of load growth
- Eastern part of the state is devoid of bulk transmission infrastructure.
- PJM stated, based on information provided by local delivery companies, there will be rolling brown-outs and blackouts if this project is not placed in service by June of 2027.
- Maryland has the most congested market in PJM, congestion can lead to higher prices.
- There is no debate, Maryland needs energy infrastructure - PJM

*1 MW can power about 800 homes

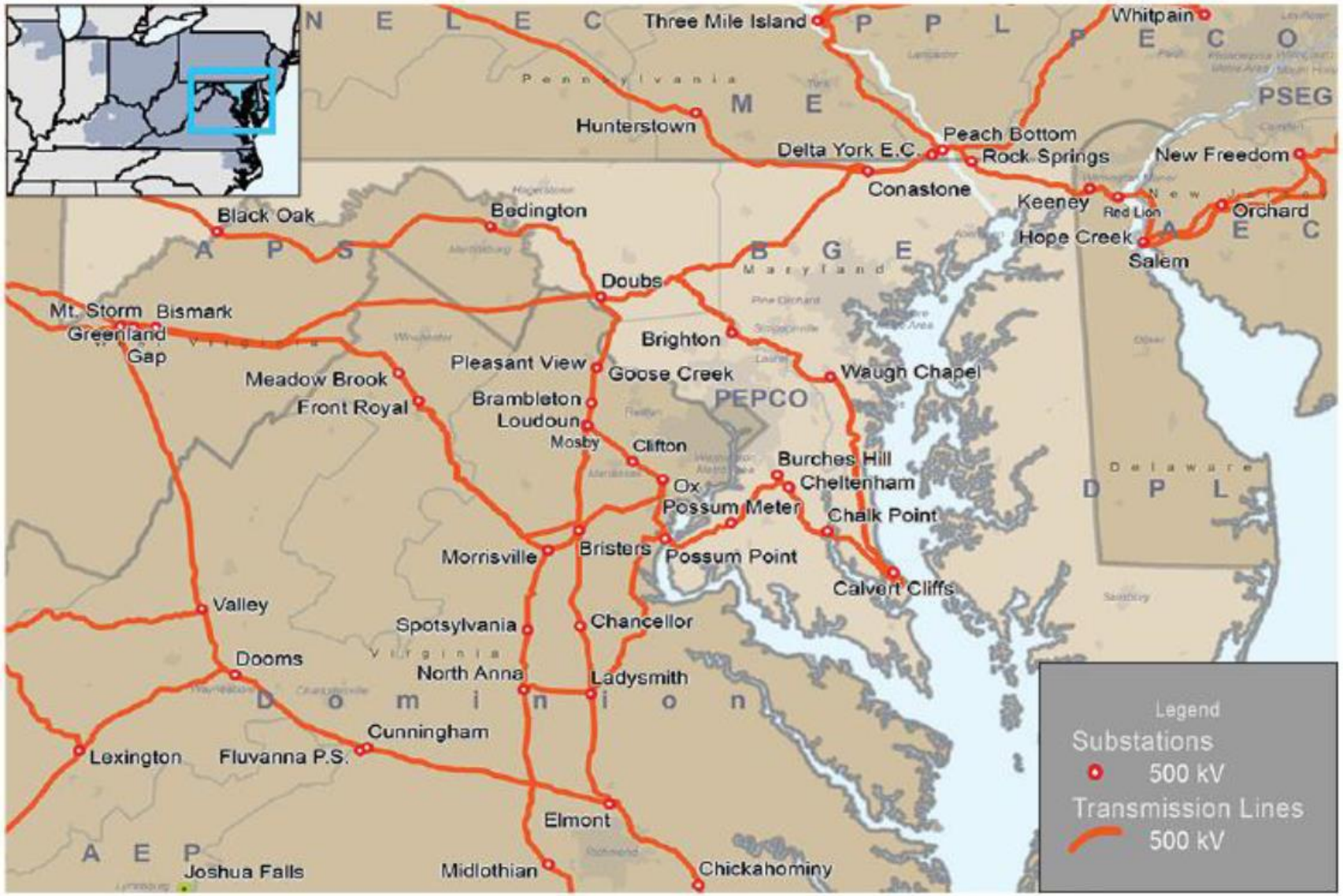


https://www.utilitydive.com/news/maryland-bge-pepco-electricity-bill-pjm-capacity-auction-opc-ratepayer/724319/

https://frederickcountymd.gov/DocumentCenter/View/353205/PJM-Response-to-Executive-Fitzwater

http://efaidnbmnnnibpcajpcglclefindmkaj/https://www.pjm.com/-/media/about-pjm/newsroom/fact-sheets/ftr-fact-sheet.ashx#:~:text=If%20there%20is%20no%20congestion,be%20higher%20in%20those%20areas

PJM Service Area in Maryland



Factors influencing Maryland's Energy Landscape

Overreliance on Power Importation

Historically, Maryland has imported about 40% of its annual electric needs from other states. For example, in 2023 hourly imports were between 1,000 MW and 6,000 MW.

Takeaway: The lack of economic, in-state supply of locally available power makes Maryland more vulnerable to higher capacity prices.

Generators Retiring Without Replacement Resources

Generators are retiring in Maryland due to a mixture of economic and policy justifications and without replacement generation in place.

Takeaway: Maryland, already an importer of power, has seen the retirement of 6,000 MW of resources since 2018 and the addition of only 1,600 MW of resources during that time frame.

High-Voltage Electric Transmission Infrastructure Enhancements Are Presently Limited

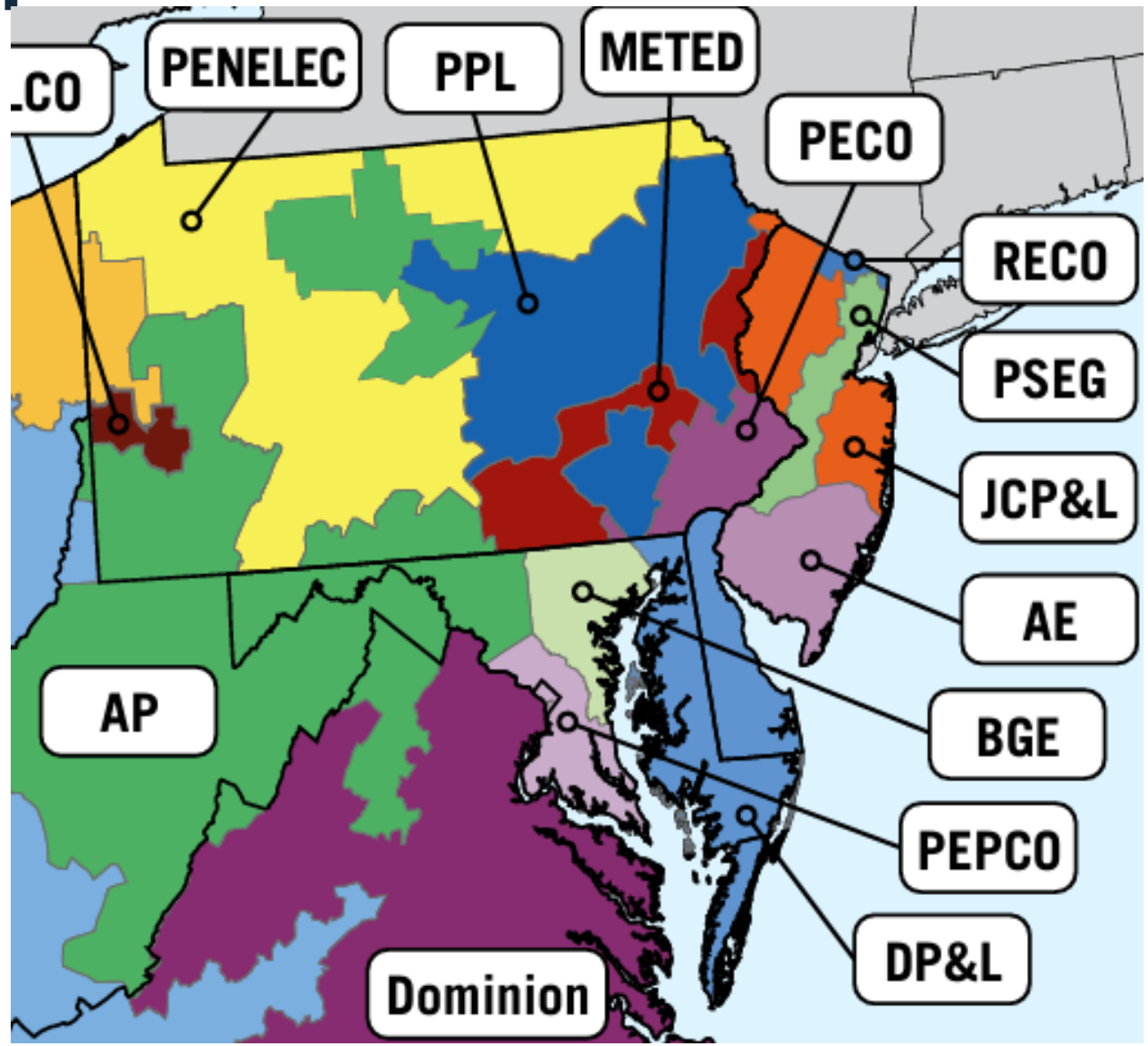
The western part of the state enjoys access to a robust electric transmission system, but the central and eastern parts of the state have limited access. This increases the reliance on extensive power transfer imports to the zones where capacity shortfalls may exist.

Takeaway: This results in local congestion pricing increases in Maryland's central/eastern zonal energy market.

Energy Pricing Impacts

Five Year Annual Energy Price Average: $/MWh

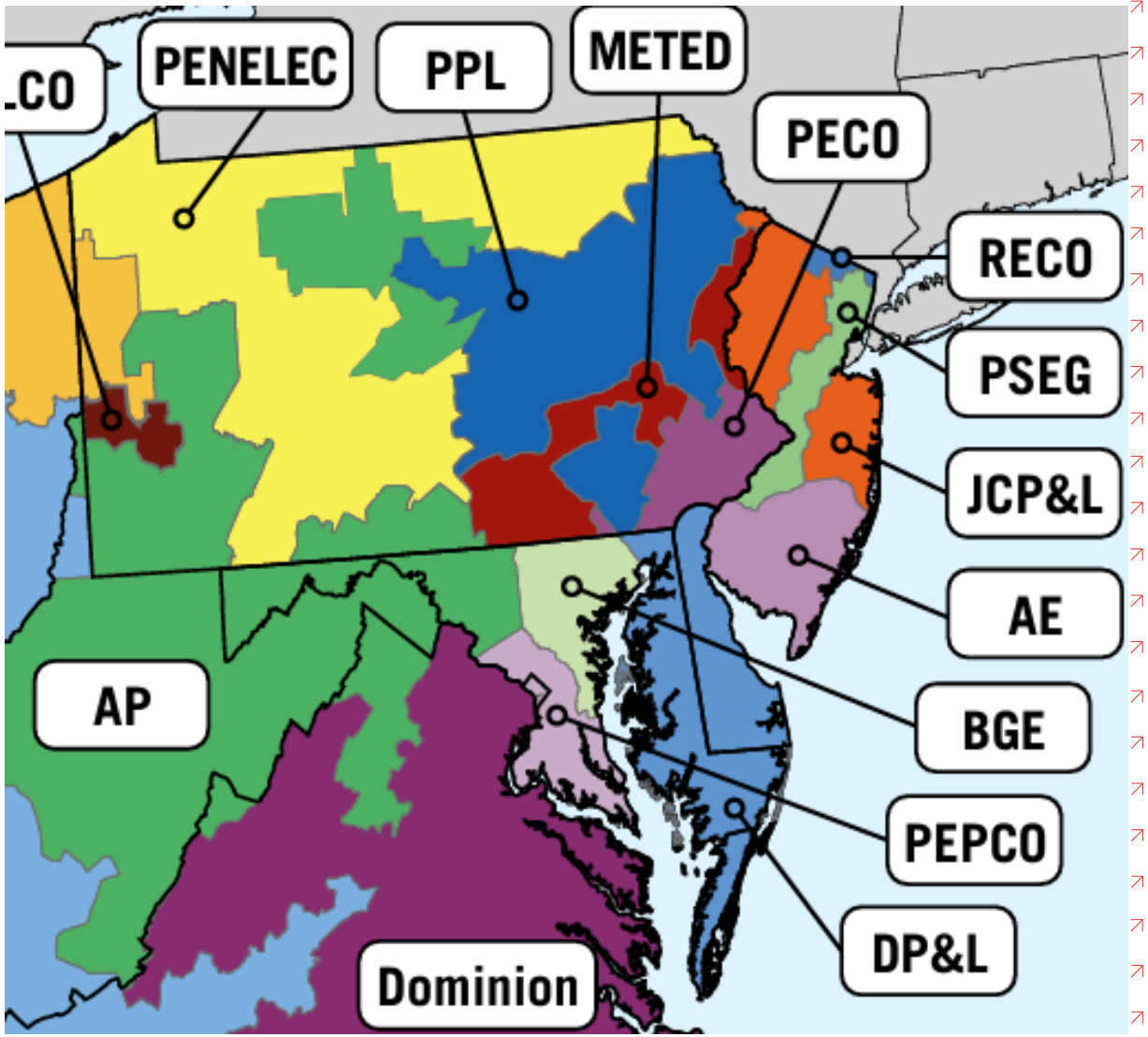
- BG&E: $44
- PEPCO: $41
- Dominion: $42
- AP*: $38
  - *Potomac Edison
- PSE&G: $33
- PPL: $34
- DELMARVA: $36
- PECO: $32



Capacity Auction: PJM ‘25/’26 Delivery Year

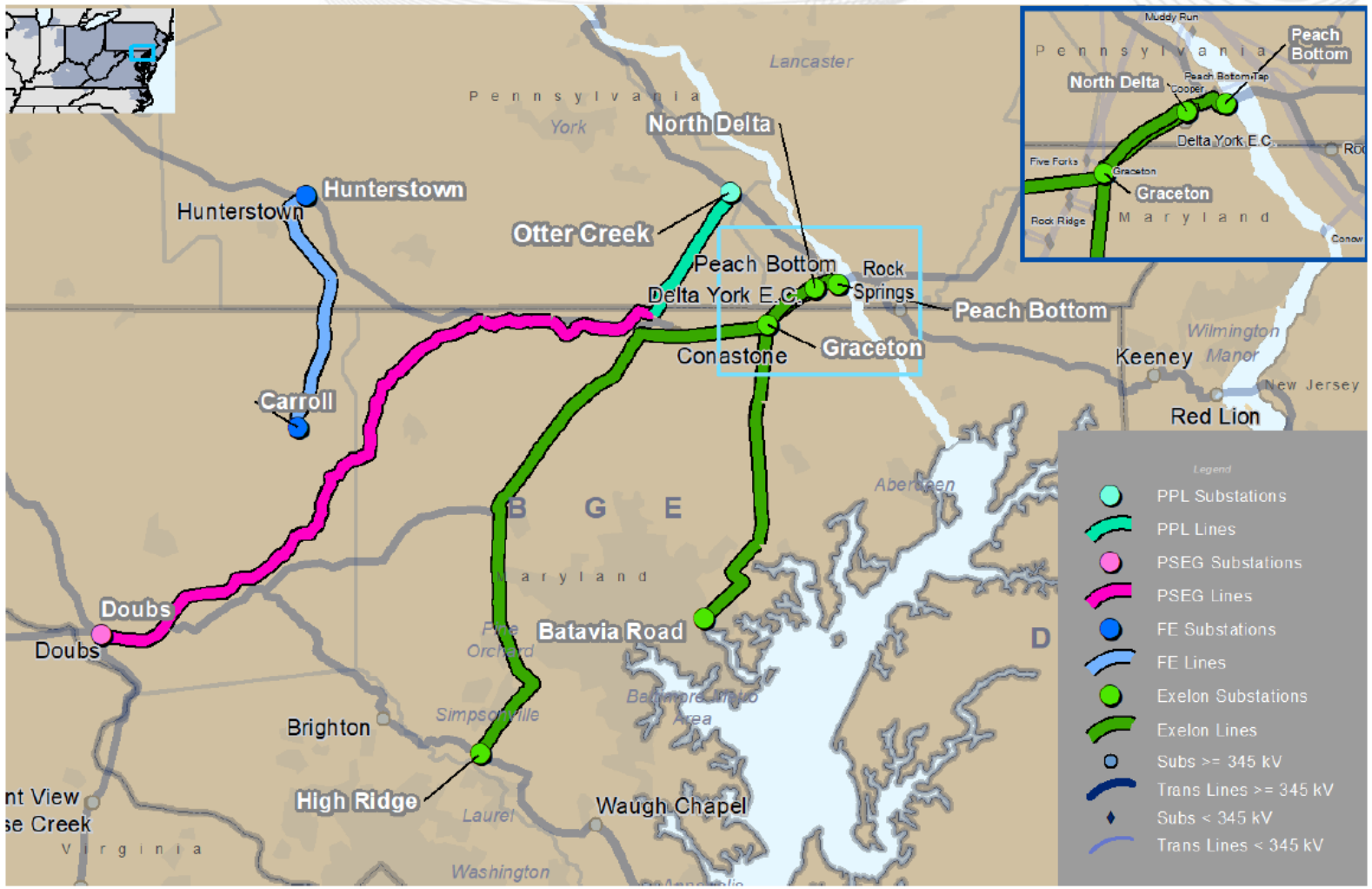
- Pricing in Maryland from PJM’s most recent capacity auction indicates the need for both generation and transmission facilities to relieve congestion and maintain the reliability of the grid.

- BG&E: $466
- PEPCO: $270
- Dominion: $444
- APS (Potomac Edison): $270
- PSE&G: $270
- PPL: $270
- DELMARVA: $270
- PECO: $270



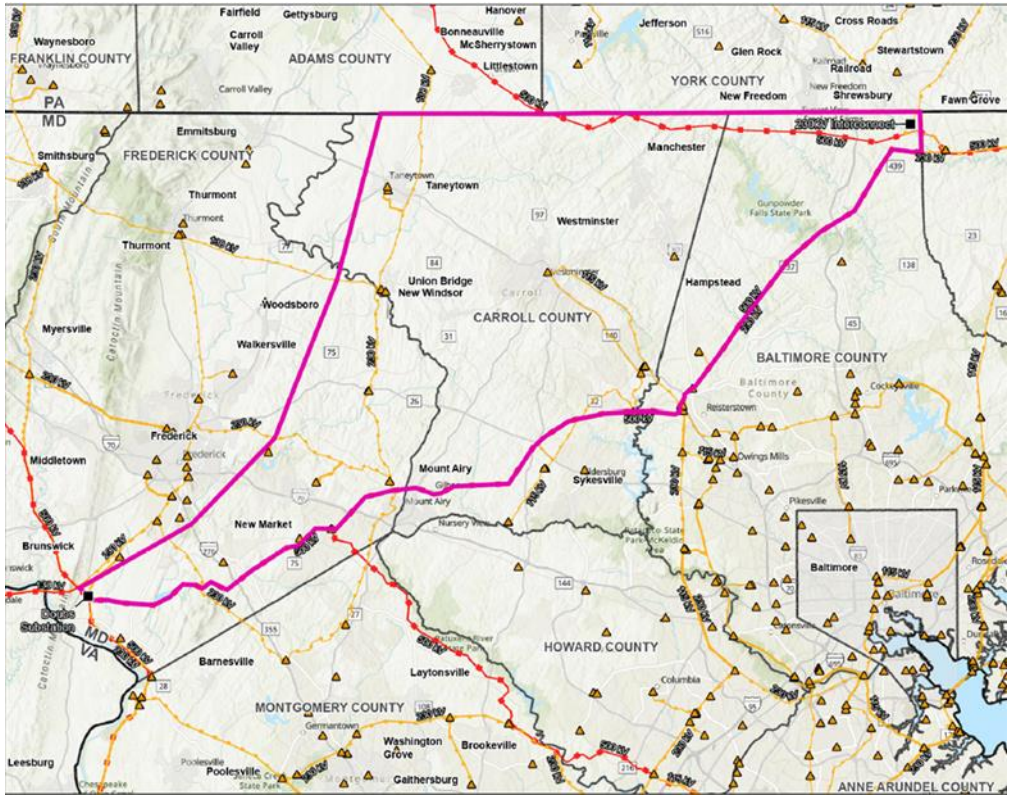
2025/2026 Base Residual Auction Report – July 30th, 2024

2022 Window 3 Proposals – East



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.

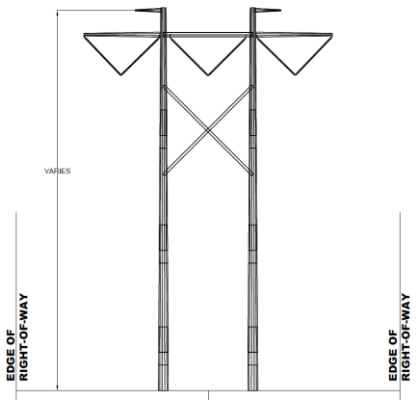
Parallel Route & Existing ROW



- 5400 Comments Received

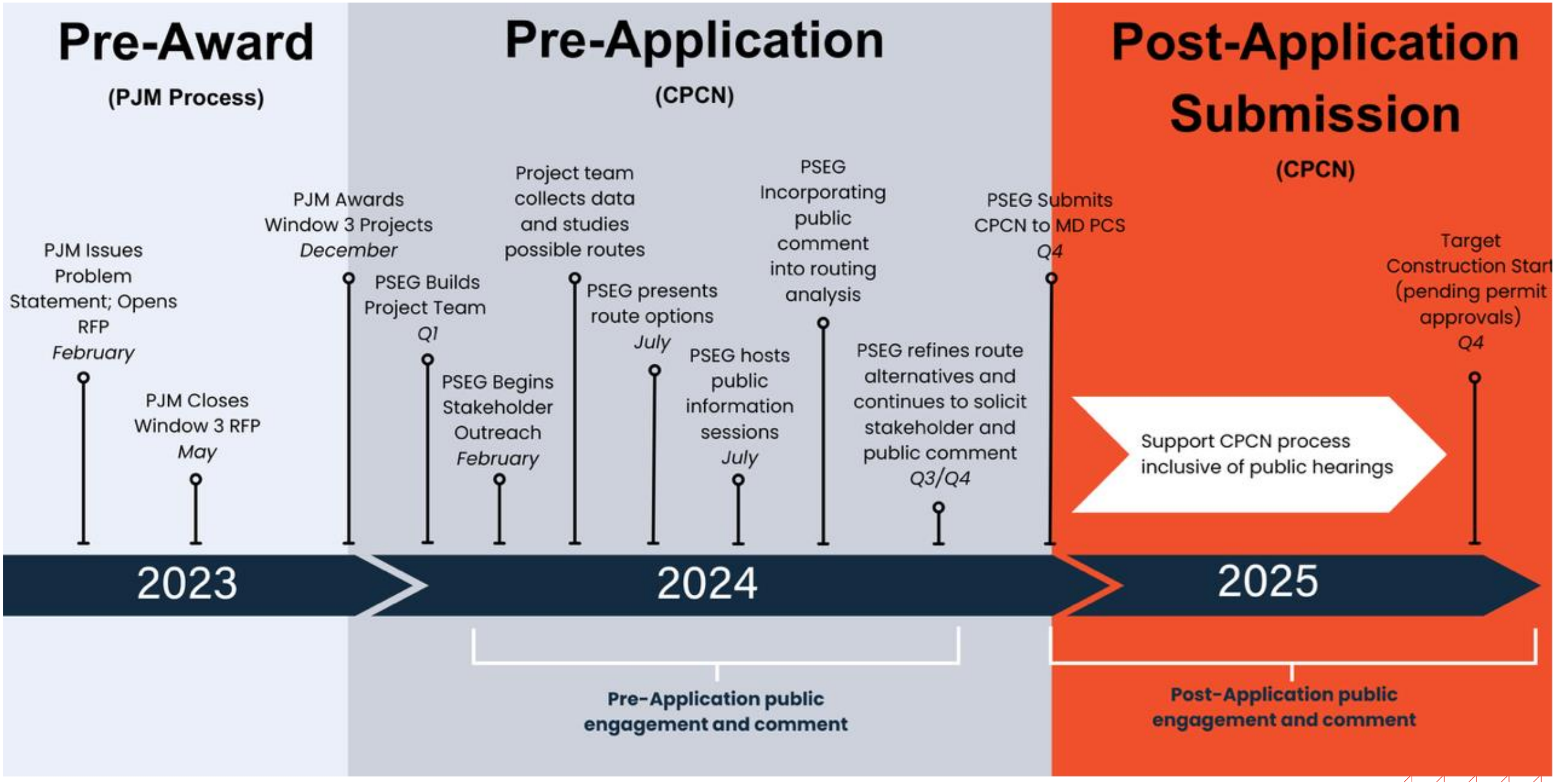
Description of Project

- PJM has determined significant need for a transmission line to run between Northern Baltimore County, through Carroll and end in Frederick County to increase capacity and reliability in the region.
- PSEG was selected to construct a new 70-mile greenfield 500kV AC line from Potomac Edison's Doubs Substation in Frederick County to a demarcation point near Conastone Substation in Baltimore County.
  - PSEG coordinating with First Energy (Potomac Edison) for connection into Doubs Station
  - PSEG coordinating with BGE and PPL for connection into the 500kV transmission line to be built as part of the 500kV Chanceford Project.



Farming Operations are Compatible with 500kv Transmission

Timeline:


Pre-Award
(PJM Process)
Pre-Application
(CPCN)
Post-Application Submission
(CPCN)
PJM Issues Problem Statement; Opens RFP
February
PJM Closes Window 3 RFP
May
PJM Awards Window 3 Projects
December
PSEG Builds Project Team
Q1
PSEG Begins Stakeholder Outreach
February
Project team collects data and studies possible routes
PSEG presents route options
July
PSEG hosts public information sessions
July
PSEG Incorporating public comment into routing analysis
PSEG refines route alternatives and continues to solicit stakeholder and public comment
Q3/Q4
PSEG Submits CPCN to MD PCS
Q4
Support CPCN process inclusive of public hearings
Target Construction Start (pending permit approvals)
Q4
2023
2024
2025
Pre-Application public engagement and comment
Post-Application public engagement and comment

Questions?

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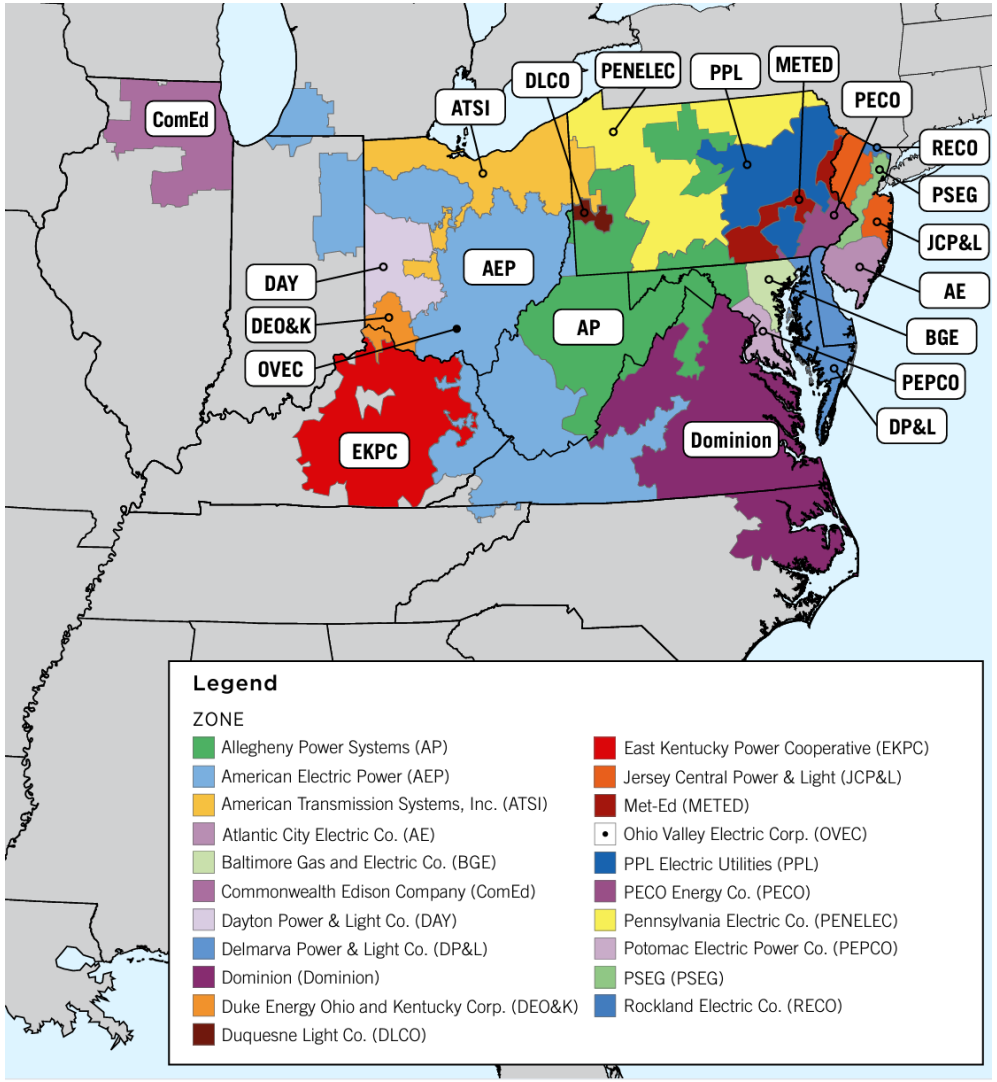
Email: PSEG-MPRP@pseg.com

What is PJM?



- Founded in 1927
- A Federal Energy Regulatory Commission (FERC)-regulated regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states.
- Independent RTO responsible for ensuring reliability of the regional transmission system
- Area covers more than 65 million people
- PJM does not own power lines or generators. Instead, it is a neutral, regulated organization that directs the operation of power lines and generators. **PJM is not a for profit entity.**
- One key responsibility is overseeing a long-term regional planning process to identify the most effective and cost-efficient improvements to the grid

Sources:
- https://www.pjm.com/about-pjm/who-we-are
- https://www.pjm.com/-/media/about-pjm/pjm-zones.ashx

PSEG

A diversified energy company

PSE&G

- The largest electric and gas utility in NJ: 2.4 Million Electric and 1.9 Million Gas Customers
- Ranked first in customer satisfaction with residential and business electric service in the East among large utilities by J.D. Power*
- Received the 2023 ReliabilityOne® Award for the Mid-Atlantic Metropolitan Area, 22nd consecutive year PSE&G has received the reward
- Built more transmission facilities in PJM than any other operating utility over the past ten years

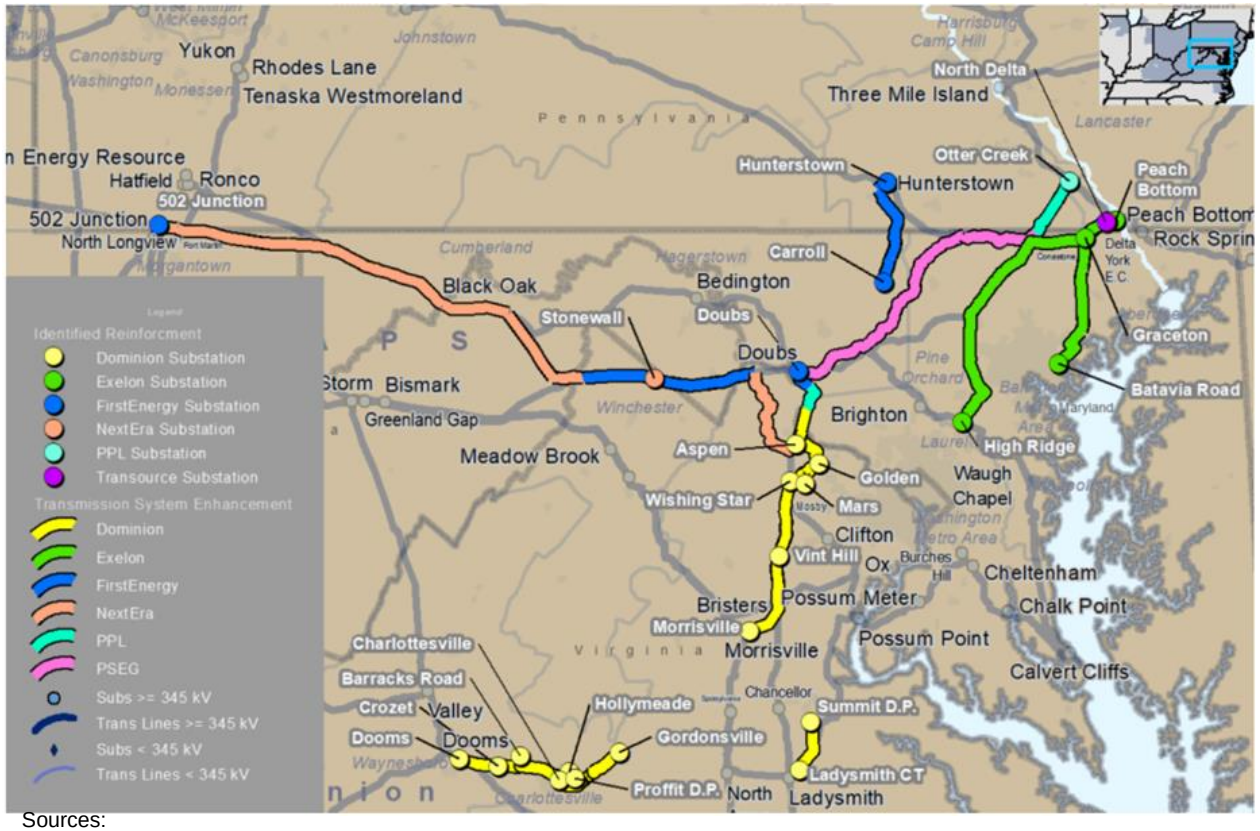
PSEG Power, PSEG Renewable Transmission & Other

- PSEG Power operates Salem 1 & 2 and Hope Creek, USA's 3rd largest site
- PSEG Power generates about 40% of NJ's electricity and 85% of its carbon-free power
- PSEG Long Island
- PSEG Renewable Transmission - competitive regulated transmission investments

Powering a future where people use less energy, and it's cleaner, safer and delivered more reliably than ever

** PSE&G Company received the highest score in the East Large segment of the J.D. Power 2023 U.S. Electric Utility Residential Customer Satisfaction Study of customers' satisfaction with electric utility residential services and the J.D. Power 2023 U.S. Electric Utility Business Customer Satisfaction Study in the east among large utilities. Visit jdpower.com/awards for more details.*

Drivers for the Window 3 Projects



Sources:

- https://www2.pjm.com/-/media/committees-groups/committees/teac/2023/20231205/20231205-item-15---reliability-analysis-update-2022-window-3.ashx
- https://www.pjm.com/-/media/committees-groups/committees/teac/2023/20231205/20231205-pjms-role-in-regional-planning-2022-rtep-window-3.ashx

- PJM issued an RFP in early 2023 for the construction of transmission to ensure reliability across Maryland and the region.
- PJM highlighted growth of demand and traditional generation retirements:
  - 11,100 MW* of generation retirements
  - 7,500 MW* of load growth forecasted in Maryland and Virginia
- PJM analysis shows “without doubt that there are going to be real reliability impacts without further transmission reinforcements. These solutions are required to maintain the reliability of the system.”
- MPRP represents part of the $5 billion plan to maintain reliability that was awarded to six companies and covers three states

*1 MW can power about 800 homes