

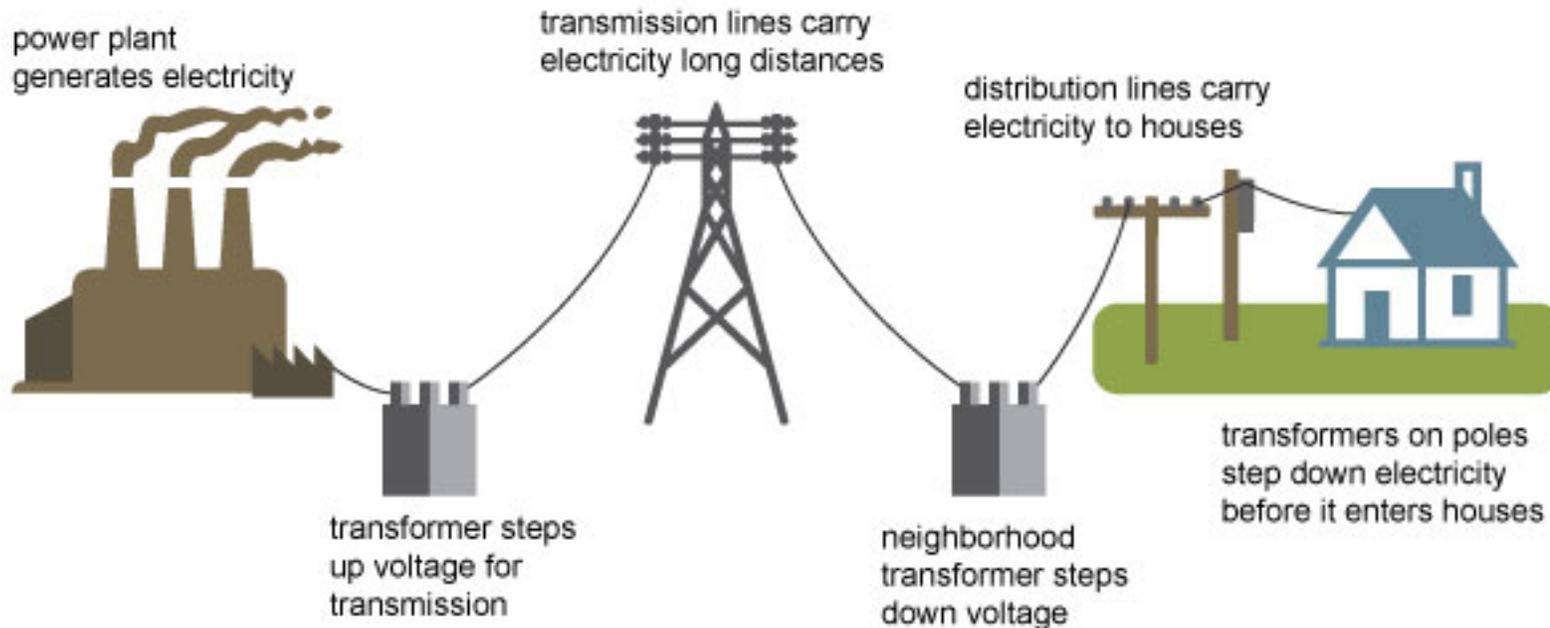


# Maryland Piedmont Reliability Project



# How does our Electric Grid work?

## Electricity generation, transmission, and distribution

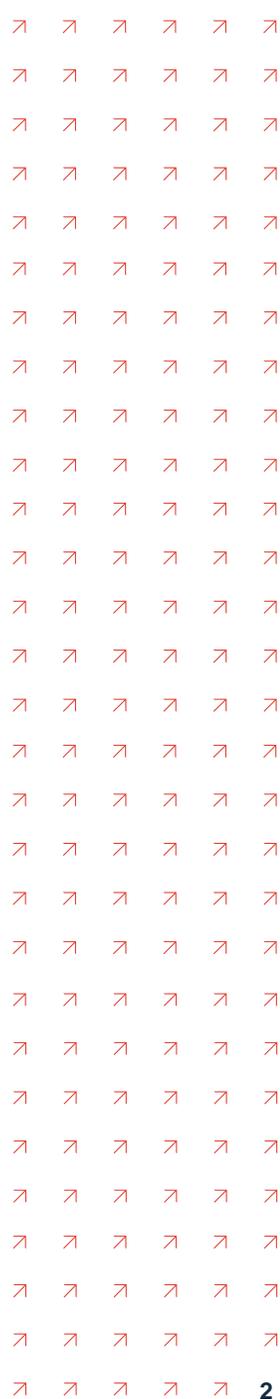


Source: Adapted from National Energy Education Development Project (public domain)

### 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?

## PJM - Energy Transition in PJM: Resource Retirements, Replacements & Risks report states:

- 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.

# Factors influencing Maryland's Energy Landscape

## ➤ Increasing Electricity Demand

- Load is increasing due to electrification of residential and commercial heating, commercial fleets, resurgence of manufacturing and large loads, including data centers.

## ➤ Generators Retiring Without Replacement Resources

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

## ➤ Need for Power Importation

- Maryland imports about 40% of its annual electric needs. In 2023, hourly imports were between 1,000MW and 6,000MW.

# Generation Retirements



➤ Generator Retirements (from 2014 to 2024): 8,503MW\*

➤ Future Generator Retirements: 2,881MW\*

\*1 MW can power about 800 homes

Future Generation Retirements (MW)

Unit Name	Capacity	Fuel Type	State
Perryman 6 Unit 1	54.9	Natural Gas	Maryland
Wagner 1	126	Natural Gas	Maryland
Wagner CT 1	13	Diesel	Maryland
Vienna 8	153	Oil	Maryland
Vienna CT 10	14.3	Oil	Maryland
Indian River CT10	16.1	Oil	Delaware
Morgantown CT 3	54	Oil	Maryland
Morgantown CT 4	54	Oil	Maryland
Indian River 4	411.9	Coal	Delaware
Wagner 3	305	Oil	Maryland
Wagner 4	397	Oil	Maryland
Brandon Shores 1	638.9	Coal	Maryland
Brandon Shores 2	642.7	Coal	Maryland

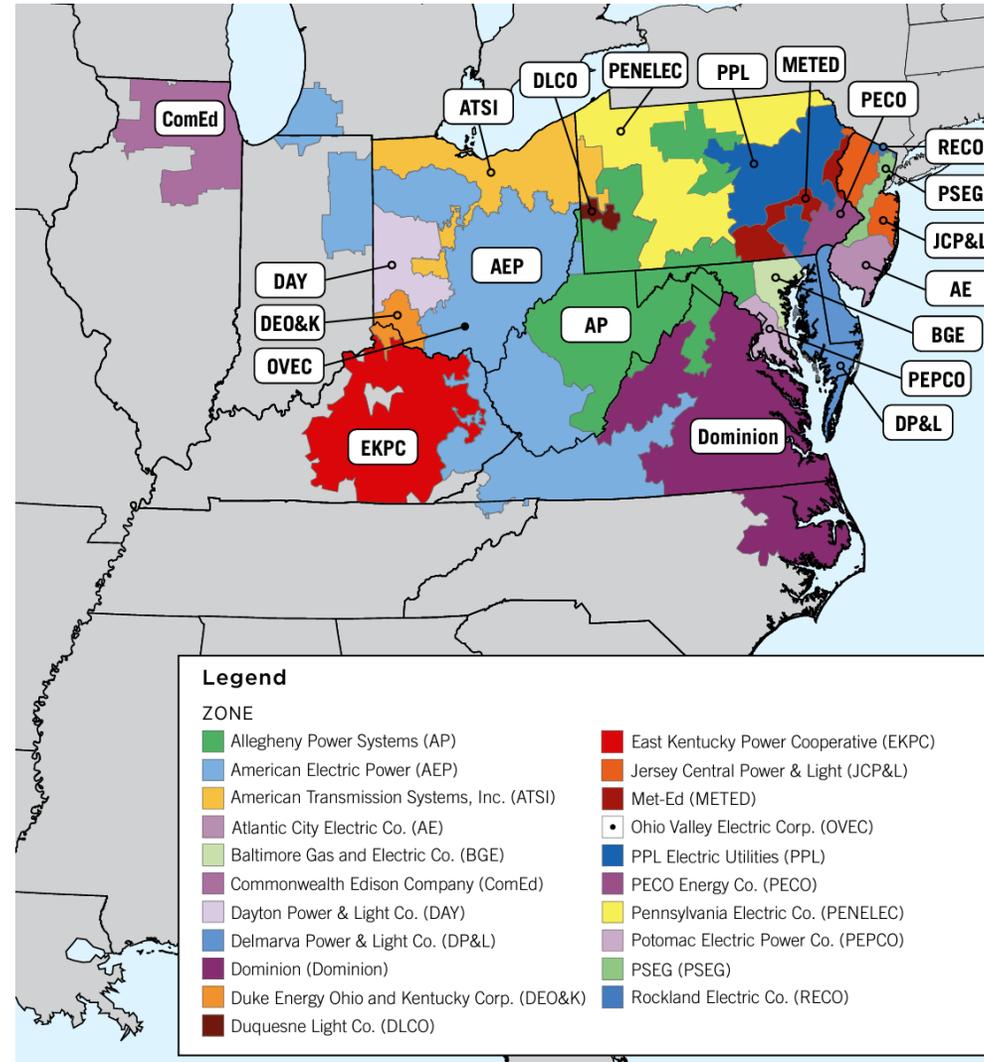
Source: PJM.com



# Why MPRP?

- PJM: Load growth and generation retirements:
  - 11,100 MW\* of generation retirements
  - 7,500 MW\* of load growth
- Eastern Maryland lacks 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



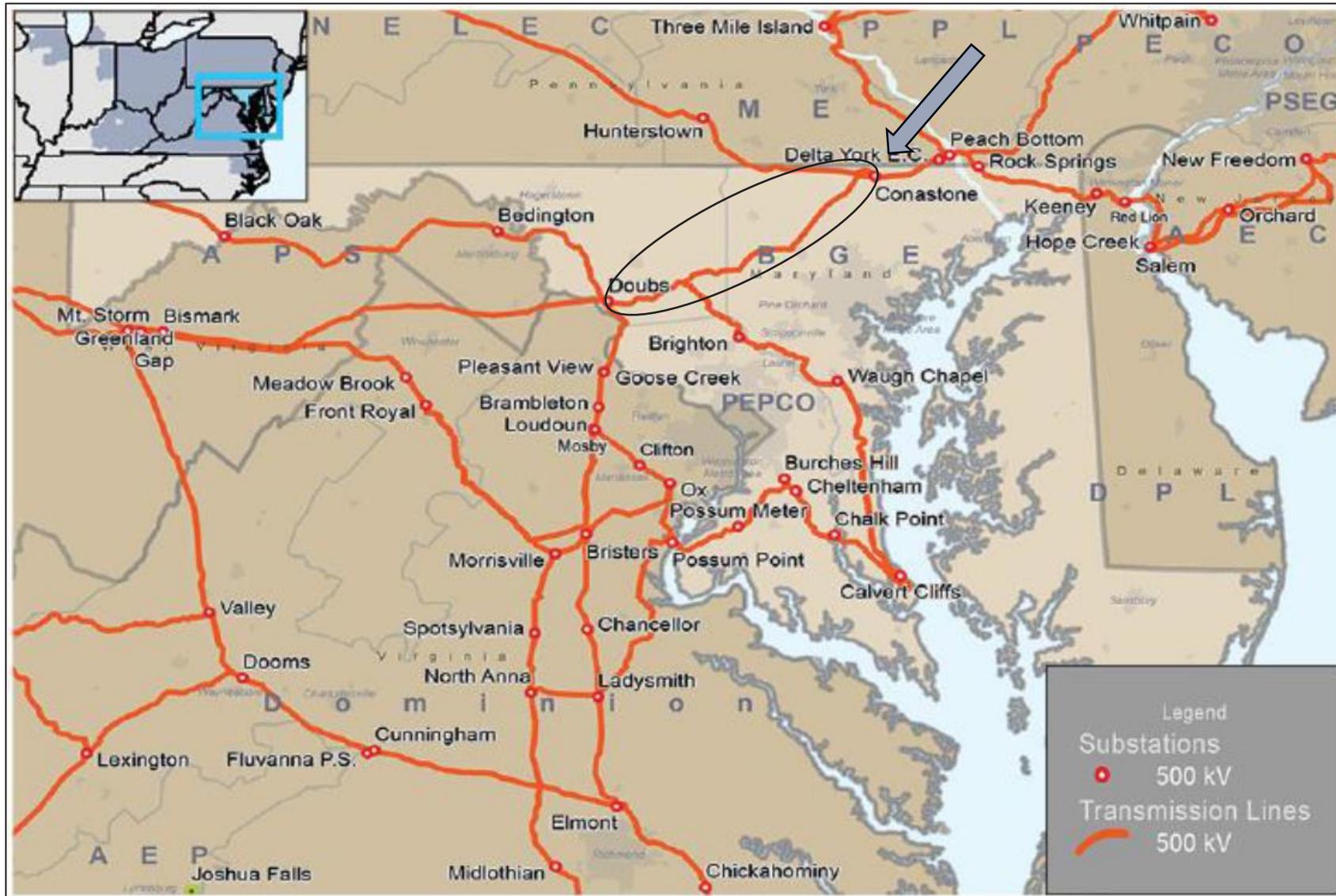
<https://www.utilitydive.com/news/maryland-bge-pepco-electricity-bill-pjm-capacity-auction-opc-ratepayer/724319/>

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

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



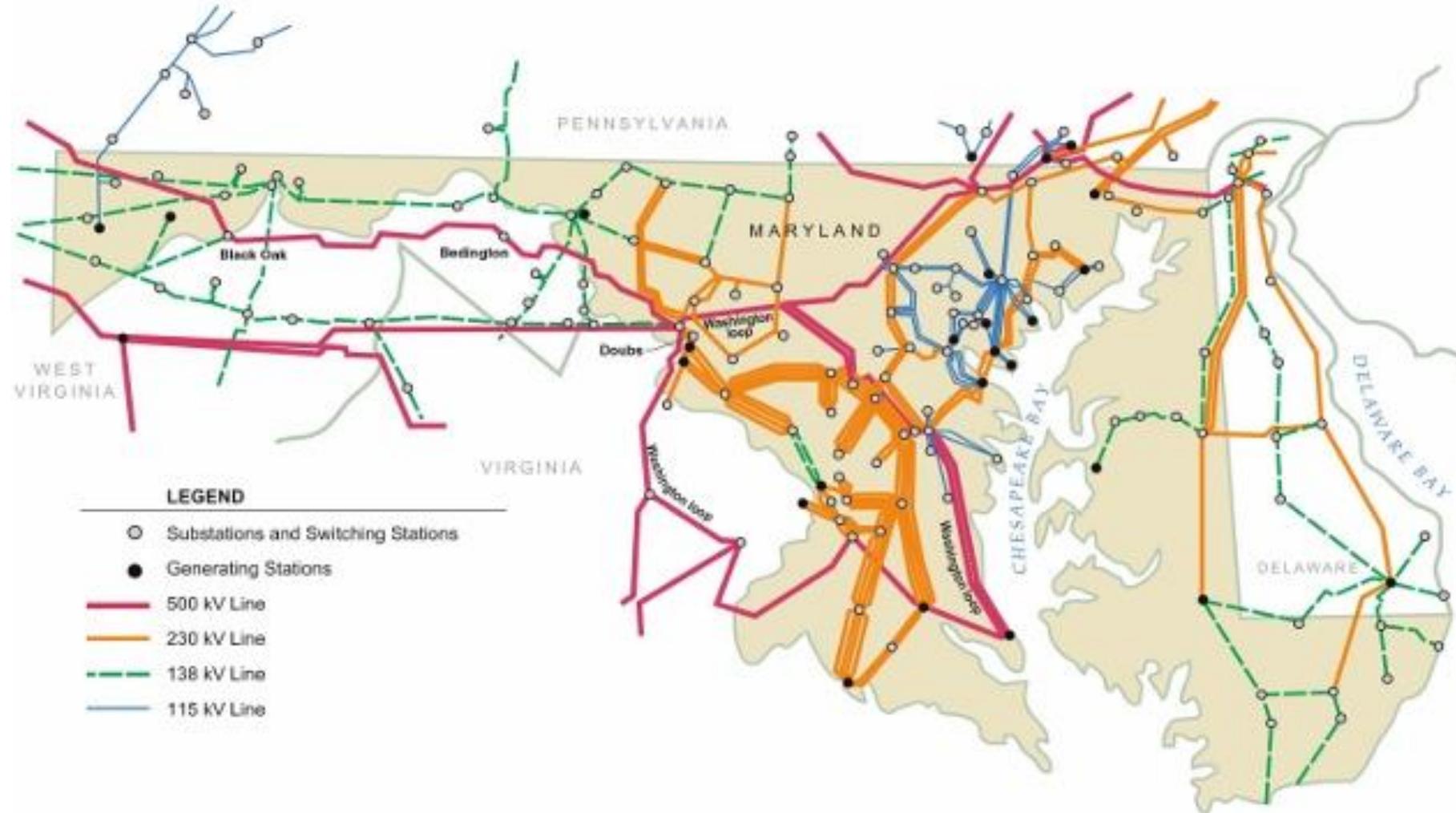
# PJM Service Area in Maryland



Source: PJM.com

# PJM Service Area in Maryland

Figure 2-16 Transmission Lines (>115,000 Volts)

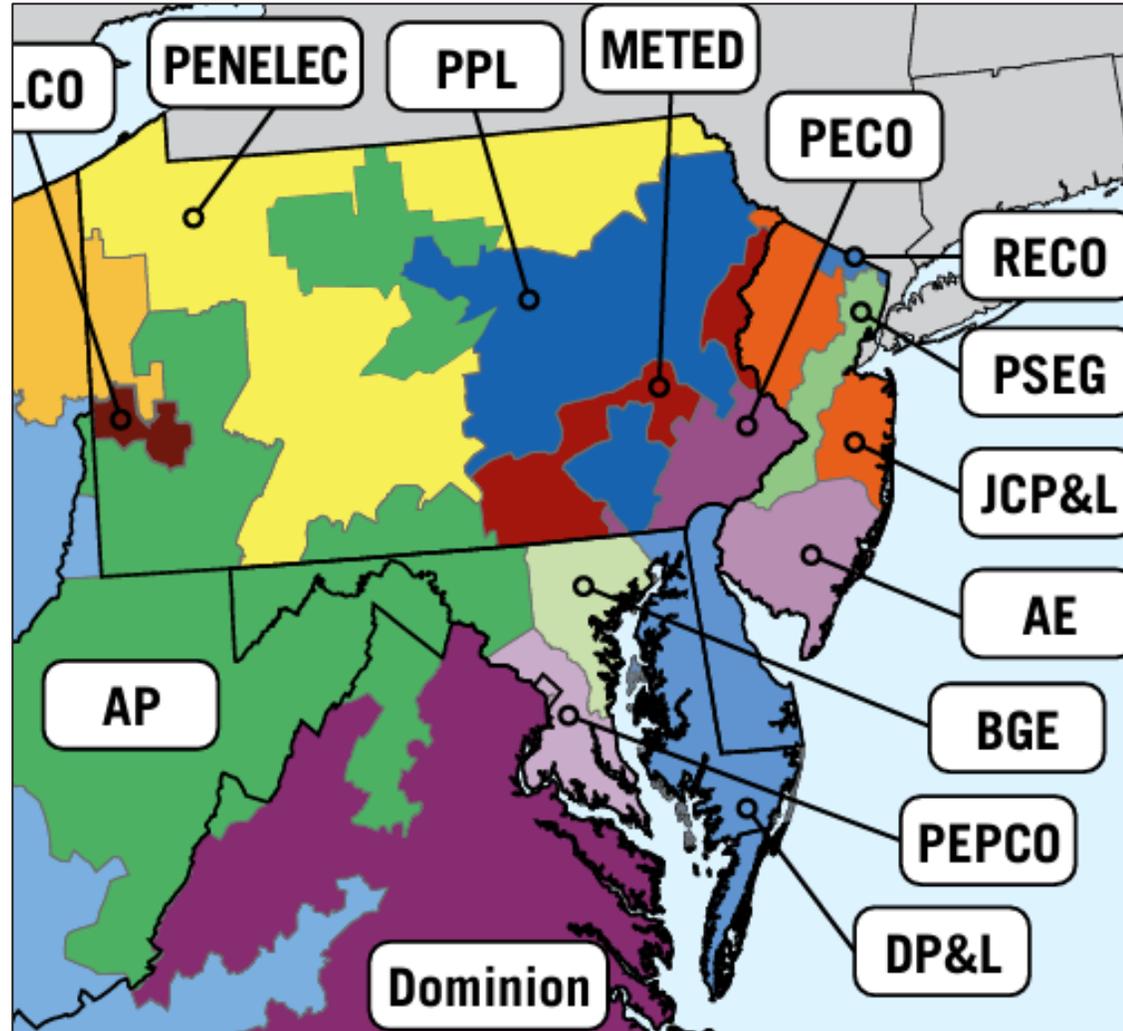




# Capacity Auction: PJM '25/'26 Delivery Year

➤ 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.

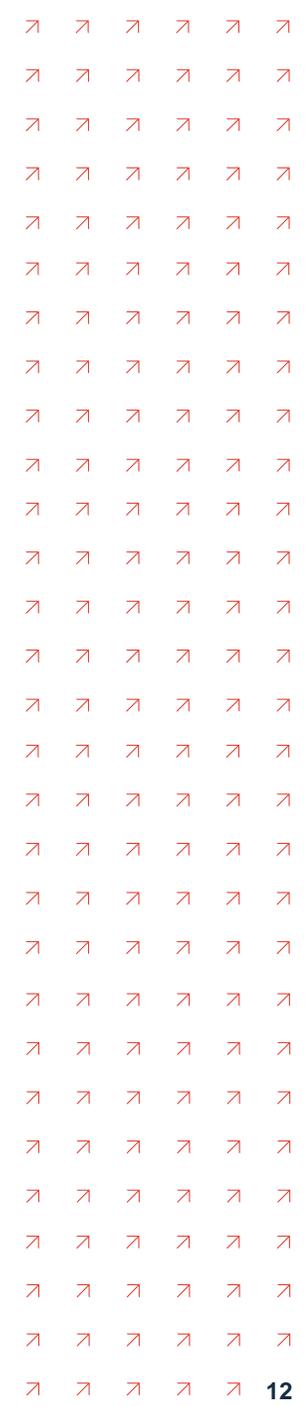
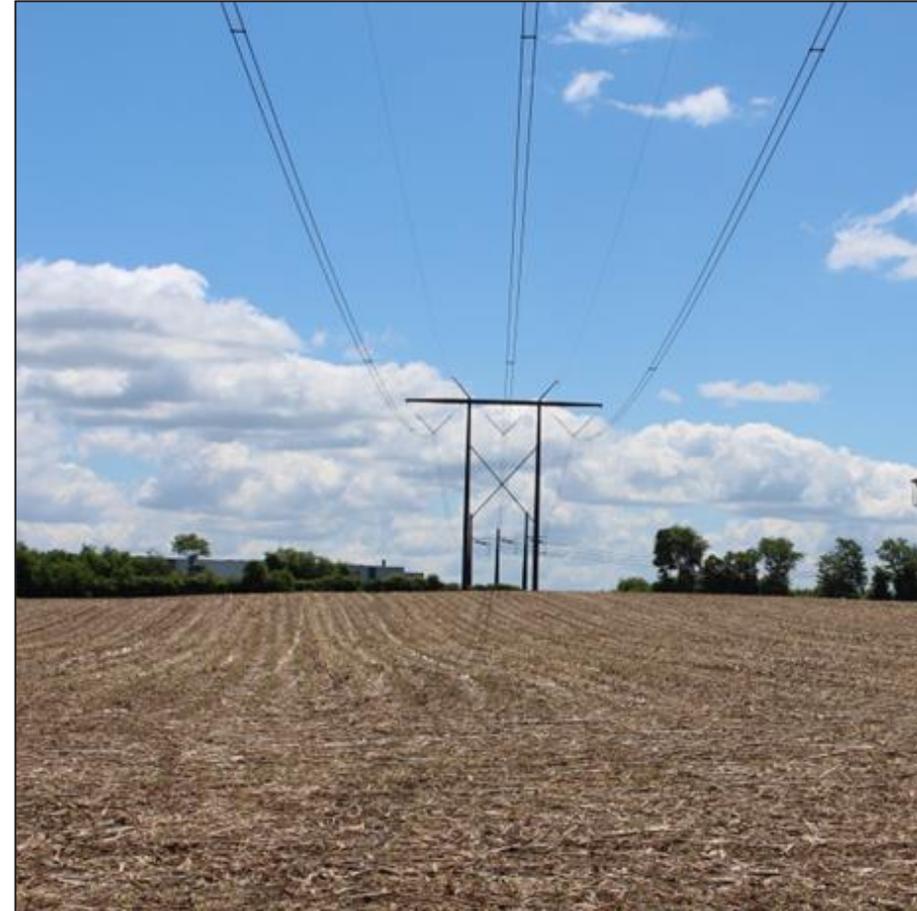
- BGE: \$466
- PEPCO: \$270
- Dominion: \$444
- AP (Potomac Edison): \$270
- PSEG: \$270
- PPL: \$270
- DP&L: \$270
- PECO: \$270





# 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.

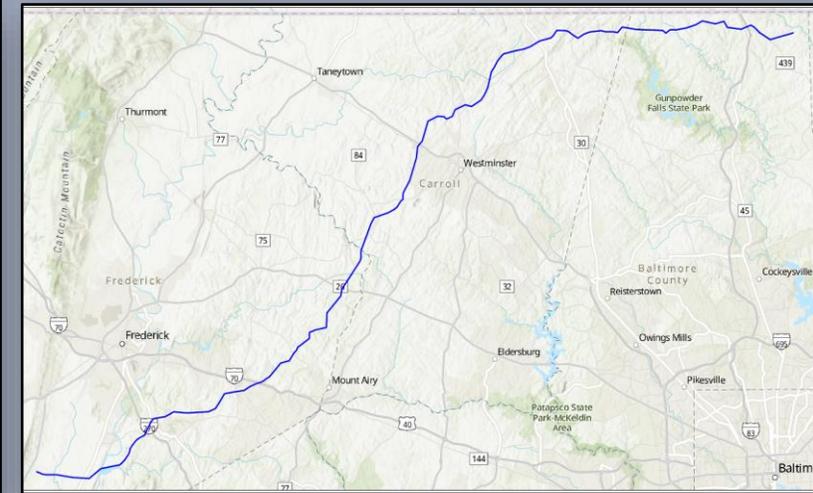
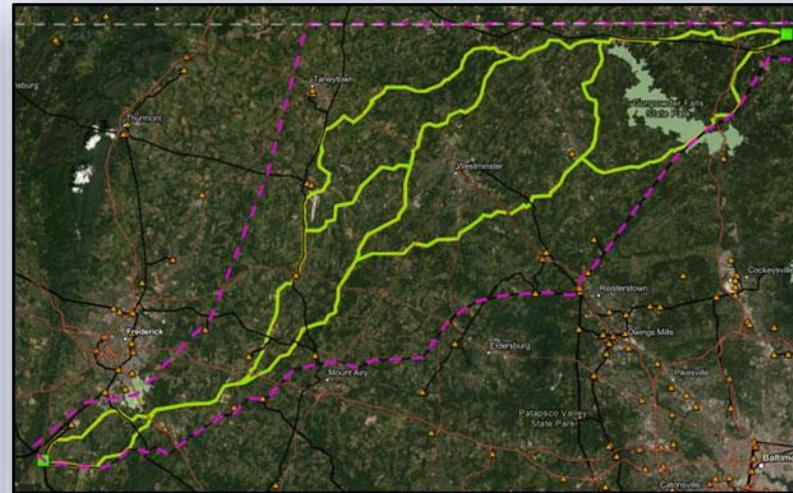
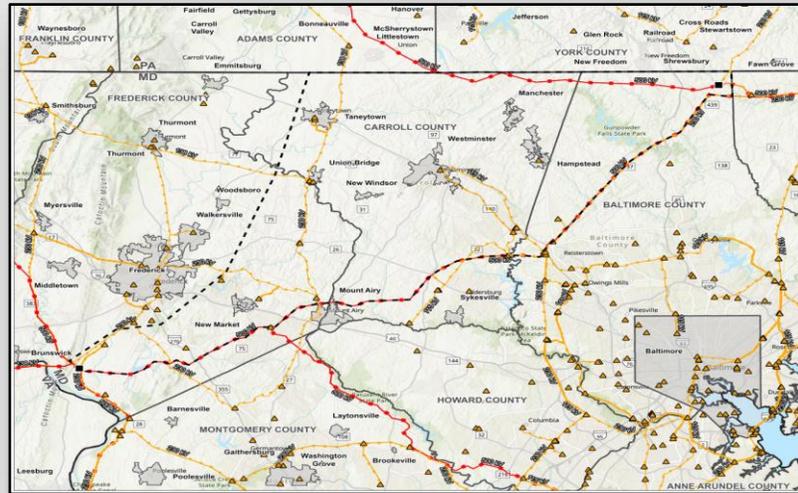


# Routing Process

Define Study Area &  
Routing Criteria

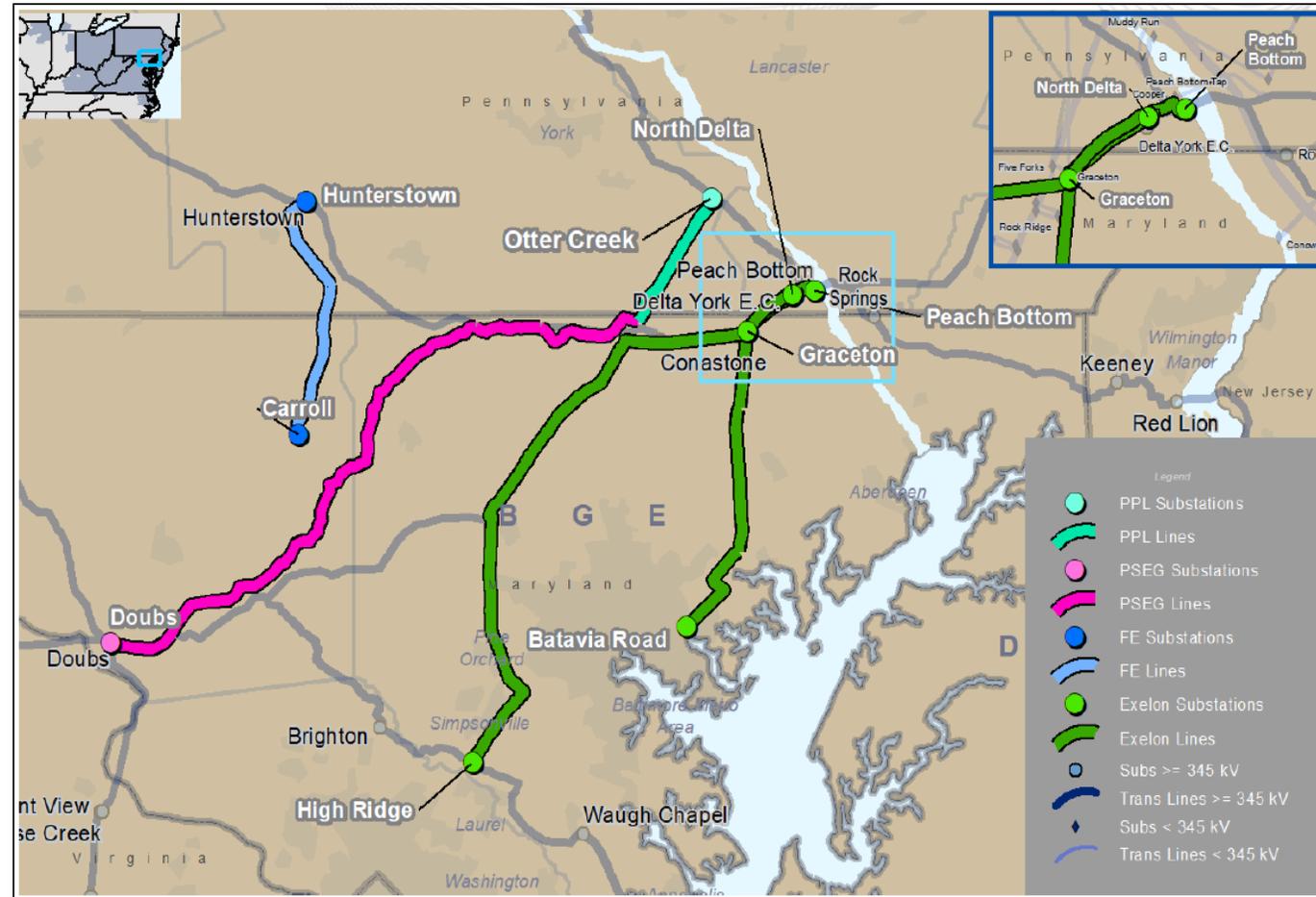
Develop Route  
Alternatives & Collect  
Feedback

Proposed Route Selection  
following quantitative  
analysis & route  
adjustments



# Additional Discussion

- ↗ Reconductoring
- ↗ Underground
- ↗ HVDC
- ↗ Grid Enhancing Technology
- ↗ Existing Right of Way



Source: PJM.com

# Real Estate Process

## ➤ Proposed Route

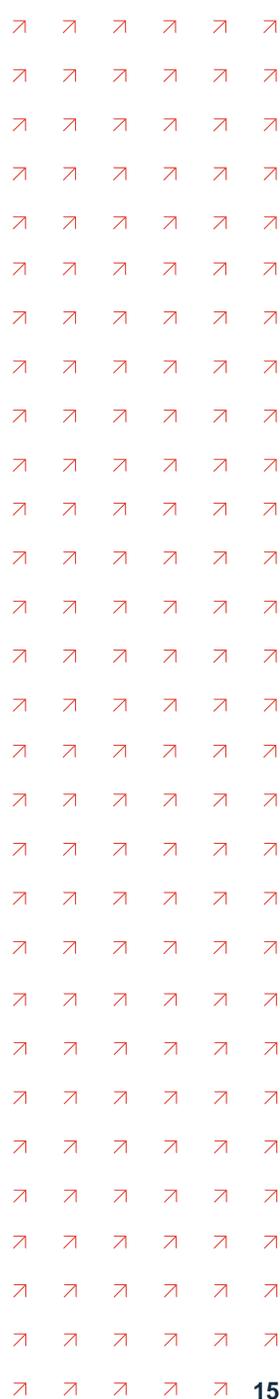
## ➤ CPCN Application Submission to Maryland Public Service Commission (PSC)

## ➤ Local Real Estate Agents & Temporary Right of Entry Agreements (ROE)

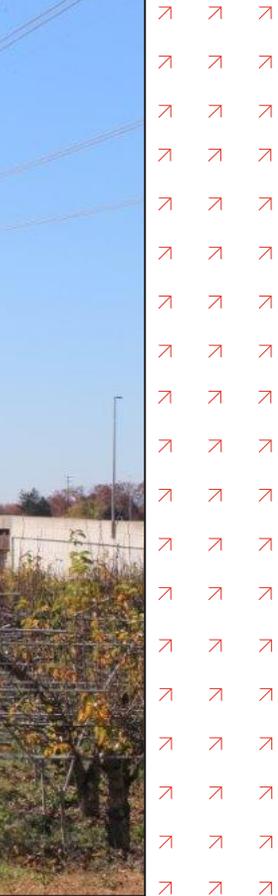
- PSEG has engaged local real estate specialists to help with our initial outreach with property owners. Only a PSEG/Contract Land Staff-badged representative has the authority to discuss the project with you.

## ➤ Easements

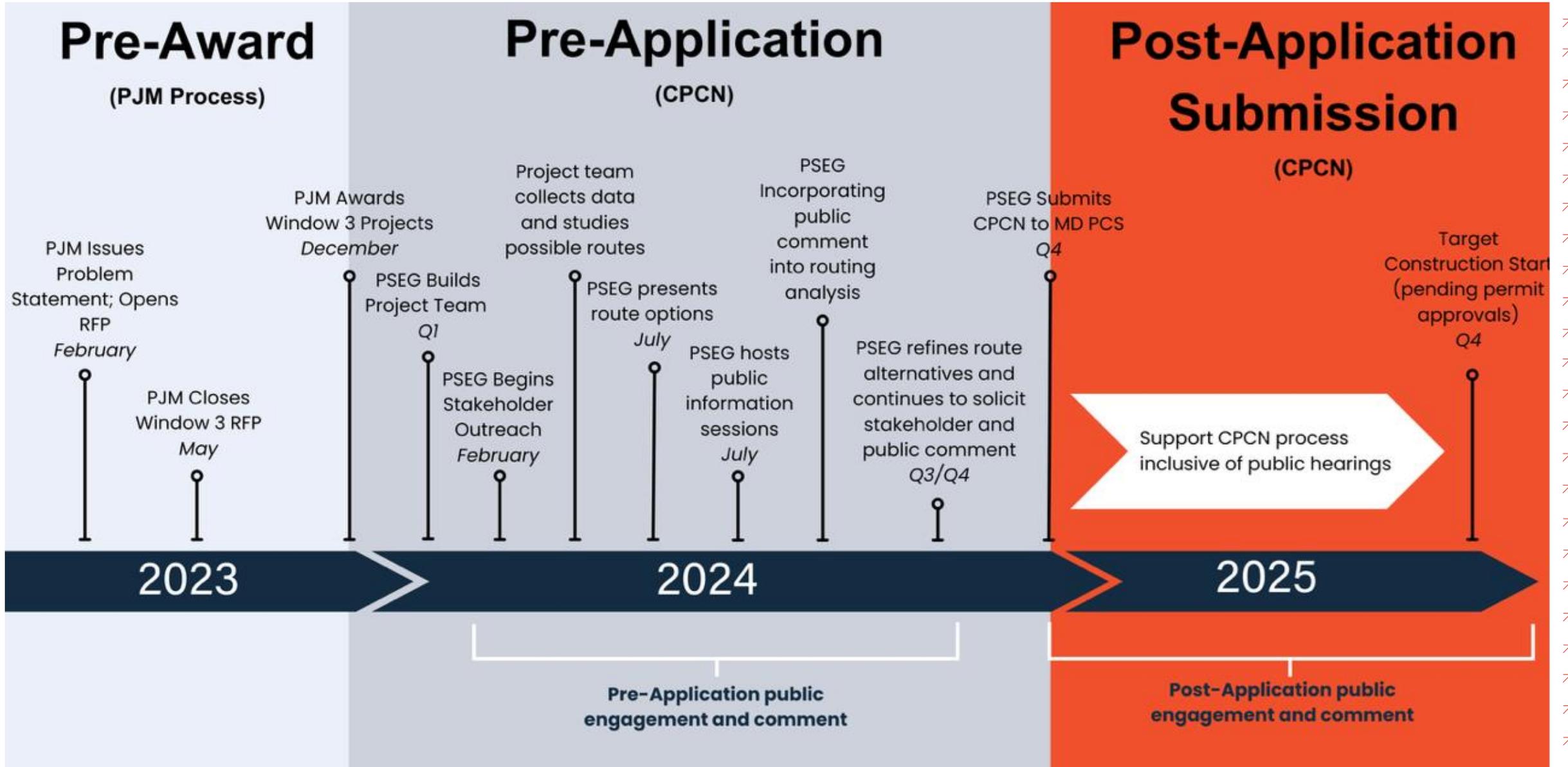
- If the PSC approves the CPCN application, PSEG will then seek to buy the property rights needed for the approved route.
- The property rights needed are permanent easements across a portion of a property. The property owner will still own the land, but with certain rights granted to PSEG for a fee.
- PSEG is not seeking to purchase or enter into easements at this time. If a property owner is open to discuss an option agreement, we would be open to those discussions as well.
- PSEG will compensate for crop yield loss or damage.



# Farming Operations are Compatible with 500kv Transmission



# Timeline:





# Questions?

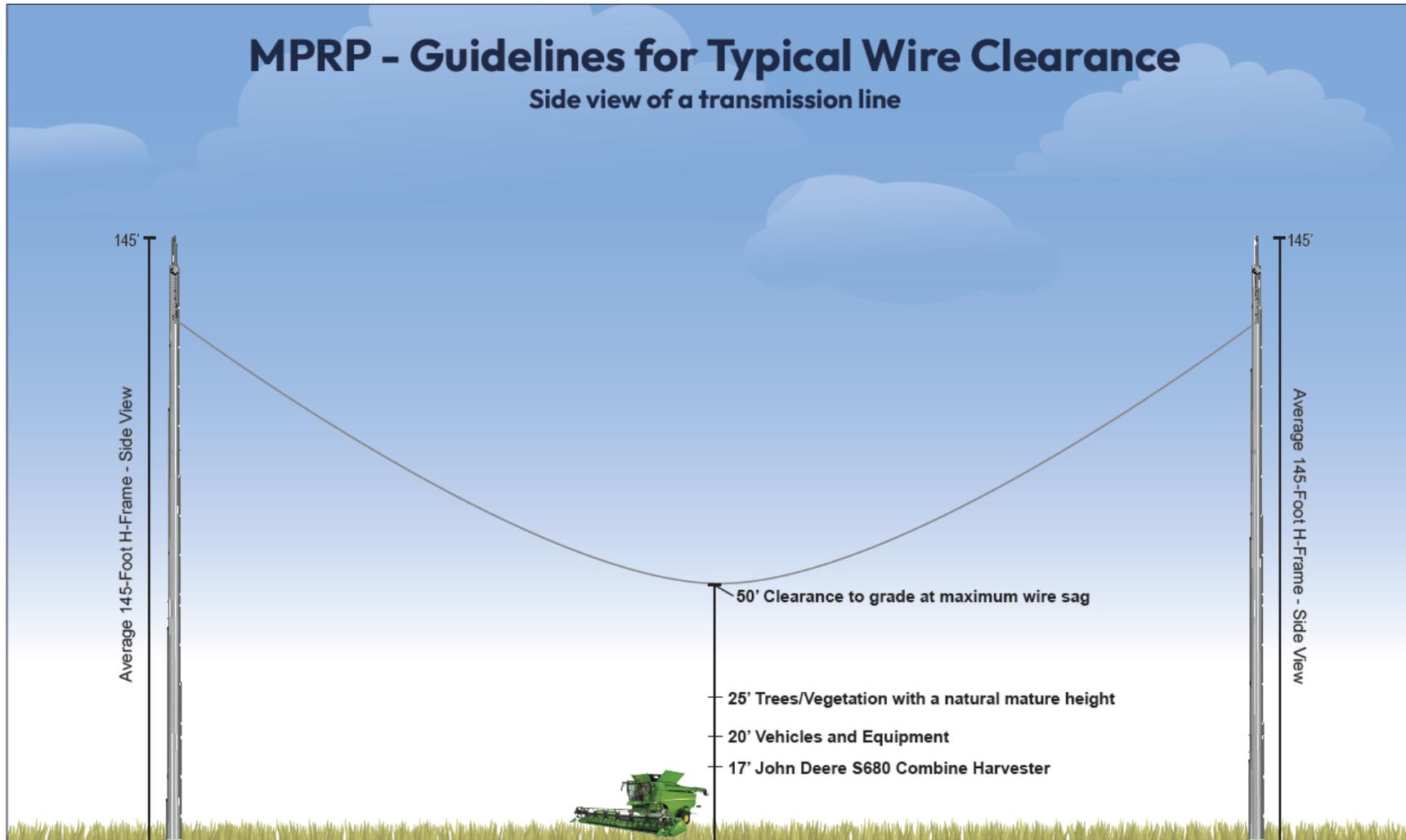
**Website: [MPRP.com](http://MPRP.com)**

**Phone: 833-451-MPRP (6777)**

**Email: [PSEG-MPRP@pseg.com](mailto:PSEG-MPRP@pseg.com)**

# MPRP - Guidelines for Typical Wire Clearance

## Side view of a transmission line



**F**arming and power lines are compatible neighbors. They have co-existed for over a hundred years. The proposed Maryland Piedmont Reliability Project (MPRP) transmission line is designed to provide adequate electrical clearances required by National Electrical Safety Code (NESC) and to be farming compatible in most circumstances.

**Vehicles and equipment**, including attachments, under twenty (20) feet in height, or those that can extend no more than twenty (20) feet in height, e.g., cranes, boom trucks, forklifts, combines, etc., are allowed to work on or from PSEG's right-of-way (ROW).

**Vegetation**, such as row crops, e.g. corn, soybeans and vegetables, may be grown throughout the ROW, including adjacent to the structure bases. Farming activities such as plowing/tillage, planting, harvesting and crop management are permitted. Crop irrigation with non-permanent movable equipment that meets the required height limitations is permitted.

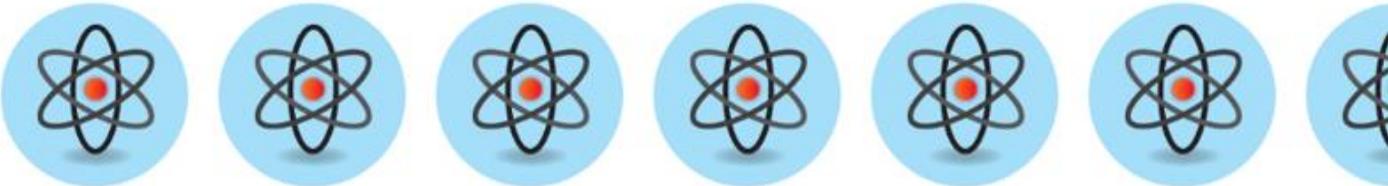
**Trees or other vegetation** with a natural mature height less than twenty-five (25) feet may be on the ROW. Trees that are actively used for a commercial agricultural purpose, e.g., orchard, nursery, Christmas tree farm, may be on the ROW as long as the tree height is maintained by the property owner so as not to exceed twenty-five (25) feet in height.



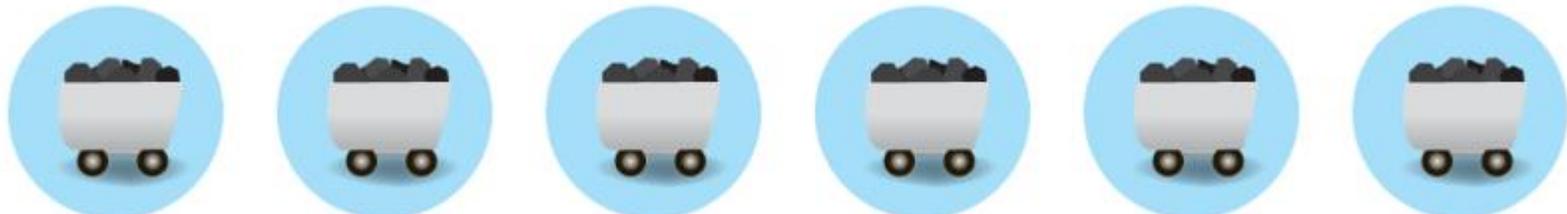
Note: Exhibit is for illustration purposes only. Not to scale



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



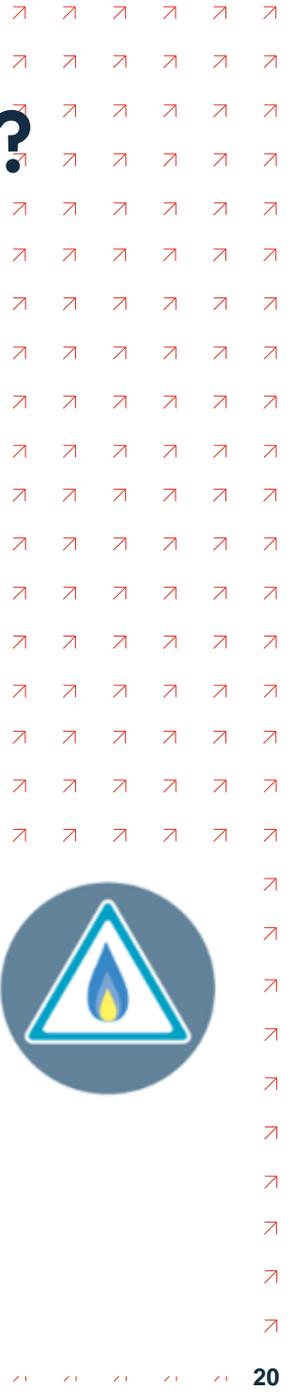
Calvert Cliffs Nuclear Generating Station in Calvert County: Nameplate capacity 1,718Mw



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



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



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

\*1 MW can power about 800 homes

Unit Name	Capacity	Fuel Type	State
Perryman 6 Unit 1	54.9	Natural Gas	Maryland
Wagner 1	126	Natural Gas	Maryland
Wagner CT 1	13	Diesel	Maryland
Vienna 8	153	Oil	Maryland
Vienna CT 10	14.3	Oil	Maryland
Indian River CT10	16.1	Oil	Delaware
Morgantown CT 3	54	Oil	Maryland
Morgantown CT 4	54	Oil	Maryland
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Wagner 3	305	Oil	Maryland
Wagner 4	397	Oil	Maryland
Brandon Shores 1	638.9	Coal	Maryland
Brandon Shores 2	642.7	Coal	Maryland

Future Generator Retirements:  
2,880MW

Generation Additions since 2018:  
+1,600MW



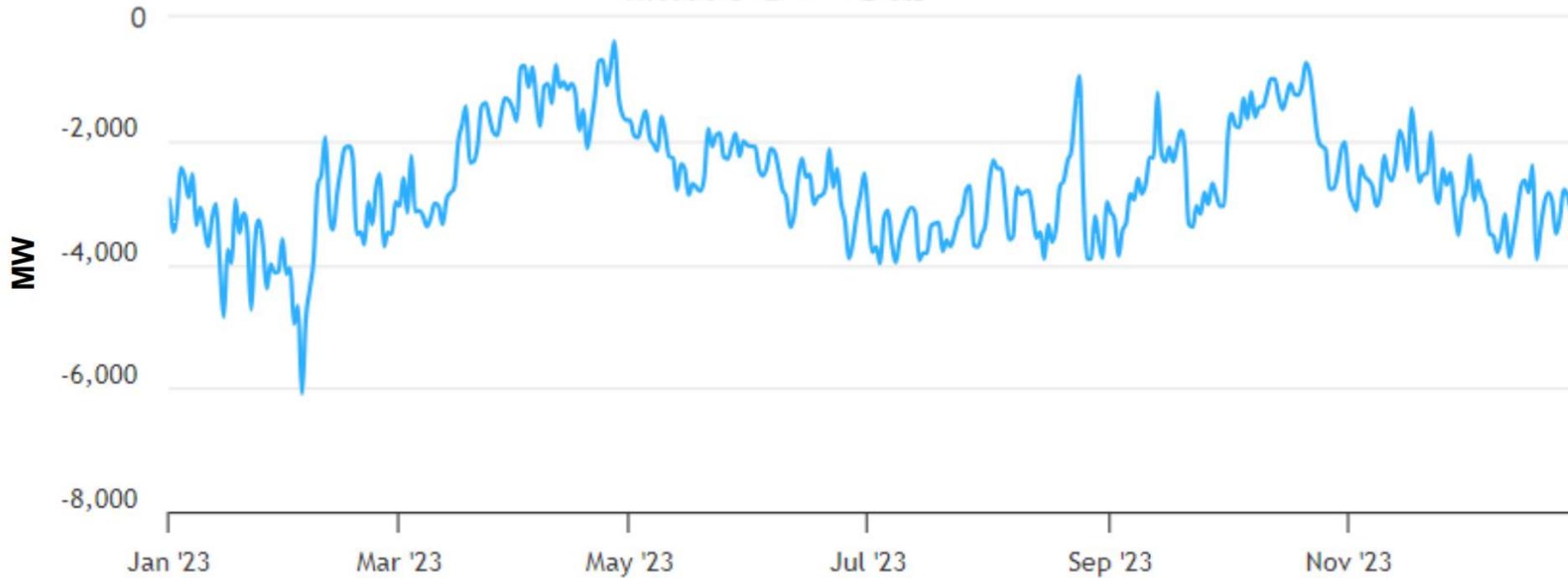
Generator Retirements  
'14 to '24:  
8,503MW

Unit Name	Capacity	Fuel Type	State
Buggs Island 1 (Mecklenberg)	69	Coal	Virginia
Buggs Island 2 (Mecklenberg)	69	Coal	Virginia
Bellemeade	265.7	Natural Gas	Virginia
Bremo 3	71	Natural Gas	Virginia
Bremo 4	156	Natural Gas	Virginia
Crane 1	190	Coal	Maryland
Crane 2	195	Coal	Maryland
Crane GT1	14	Oil	Maryland
Hurt NUG	83	Biomass	Virginia
Chesterfield 3	100	Coal	Virginia
Chesterfield 4	162.1	Coal	Virginia
Possum Point 3	96.7	Natural Gas	Virginia
Possum Point 4	221	Natural Gas	Virginia
Yorktown 1	159	Coal	Virginia
Yorktown 2	165	Coal	Virginia
CHESAPEAKE GT2	12.4	Oil	Virginia
Gould Street Generation Station	98	Natural Gas	Maryland
Hopewell James River Cogenera	90.3	Coal	Virginia
Riverside 8	20	Oil	Maryland
MEA NUG (WVU)	50	Coal	West Virginia
Notch Cliff	128	Natural Gas	Maryland
Wagner 2	135	Coal	Maryland
Westport 5	116	Natural Gas	Maryland
Dickerson Unit 1	182	Coal	Maryland
Dickerson Unit 2	180	Coal	Maryland
Dickerson Unit 3	180.5	Coal	Maryland
Possum Point 5	770.2	Oil	Virginia
Spruance NUG 1	116	Coal	Virginia
Birchwood Plant	238	Coal	Virginia
Chalk Point Unit 1	333.1	Coal	Maryland
Chalk Point Unit 2	337.2	Coal	Maryland
McKee 3	102	Natural Gas	Delaware
Morgantown Unit 1	613.3	Coal	Maryland
Morgantown Unit 2	619.4	Coal	Maryland
Morgantown CT1	16	Oil	Maryland
Morgantown CT2	16	Oil	Maryland
Dickerson CT1	18	Oil	Maryland
Chesterfield 5	336.8	Coal	Virginia
Chesterfield 6	678.1	Coal	Virginia
Yorktown 3	767.1	Oil	Virginia
Morgantown CT 5	54	Oil	Maryland
Morgantown CT 6	54	Oil	Maryland
Warrior Run	180	Coal	Maryland
Gosport 1 F	40	Biomass	Virginia
Warrior Run 2 BT	5	Battery	Maryland



# Maryland – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)

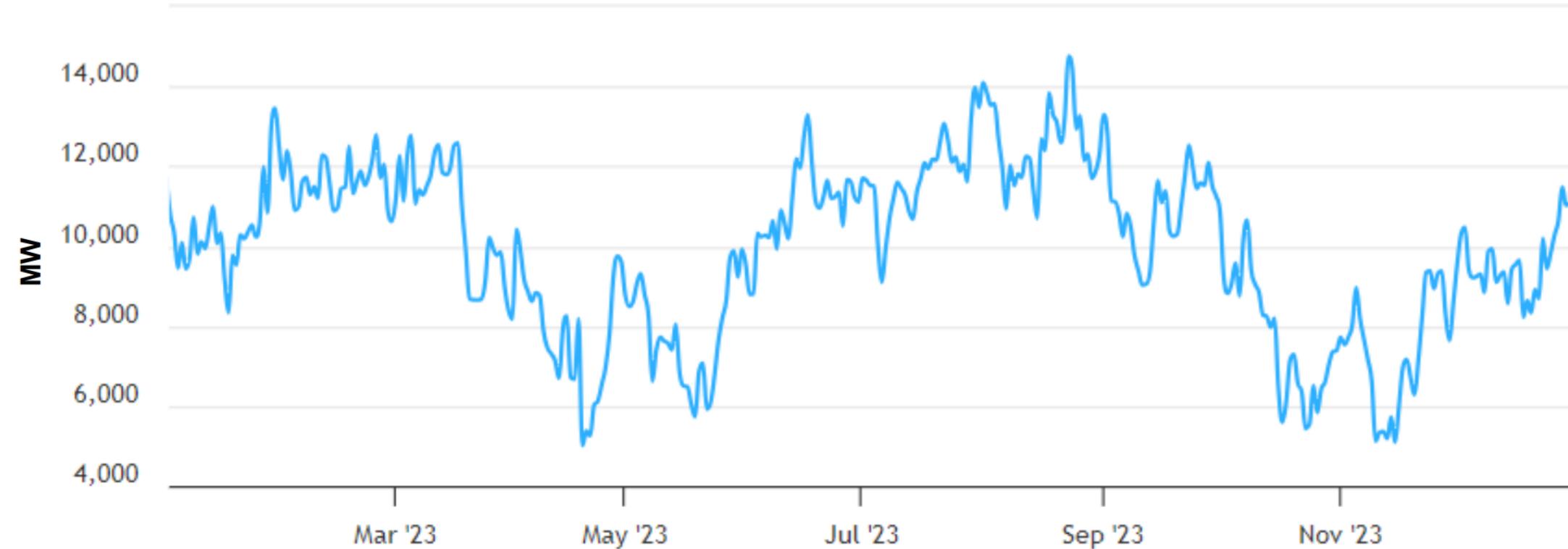


Positive values represent exports and negative values represent imports.



# Pennsylvania – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)

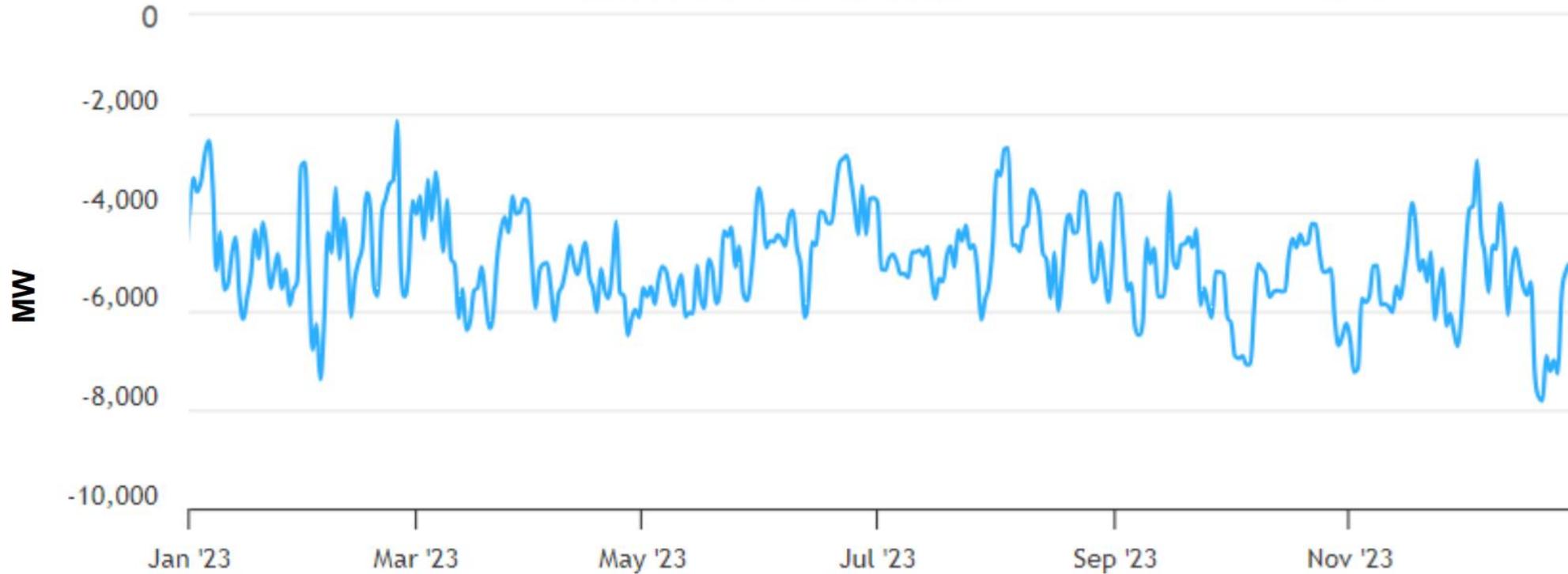


Positive values represent exports and negative values represent imports.



# Virginia – Net Energy Import/Export Trend

(Jan. 2023 – Dec. 2023)



This chart reflects the portion of Virginia that PJM operates. Positive values represent exports and negative values represent imports.

**Note** – A significant amount of generation from units owned by Virginia jurisdictional utilities and included in regulated rates charged to Virginia customers are physically located outside of Virginia. They are categorized as imports in the chart.