

Energy Infrastructure and Data Centers



Piedmont
Environmental
Council

*Old Stone School, Hillsboro - November 30, 2023
Julie Bolthouse, Director of Land Use*

Sponsors For Tonight's Town Hall



Piedmont
Environmental
Council





Julie Bolthouse

Director of Land Use

The Piedmont Environmental Council

PEC's mission:

**Protect and restore the
lands and waters of
the Virginia Piedmont,
while building
stronger, more
sustainable
communities.**





0 25 50 Miles



OHIO

WEST VIRGINIA

MARYLAND

DELAWARE

KENTUCKY

VIRGINIA

Clinch River

Shenandoah River

Rappahannock River

Potomac River

James River

Roanoke River

Chesapeake Bay

Winchester

DC

Alexandria

Charlottesville

Richmond

Roanoke

Bristol

Danville

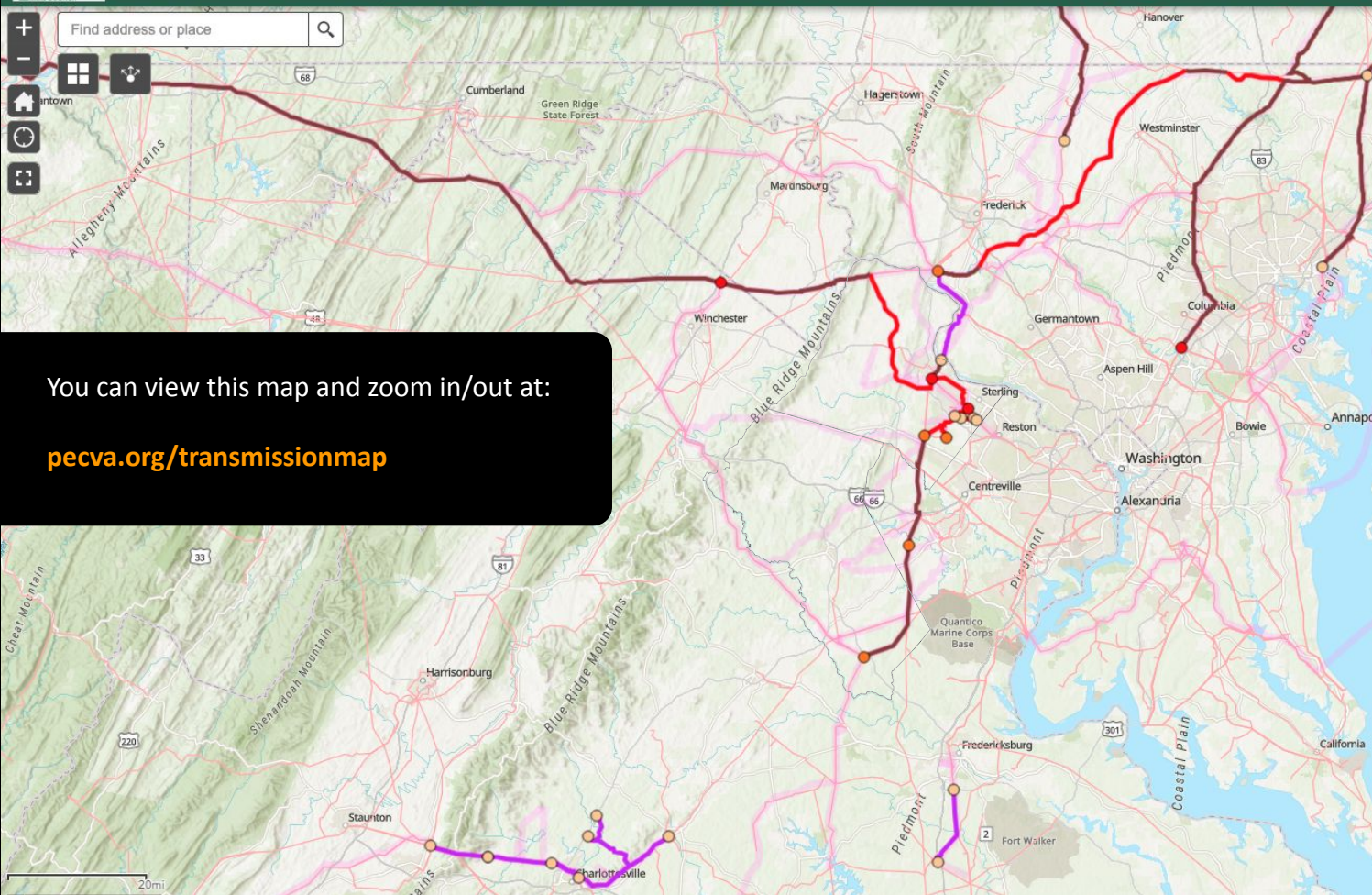
Norfolk

TENNESSEE

Today's Discussion

- Proposed Transmission Line Route and Impacts
- Explosive growth of the data center industry
- Trends and projections
- What can we individually and collectively do





You can view this map and zoom in/out at:

pecva.org/transmissionmap

Layer List

Layers

- PJM 2022 Window 3: Selected Substation Proposals (from 10/31/23)
 - New Substation 500 kV
 - Upgrade Substation 500 kV
 - Upgrade Substation 230 kV
- PJM 2022 Window 3: Selected Transmission Proposals (from 10/31/23)
 - New Transmission Line
 - Expand Existing Right of Way
 - Rebuild in Existing Right of Way
- PJM 2022 Window 3: Original Transmission Proposals from 9/5/23
- Existing Electric Transmission Lines
- Existing Substations
- USA Wetlands
- Virginia Senate Districts
- Virginia House Districts
- Protected Areas Database of the United States (PAD-US) v3.0
 - Fee
 - Designation
 - Easement
 - Other



500 kV transmission line



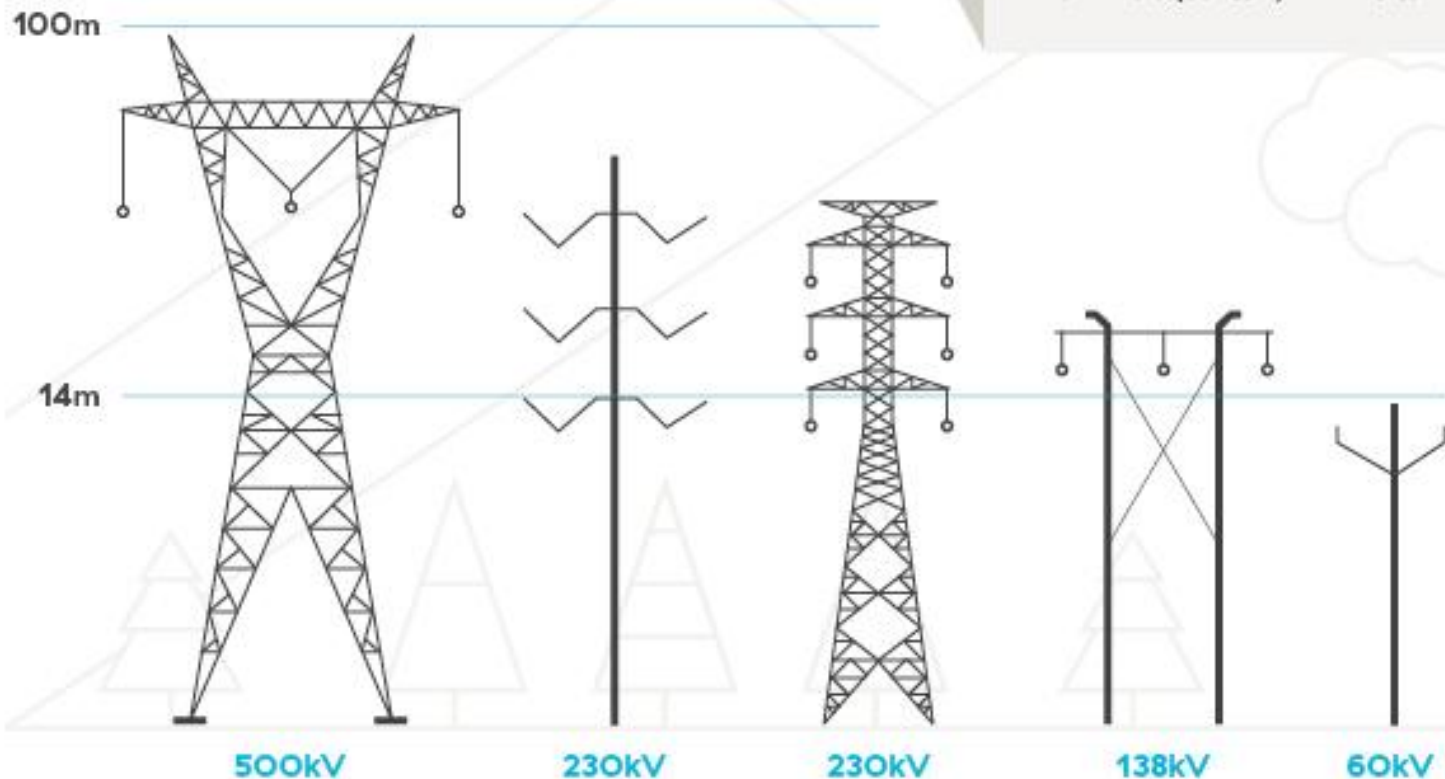
230 kV transmission line

Transmission lines

Transmission lines are the big, high voltage power lines that bring electricity from where it's made at our generating stations to substations near communities across B.C.

What's a kV?

kV stands for kilovolt, which is a unit of potential energy. One kV is equal to 1,000 volts.





2022 RTEP Window 3 - Timeline

February 1
Initial Cases/Files Posted

May 31
2022 RTEP Window 3 Closed

October 3
TEAC Short-list
presentation

Mid-December
PJM Board approval

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.

2023

February 24
2022 RTEP Window 3 Opened

October 31st + December 5th
TEAC First and Second Read
Allows for 35 days between 1st and 2nd reads
Approximately 6 days to Board meeting from 2nd read

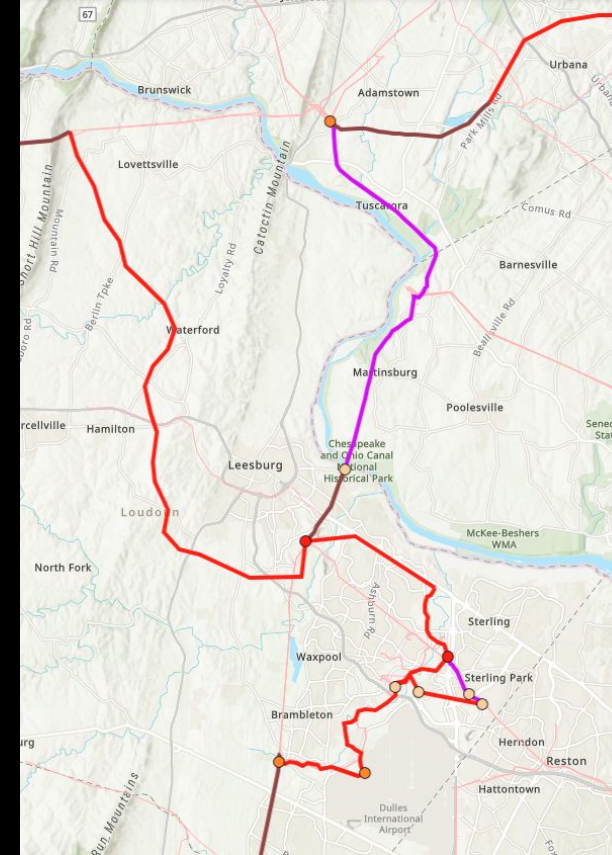
Who?

What?

Where?



- Single 500 kV overhead transmission line
- Likely 115-165 foot wide right of way
- Likely 100-200 feet in height



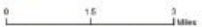
Transmission Line Proposals to Serve Data Center Load Growth



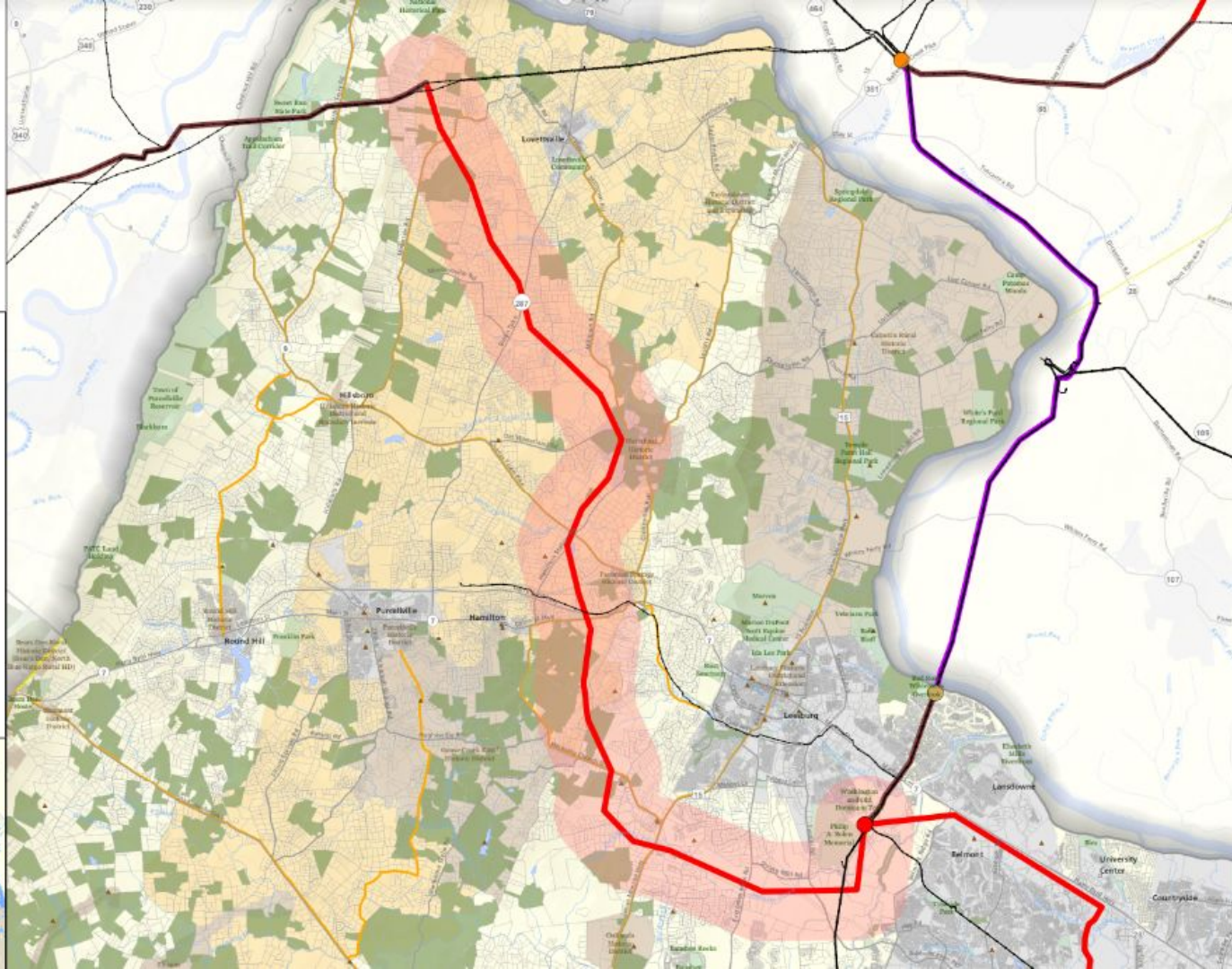
- Property Lines
- Publicly Owned
- Conservation
- Historic Districts
- Middleburg Viticultural Area
- Electric Transmission Lines
- Virginia Scenic Roads
- 1 mile buffer Proposed

PJM 2022 Window 3: Preferred Transmission and Substation Proposals

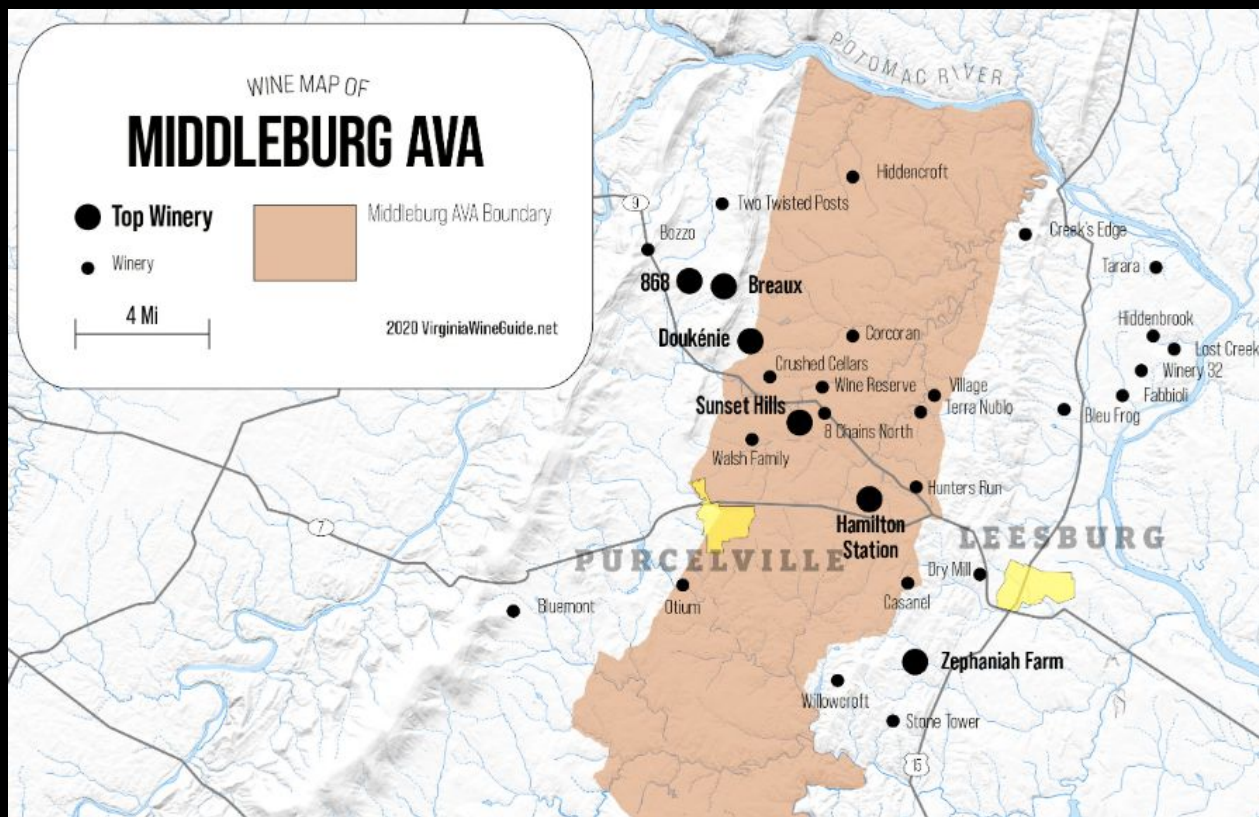
- New Transmission Line (Route to)
- Expand Existing Right of Way
- Rebuild in Existing Right of Way
- New Substation 500 kV
- Upgrade Substation 500 kV
- Upgrade Substation 230 kV



Are of Detail



The local economy in this area is primarily based on agriculture and tourism

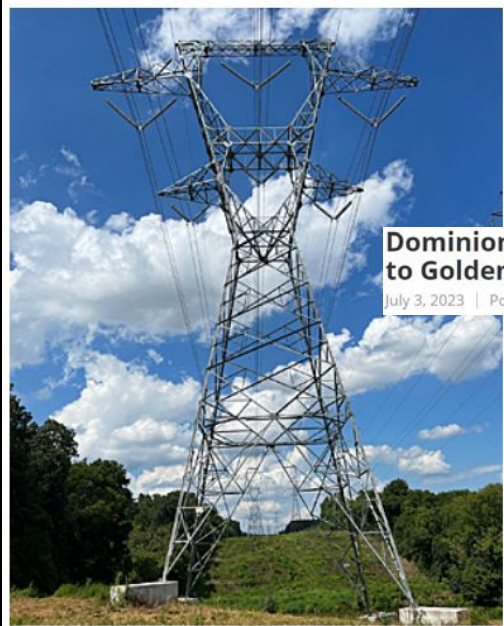


Another Beautiful Bird Walk at Sweet Run State Park

July 24, 2023 | Posted by [Sheila Ferguson](#) | [Field Trips, Wildlife News](#)

Dominion Energy Project: Wishing Star to Mars

July 1, 2023 | Posted by [Sheila Ferguson](#) | [Action Alerts/Advocacy](#)



500 kV transmission lines and towers similar to those proposed

Dominion Energy Projects: Twin Creeks to Apollo and Aspen to Golden

July 3, 2023 | Posted by [Sheila Ferguson](#) | [Action Alerts/Advocacy, Highlights](#)

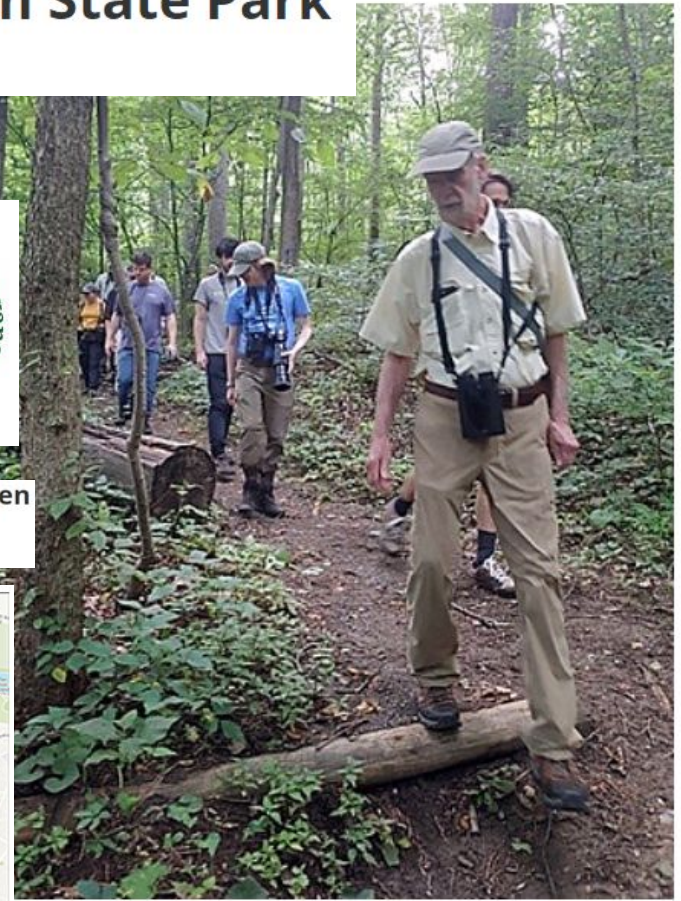
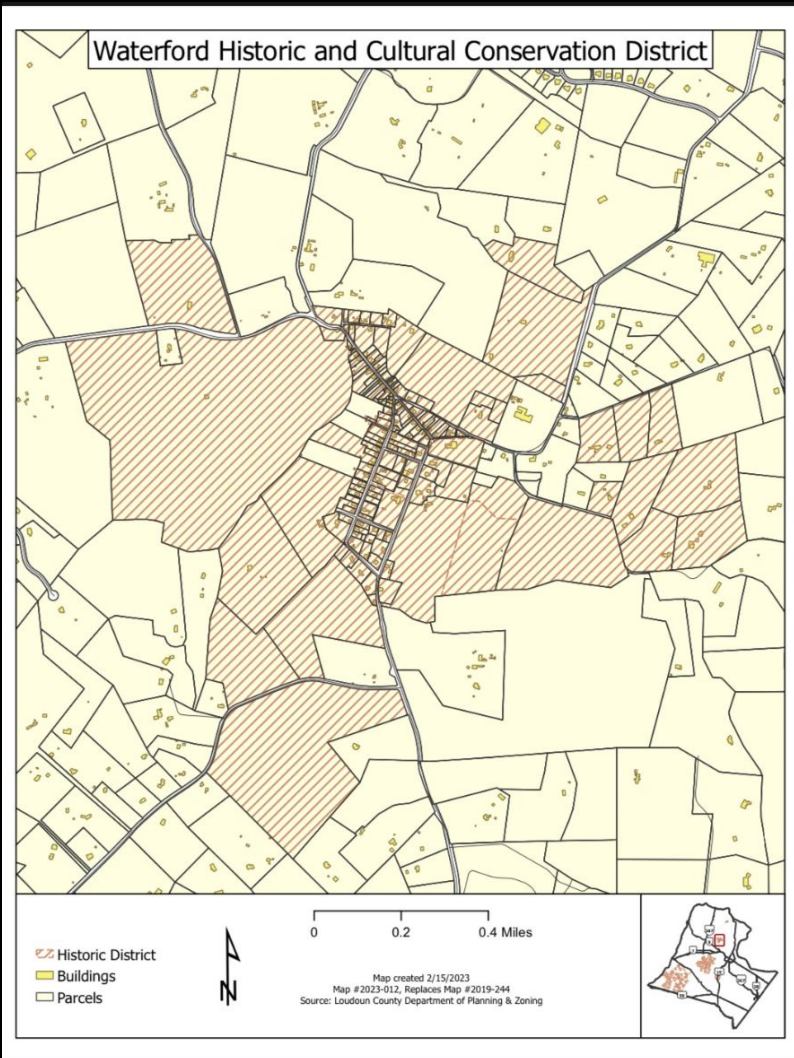
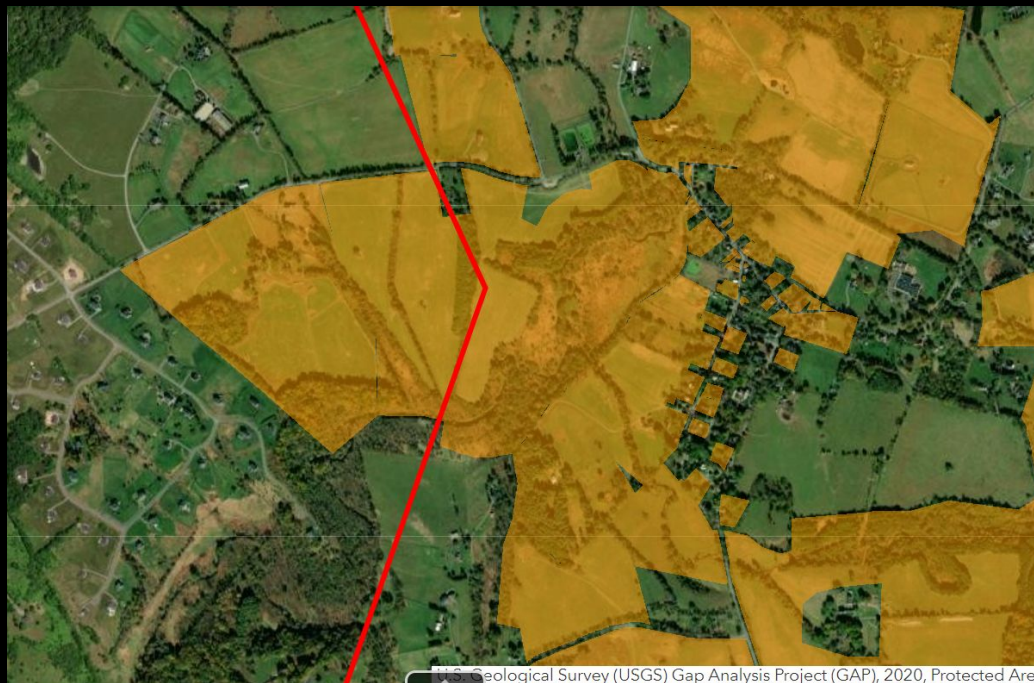
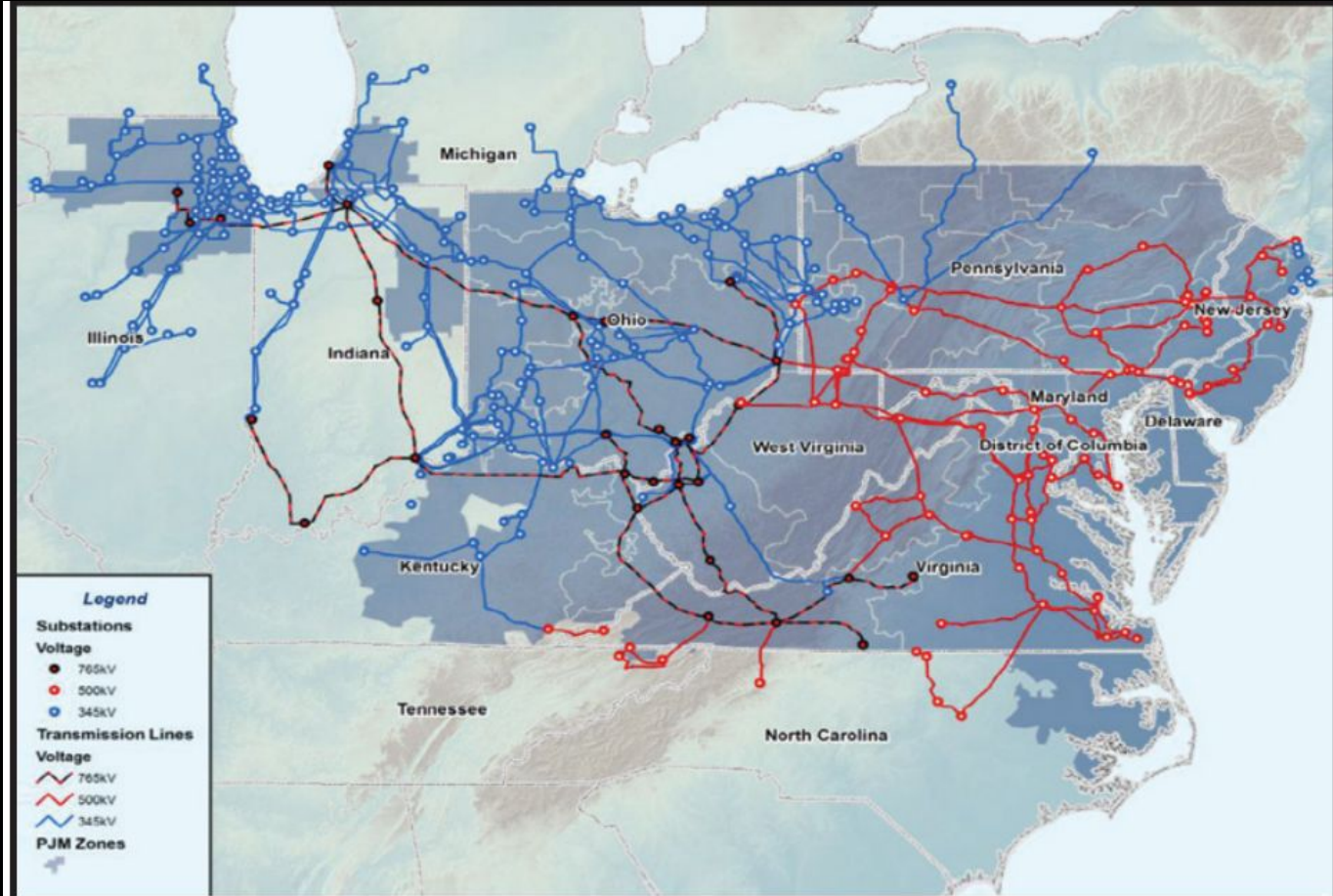
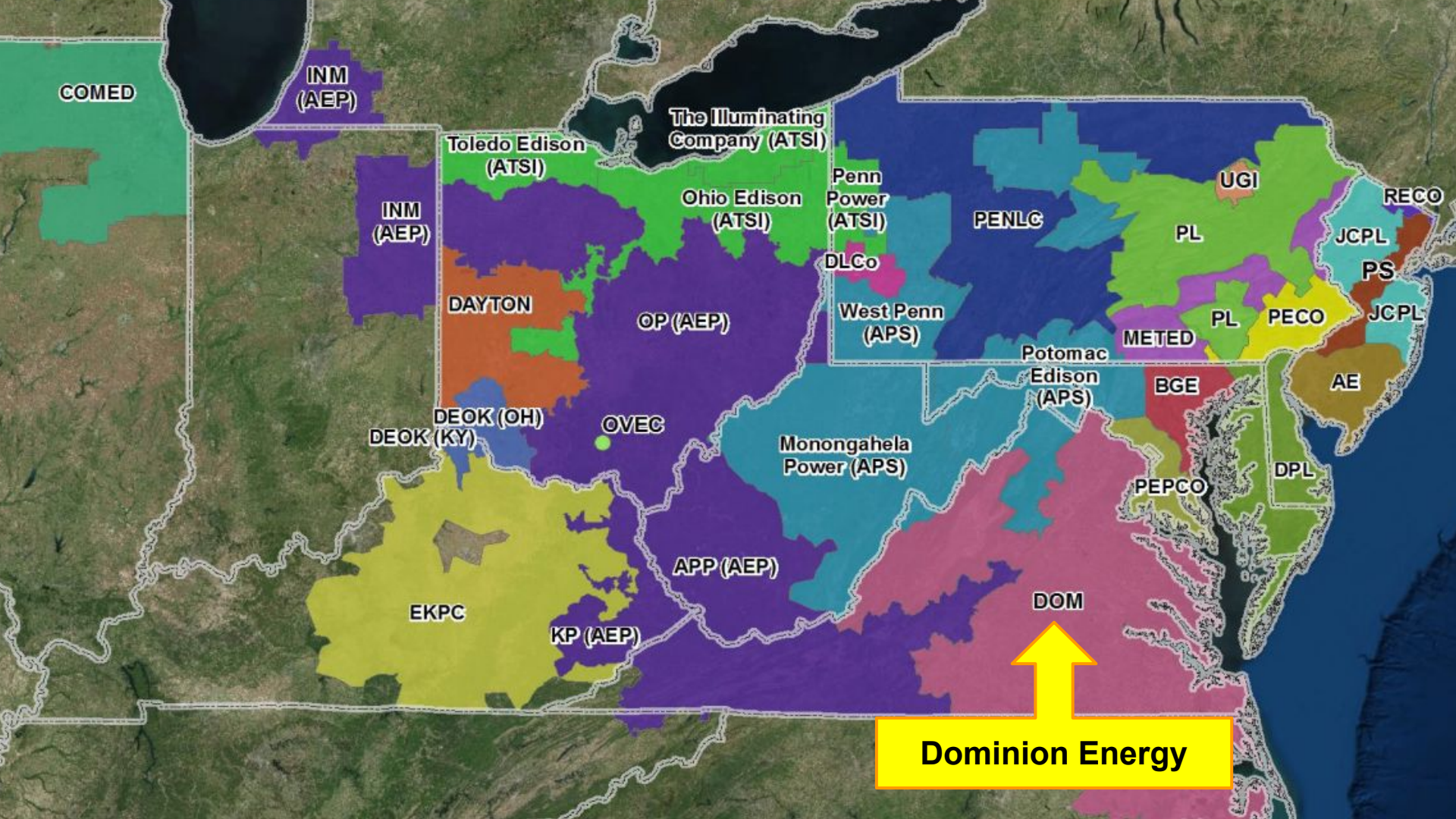


Photo by Scott Harris



Regional Transmission Operator - PJM





PJM's rationale:

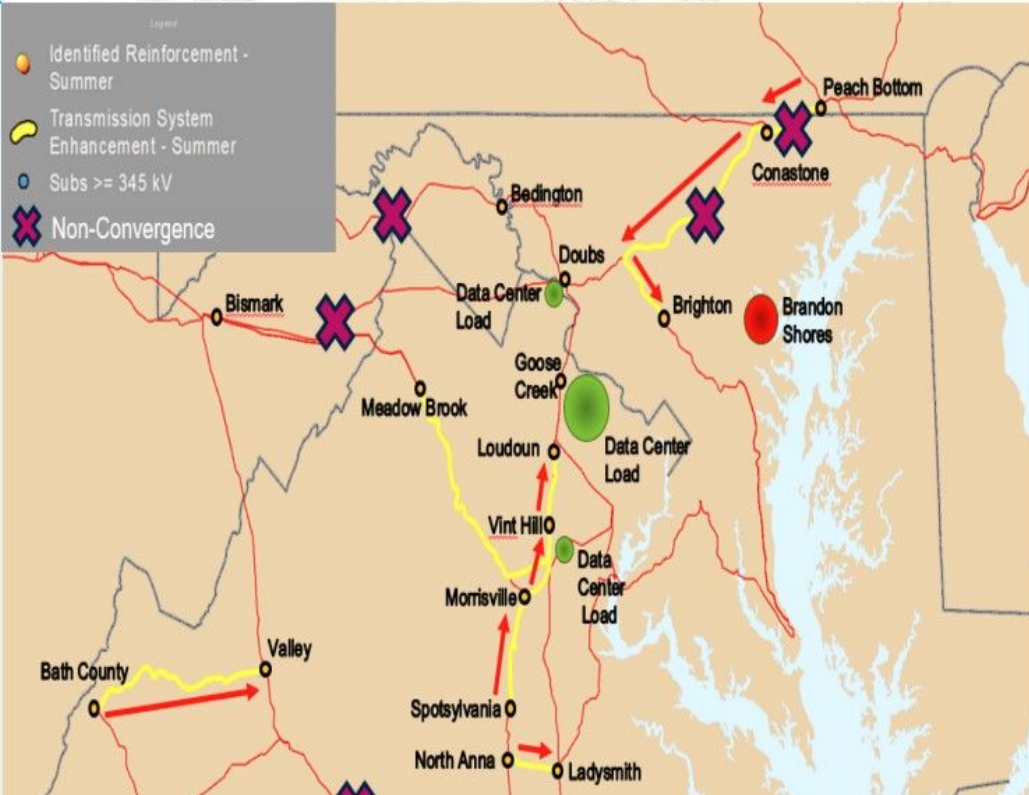


2022W3 RTEP- Summary of Drivers/Needs

- PJM has had unprecedented data center load growth (up to ~7,500 MW) currently forecasted by 2027- 28 in Dominion (Northern Virginia) and APS (Doubs)
- 11,100 MW of announced deactivations to the west and south of Chesapeake Bay
 - Approximately 10,000 MW occurring after the 2022

PJM has had unprecedented data center load growth (up to ~7,500 MW) currently forecasted by 2027-28 in Dominion (Northern Virginia) and APS (Doubs)

- PJM has implemented a new block dispatch procedure
 - The old dispatch procedure maintained historical intraregional transfers, dispatching most of the generators in the Dominion zone at 100%



The route through western Loudoun was selected even though...

According to PJM, Proposal 853 has **medium-high constructability risks** due to anticipated lengthy regulatory process, potential public opposition, construction difficulty, environmental constraints and property acquisition, which may have significant impacts on the cost and schedule for the proposed project.



West Cluster Constructability Matrix

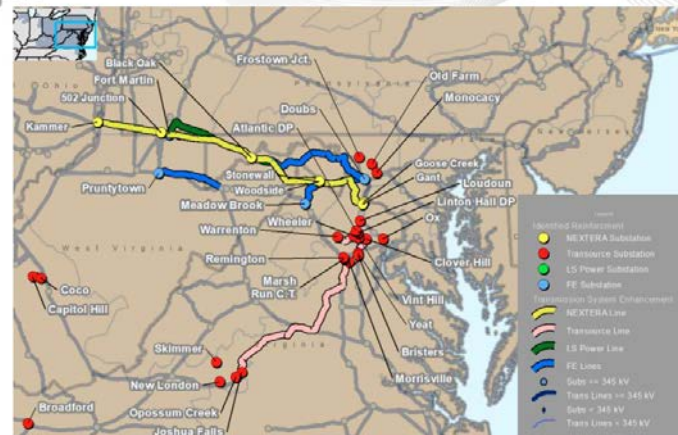
West Cluster Projects – Selected for Detailed Evaluation

PJM Proposal ID	Proposing Entity	Project Title	Proposed In-Service Date	Proposal Costs (\$M)	Independent Costs (\$M)	Cost Estimate Risks	Cost Containment Risks	Schedule Risks	Constructability Risks	Use of Existing ROW & Brownfield	Outage Coordination Risks
837	POTOED - FirstEnergy	Data Center Reinforcement Proposal #1 (West)	6/1/2030	\$ 2,788.40	\$ 2,642.05	Low	High	Medium	Medium-High	High	Low
548	LS Power	RTEP Window 3 Solution (West)	6/1/2030	\$ 972.71	\$ 876.03	Low	Medium	Medium	Medium-High	Medium-High	Medium
853	NextEra	502 Junction - Black Oak - Woodside - Gant, Woodside SVC + Cap Banks	6/1/2027	\$ 683.55	\$ 1,195.24	High	Medium	Medium-High	Medium-High	High	Medium
904	AEP - Transource	Joshua Falls - Yeat 765kV Greenfield Line and Substation	12/1/2029	\$ 1,048.10	\$ 1,122.40	Low	Medium	Medium-High	Medium	High	Low

Side note - the SCC did not eliminate 904 they stated, “765 kV solution could be pursued as part of the longer term solutions in the area depending on how load and generation materialize.”



2022 Window 3 proposals – West Projects



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.

Explanation in Report

According to PJM, the model analysis identified a bottleneck through the Doubs-Goose Creek corridor and the need for a **solution from the West into the Dominion Data Center vicinity**, as such the NextEra proposal ID 853 option yielded higher Capacity Emergency Transfer Limit (CETL) through a **3rd 500 kV supply line to the load center.**

There's **something big** going on.

We don't have all the answers, but we know what's happening is important and we know it matters immensely to the **future of Virginia**.

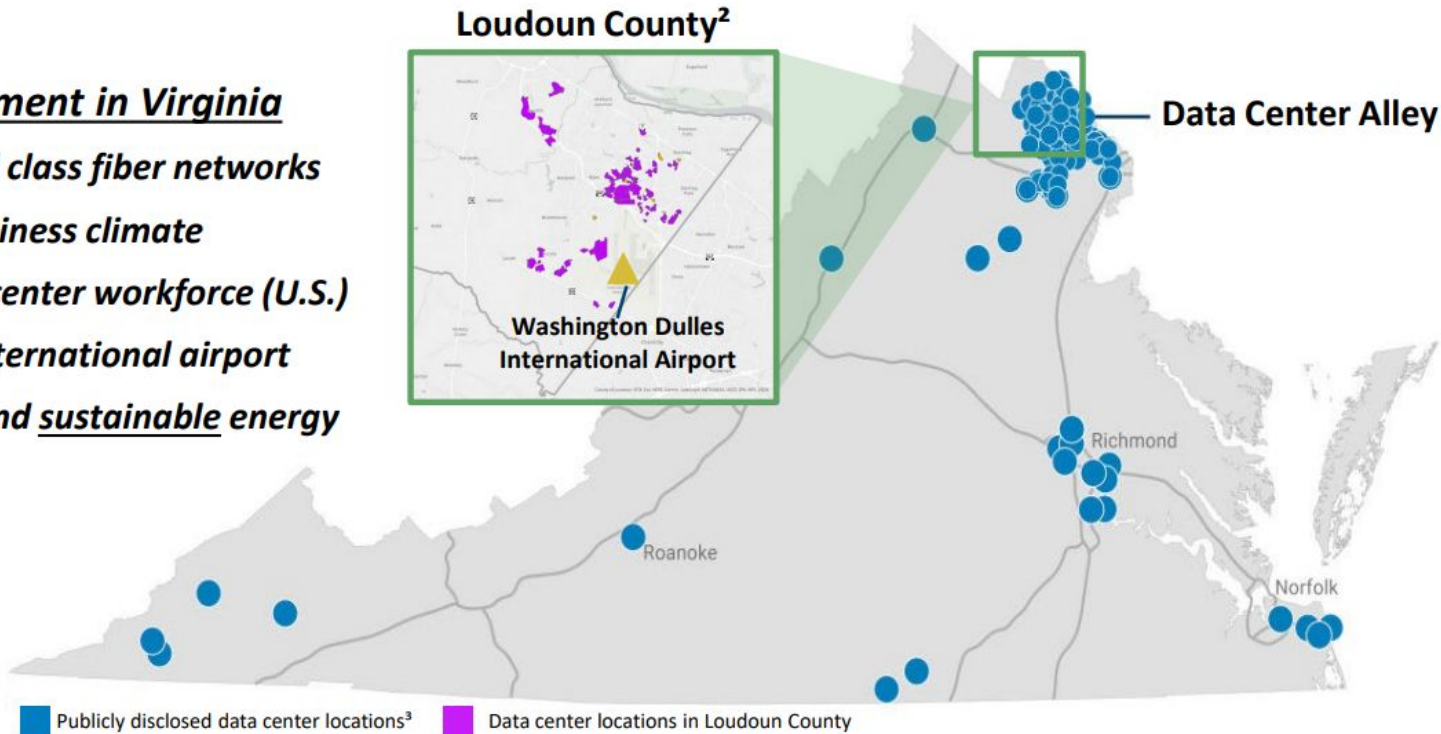
We need to be creative and work together.

Dominion Energy Virginia

Northern Virginia boasts the largest data center market in the world¹

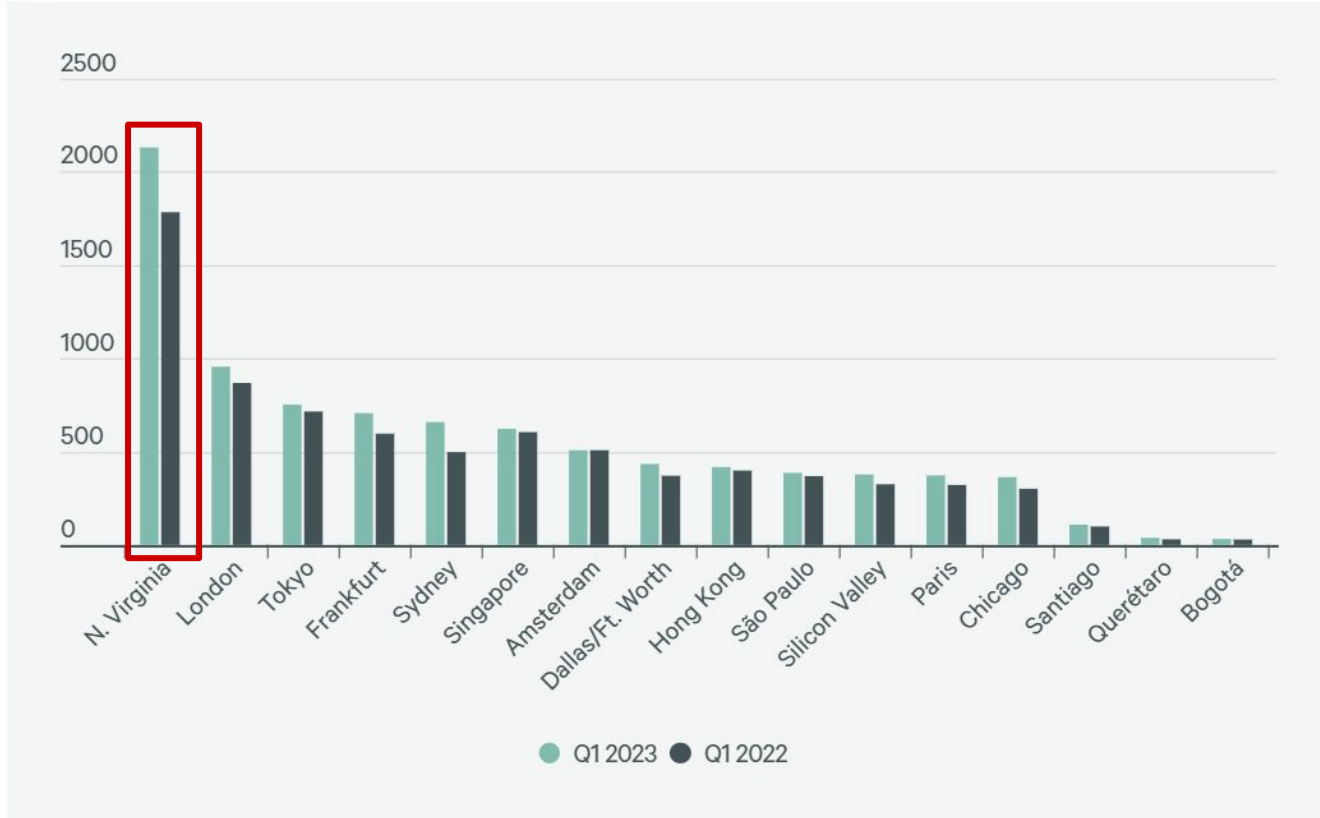
Data center development in Virginia

- ✓ **Connectivity to world class fiber networks**
 - ✓ **Attractive business climate**
- ✓ **Access to largest data center workforce (U.S.)**
- ✓ **Access to nearby international airport**
- ✓ **Access to affordable and sustainable energy**



Committed to deliver safe, reliable, affordable and sustainable energy to our customers

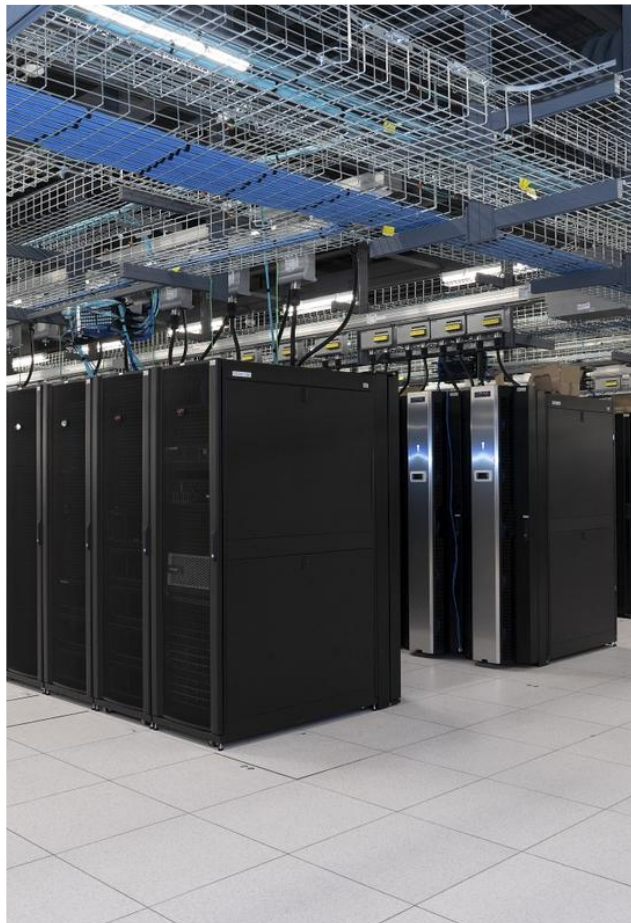
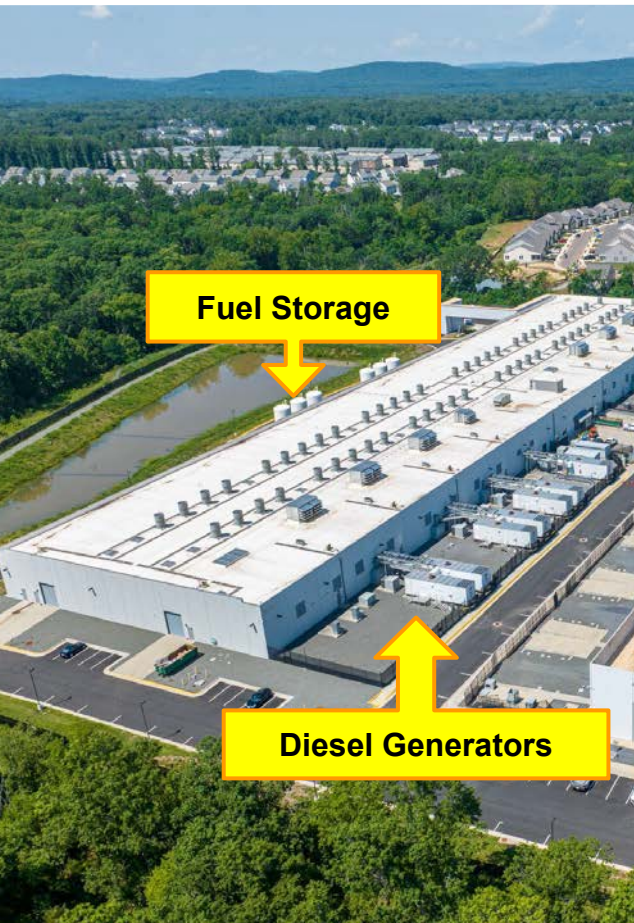
Data Center Inventory (MW)



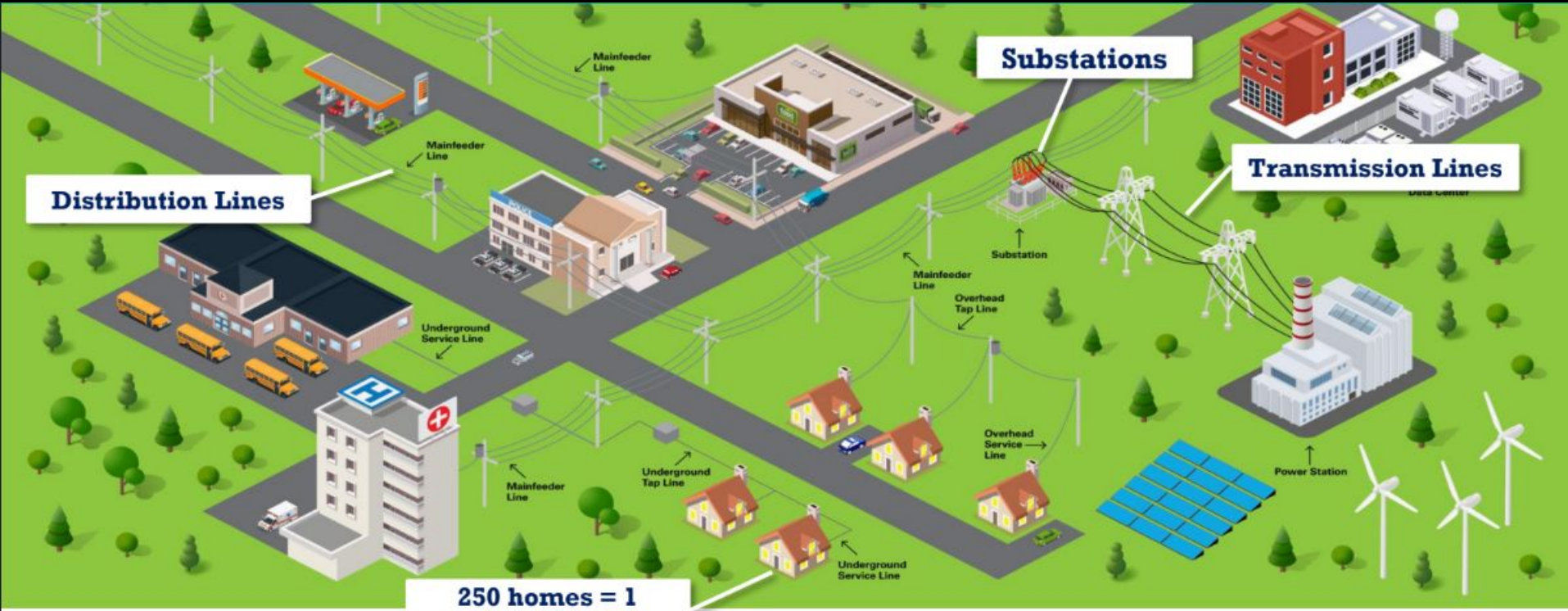
Source: CBRE Research, Q1 2022 & Q1 2023. Figures and data for North American markets include only wholesale colocation facilities. In Europe, Latin America, and Asia-Pacific, total inventory includes both wholesale and retail colocation facilities.



The digital age relies on **data centers**



The digital age relies on a **reliable power grid**



May 22, 2023

*1000 MW = 1 gigawatt



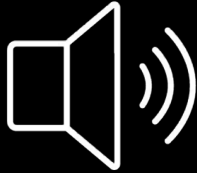
Data centers consume a **huge amount of electricity**



Their backup power is **diesel generators**



They create a host of **community-level impacts**



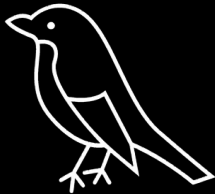
Noise



Water



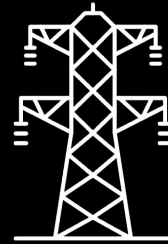
Air Quality



Wildlife Habitat



Design



Transmission

And the proposals are getting much bigger

- Older data centers used 10-15 MW per building, and multi-building campuses were rare.
- Now we are seeing 30-90 MW data centers with multi building campuses.
- A large campus could use 600-1000 MW or more.



Prince William Digital Gateway

3 gigawatts (GW) of energy, equivalent to the power used by 750,000 homes

37 buildings and 15 substations

No allocated right of way for transmission lines connecting the new substations.

Planning Commission Recommended **DENIAL**

Board of Supervisors vote December 12!



Approved But Unbuilt + Applications Filed (Virginia)

County	Status	Development square feet	Estimated Power Range
Loudoun	Approved	12,286,529	1,843MW – 5,529MW
	Applications	10,938,449	1,641MW – 4,922MW
Prince William	Approved	10,719,984	1,608MW – 4,824MW
	Applications	42,510,328	6,377MW – 19,130MW
Fauquier	Approved	2,901,000	435MW – 1,305MW
Culpeper	Approved	4,630,000	695MW – 2,083MW
	Applications	1,990,000	299MW - 896MW
Stafford	Applications	6,010,000	902MW – 2,705MW
Spotsylvania/Caroline	Applications	6,600,000	990MW – 2,970MW
King George	Applications	7,500,000	1,125MW – 3,375MW

Approved But Unbuilt + Applications Filed (Virginia)

Data Centers:

Total Approved But Unbuilt

- 30+ million sq ft
- 4,000 MW – 14,000 MW

Data Centers:

Total Including Applications

- 106+ million sq ft
- 16,000 MW – 48,000 MW

These are **HUGE numbers**.

If 1 MW can power 250 homes...

48,000 MW would power
12 million homes!

SCIENCE & TECHNOLOGY

The hidden costs of AI: Impending energy and resource strain

Deep Jariwala and Benjamin C. Lee on the energy and resource problems AI computing could bring.



In recent years, artificial intelligence (AI) models like ChatGPT have seen notable improvements, with some people concerned about the societal impacts these new technologies may bring including looming concerns related to increasing energy and raw materials demands. (Image: iStock/Alexey Tolmachov)

REPORT OF THE VIRGINIA SECRETARY OF
NATURAL AND HISTORIC RESOURCES AND
VIRGINIA SECRETARY OF COMMERCE AND
TRADE

**Modeling Decarbonization:
Report Summary and Policy
Brief for Virginia Governor's
Office Administration and
Policymakers (Chapter 1194,
2020)**

TO THE GENERAL ASSEMBLY OF VIRGINIA



SENATE DOCUMENT NO. 17

COMMONWEALTH OF VIRGINIA
RICHMOND
2021

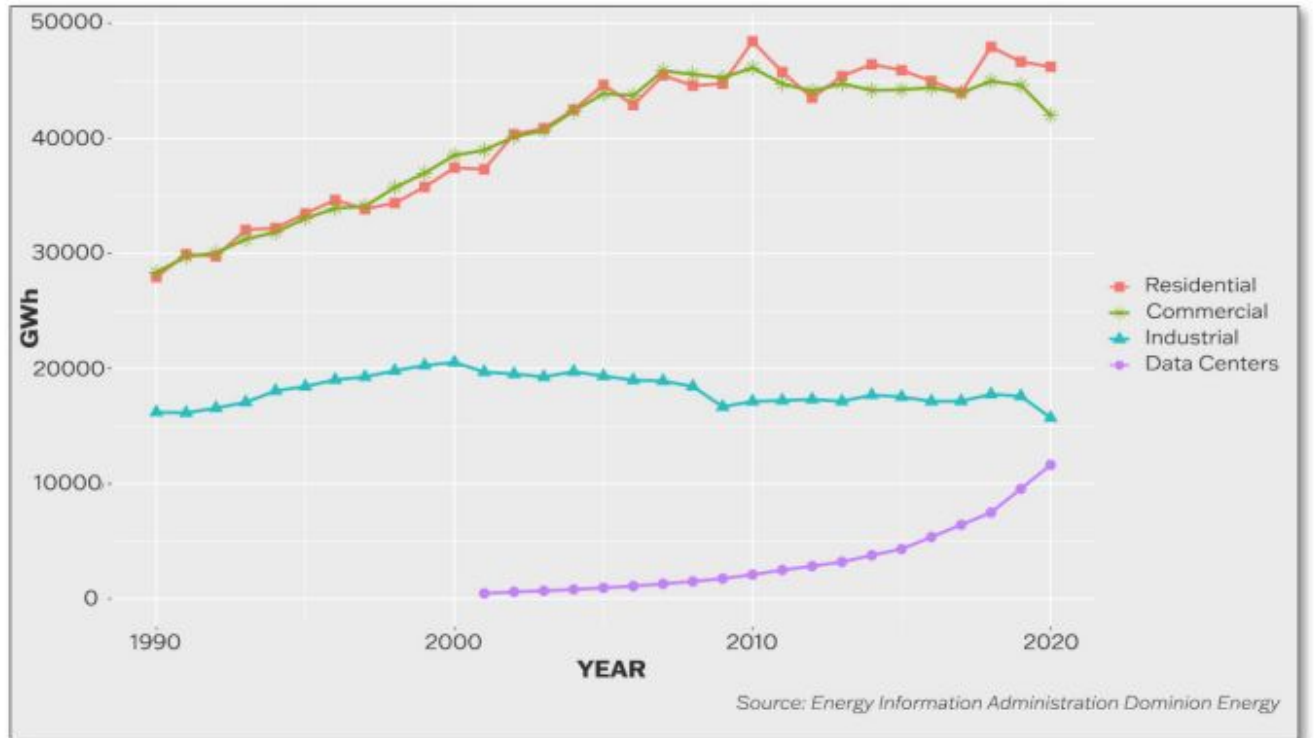


Figure 2: Annual Virginia Electricity Sales by End Use

Consumption

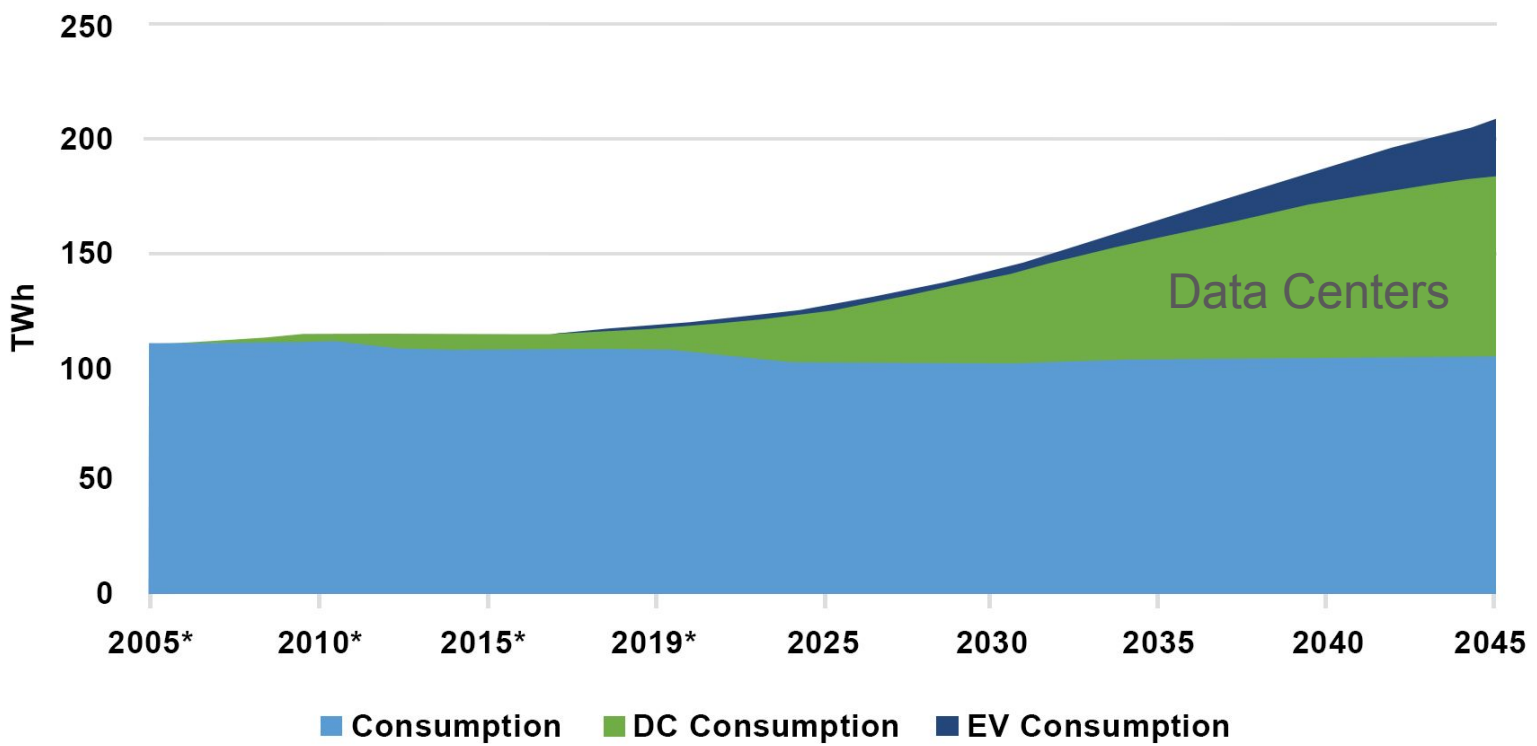
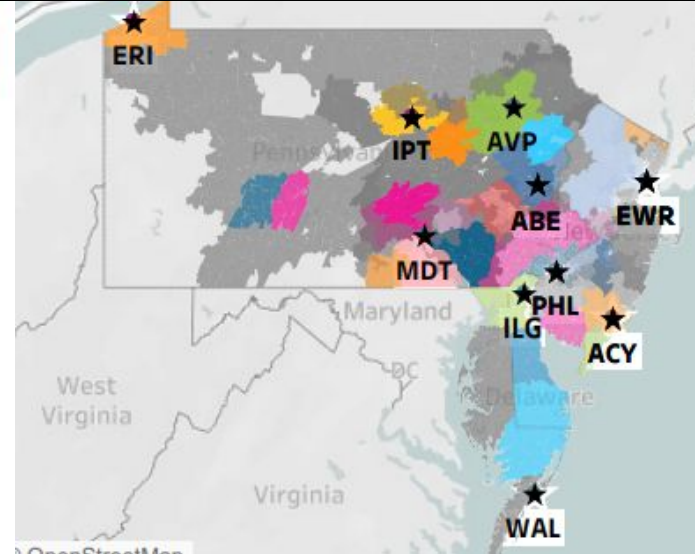
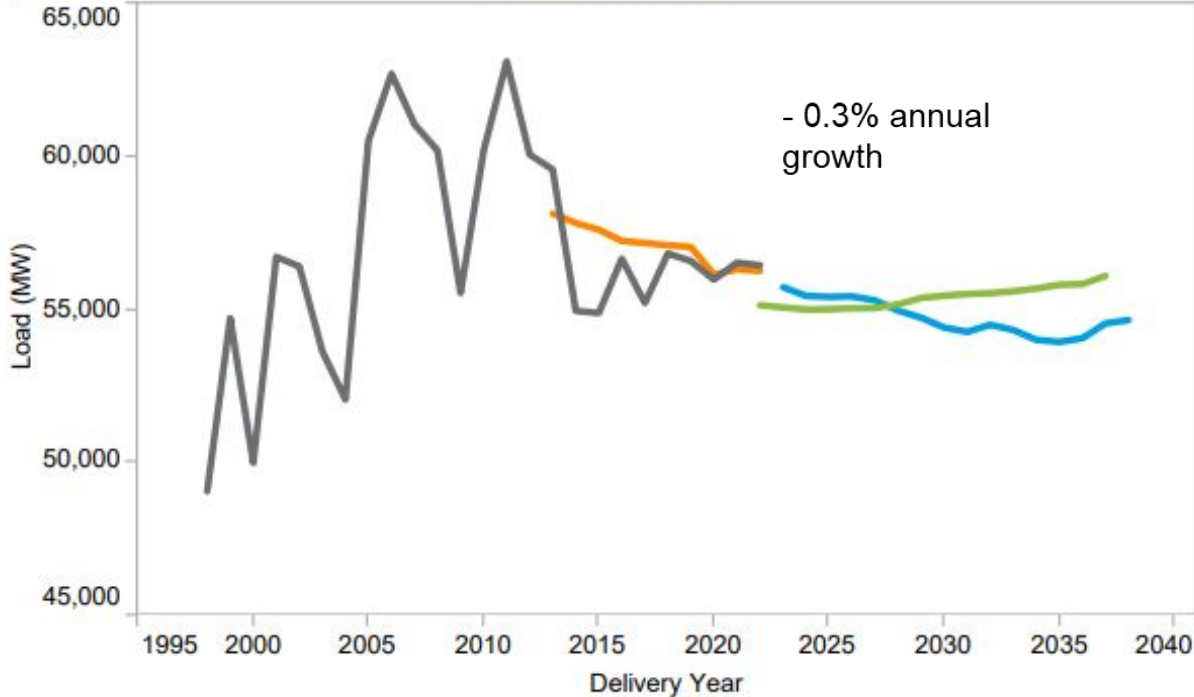


Figure 6: Electricity Sales - Baseline and High Demand Scenarios

What's happening in Virginia
is **unprecedented.**

PJM Mid Atlantic Territory

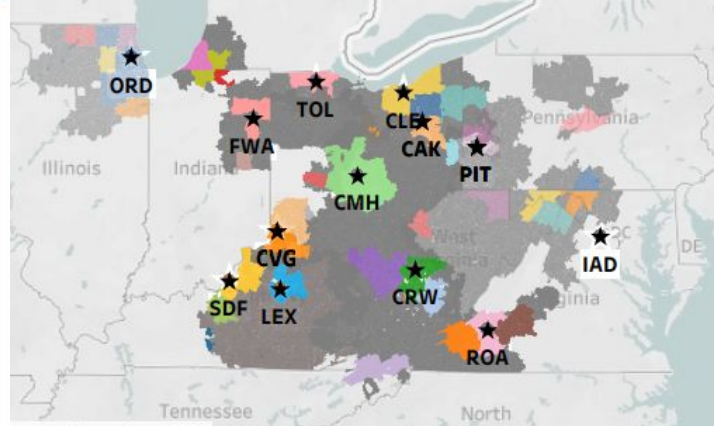
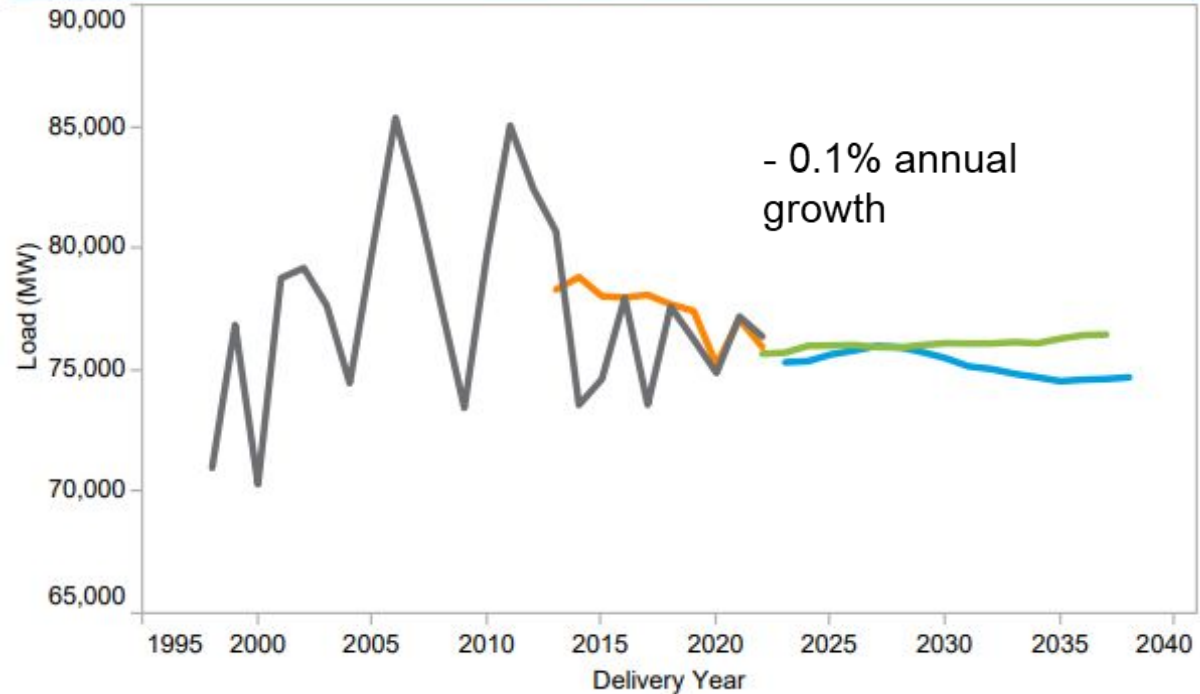
Summer Peak



Green = 2022 projection
Blue = 2023 projection

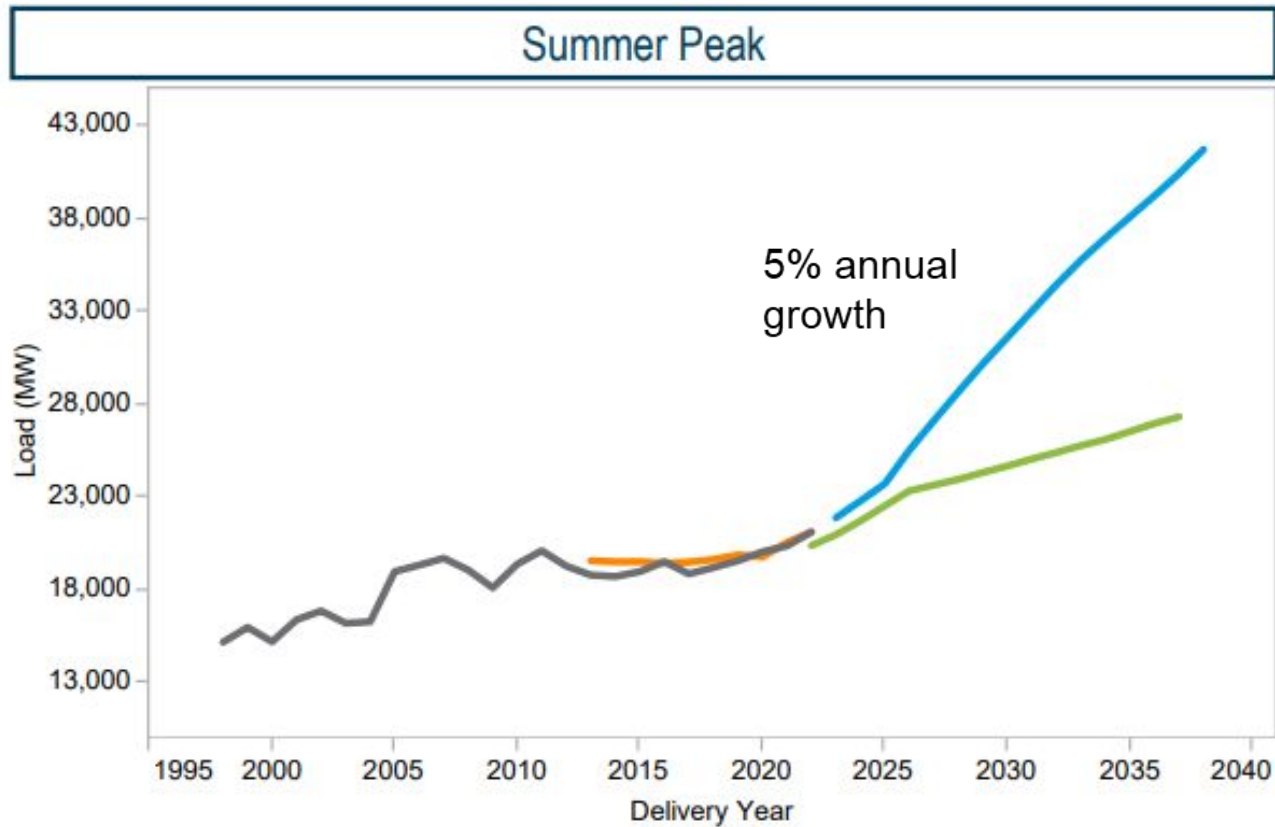
PJM Western Territory

Summer Peak



Green = 2022 projection
Blue = 2023 projection

Dominion Territory Explosive Growth Trends



Green = 2022 projection
Blue = 2023 projection

That's a **doubling of Virginia's peak load**
within 14 years!

What's Dominion's Plan?



ENERGY + ENVIRONMENT

Dominion projects new gas plants, advanced nuclear will be needed to meet soaring demand

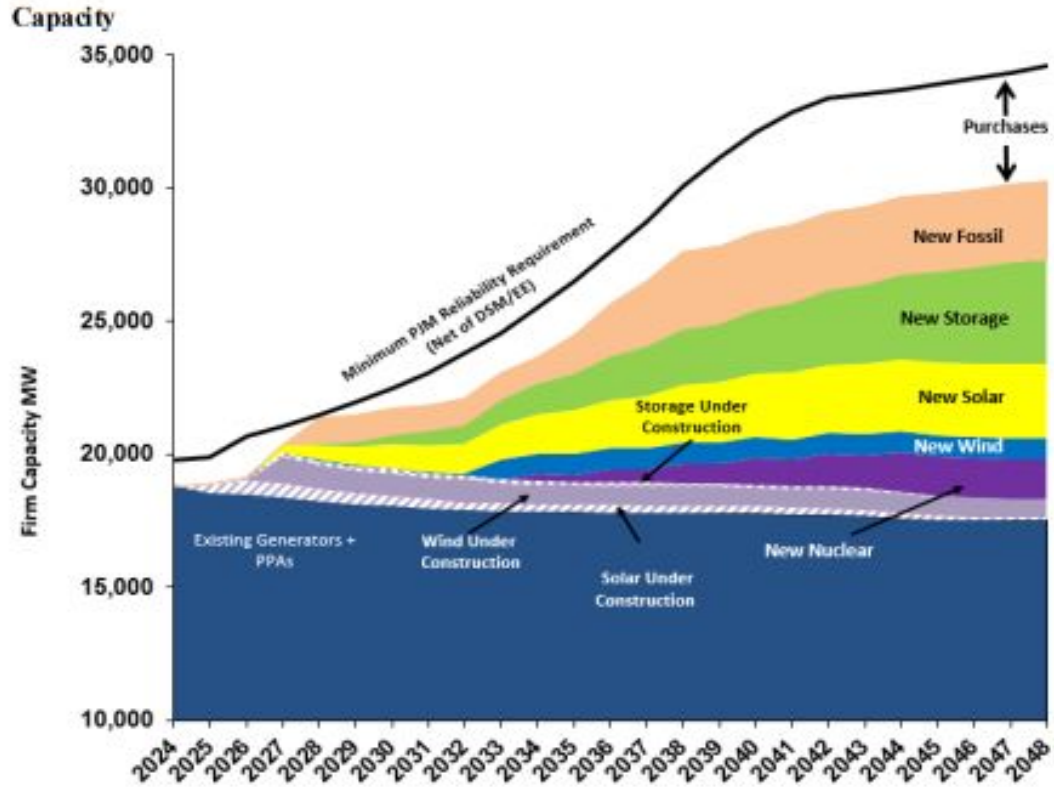
Latest long-range plan shows data centers and electrification are driving rising power needs

BY: CHARLIE PAULLIN - MAY 3, 2023 12:02 AM



Dominion's plans **rely** on...

Appendix 2A: Plan B - Summer Capacity, Energy, and RECs



Executive Summary Table: 2023 Plan Results

	Plan A	Plan B	Plan C	Plan D	Plan E
NPV Total (\$B)	\$109.70	\$127.70	\$127.20	\$140.90	\$138.00
Approximate CO₂ Emissions from Company in 2048 (Metric Tons)	43.8 M	35.9 M	36 M	0 M	0 M
Solar (MW)	10,800 15 yr. 19,800 25 yr.	10,875 15 yr. 19,875 25 yr.	10,800 15 yr. 19,800 25 yr.	10,875 15 yr. 23,955 25 yr.	11,094 15 yr. 24,294 25 yr.
Wind (MW)	3,040 15 yr. 3,220 25 yr.	3,040 15 yr. 3,220 25 yr.	3,040 15 yr. 3,220 25 yr.	3,040 15 yr. 3,220 25 yr.	3,040 15 yr. 3,220 25 yr.
Storage (MW)	1,050 15 yr. 3,960 25 yr.	2,370 15 yr. 5,190 25 yr.	2,220 15 yr. 5,220 25 yr.	2,370 15 yr. 9,780 25 yr.	2,910 15 yr. 10,350 25 yr.
Nuclear (MW)	— 15 yr. — 25 yr.	804 15 yr. 1,608 25 yr.	804 15 yr. 1,608 25 yr.	1,608 15 yr. 4,824 25 yr.	1,072 15 yr. 4,288 25 yr.
Natural Gas-Fired (MW)	5,905 15 yr. 9,300 25 yr.	2,910 15 yr. 2,910 25 yr.	2,910 15 yr. 2,910 25 yr.	970 15 yr. 970 25 yr.	970 15 yr. 970 25 yr.
Retirements (MW)	— 15 yr. — 25 yr.	— 15 yr. — 25 yr.	— 15 yr. — 25 yr.	— 15 yr. 11,399 25 yr.	— 15 yr. 11,399 25 yr.

This cost will be passed on to ratepayers



“For Alternative Plan B... the Company projects the monthly bill of a Virginia residential customer using 1,000 kilowatt hours (“kWh”) per month to be \$243.20 by 2035, an increase of \$127.02 over the May 1, 2020 level...”

- Dominion legal notice Oct. 25, 2023

LEGAL NOTICES

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NOTICE TO THE PUBLIC OF RENEWABLE PORTFOLIO STANDARD (RPS) FILING BY VIRGINIA ELECTRIC AND POWER COMPANY D/B/A DOMINION ENERGY VIRGINIA CASE NO. PUR-2023-00142

- Virginia Electric and Power Company d/b/a Dominion Energy Virginia ("Dominion") has submitted its 2023 Renewable Portfolio Standard ("RPS") filing ("2023 RPS Filing") to the 2023 RPS Board and its 2023 Renewable Portfolio Standard ("RPS") filing ("2023 RPS Filing") to the 2023 RPS Board and its 2023 Renewable Portfolio Standard ("RPS") filing ("2023 RPS Filing") to the 2023 RPS Board.
- Dominion requests approval of revised Rider B with a resource requirement of \$1,000,000,000 over the rate year beginning on 1/1/2024 and concluding April 30, 2024. According to Dominion's latest cost-avoidance study, Dominion's typical residential customer bill will increase by \$127.02 per month by 2035.
- A Hearing Examiner appointed by the Commission will hold a telephone hearing in this case on November 30, 2023, at 9:00 a.m. for the purpose of public notice only.
- An evidentiary hearing will be held on January 18, 2024, at 9:00 a.m., or at the direction of the public upon notice of the hearing, whichever is later, at the Commission's central office, 1000 Bankers Building, 1000 Bankers Building, Richmond, Virginia 23218, to receive the testimony and evidence of Dominion, any respondents, and Commission staff.
- Further information about this case is available on the SOC website at: www.soc.state.virginia.gov/Cases/Default.htm

During its 2023 Session, the Virginia General Assembly enacted Chapters 900 (HB 1526) and 914 (SB 85) of the 2023 Virginia Acts of Assembly. These legislative Acts of Assembly, known as the Virginia Clean Economy Act ("VCEA"), became effective on July 1, 2023. The VCEA, after its enactment, establishes a mandatory renewable energy portfolio standard ("RPS") program ("RPS Program") for Virginia Electric and Power Company ("Dominion") or "Company" in § 56-585.5 of the Code of Virginia ("Code"). Subsection (b) of Code § 56-585.5 requires Dominion to submit annually to the State Corporation Commission ("Commission") plans and petitions for approval of new solar and onshore wind generation capacity ("RPS Filing"). The Commission shall determine whether the RPS Filing is reasonable and prudent, giving due consideration to the following factors: (i) the RPS and carbon dioxide reduction requirements in Code § 56-585.5; (ii) the generation of new renewable generation and energy storage resources within the Commonwealth; and associated environmental, and (iii) investments projected to be achieved by the RPS.

- (i) Approve the Company's annual plan for the development of new solar, onshore wind, and energy storage resources ("RPS Development Plan") in connection with the mandatory RPS Program pursuant to Code § 56-585.5.
- (ii) Grant certification of public convenience and necessity ("CPCNM") and approval to construct (i) Grant certification of public convenience and necessity ("CPCNM") and approval to construct (i) to acquire and operate for utility-scale projects totaling approximately 120 megawatts ("MW") of solar pursuant to Code § 56-580.2;
- (iii) Approve to recover through the Rider CE rate adjustment clause the costs of (iv) the utility-scale solar projects, totaling approximately 334 MW, and related interconnection facilities ("CE-4 Projects"), (v) CE-1 and CE-2 projects, and (vi) one distributed solar project, totaling approximately 3 MW, and related interconnection facilities ("CE-1 and CE-2 Projects"), pursuant to Code § 56-508.1 A, B;
- (iv) Approve an update to the Rider CE for recovery of costs associated with the previously approved CE-1, CE-2, and CE-3 projects, the CE-2 and CE-3 distributed solar projects, and related interconnection facilities;
- (v) Make a prudence determination for the Company to enter into 13 power purchase agreements ("PPAs") for solar resources, totaling approximately 425 MW, (collectively, "CE-4 PPAs") pursuant to Code § 56-585.1 A;
- (vi) Approve recovery through Rider CE of the costs of the CE-4 PPAs pursuant to Code § 56-508.1 A, 5, and
- (vii) Approve the Company's request to consolidate Rider CE and Rider PPA pursuant to Code § 56-585.1 A, 7, resulting in: (i) the recovery of costs associated with the CE-1, CE-2, and CE-3 PPAs through Rider CE; and (ii) the recovery of Rider PPA as of April 30, 2024.

RPS Development Plan
Dominion states that its RPS Development Plan reports on the Company's progress toward meeting the solar, onshore wind, and energy storage development targets outlined in the VCEA and presents the Company's development plan for solar, onshore wind, and energy storage facilities through 2025. The Company's RPS Development Plan calls for additional investment in solar, onshore wind, and energy storage through 2025.

The Company also provides a consolidated bill analysis calculating the projected monthly bill through 2025 for residential, small general service, and large general service customers for each alternative plan presented in the Company's 2023 Integrated Resource Plan for Alternative Plan B. For example, the Company projects the monthly bill of a Virginia residential customer using 1,000 kilowatt hours ("kWh") per month to be \$243.20 by 2035, an increase of \$127.02 over the May 1, 2020 level of \$116.18. The monthly bill projection is based on the assumptions in Case No. PUR-2023-00134. The Company's bill projections are not final and all customer rates are subject to regulatory approval.

Further, the Company also presents its 2022 RPS Program Compliance Report in the Petition, certifying compliance with the RPS Program for compliance year 2022.

CE-4 Projects
Dominion seeks CPCNM and approval to construct or acquire and operate four utility scale projects totaling approximately 320 MW of solar. In addition to these four projects, Dominion intends to acquire and operate one additional CE-4 Project, a one MW solar facility ("Proposed") however, the Company asserts that, consistent with the Commission's prior determination that projects of the MW or less do not require a CPCNM, and Rule 19 of the Commission's Filing Requirements in Support of Applications for Authority to Construct and Operate an Electric Generating Facility, Proposed does not require a CPCNM.

The name, site, locality, interconnection and projected commercial operation date ("COO") for each of the CE-4 Projects is provided below:

Project	Size (MW)	Locality	Interconnection	COO
Station	37	Frederick County	Transmission	2028
East Ridge	95	Frederick County	Transmission	2028
Bookers Hill	127	Richmond County	Transmission	2024
Melrose	58	Frederick County	Transmission	2026
Proposed	5	Frederick County	Distribution	2024

The Company asserts that the CE-4 Projects are needed to comply with the VCEA and to serve customers' capacity and energy needs. According to the Company, the total estimated costs for the CE-4 Projects are approximately \$52.8 million, excluding financing costs, or approximately \$2.92 per kilowatt ("kW") at the total 334 MW (nominal AC) output.

Rider CE
In this proceeding, Dominion makes four requests related to Rider CE. First, the Company seeks to revise Rider CE to the recovery of costs associated with the CE-1, CE-2, and CE-3 projects, and CE-4 distributed solar projects, and related interconnection facilities, which have previously been approved by the Commission.

Second, Dominion requests recovery through Rider CE of the costs of the CE-4 Projects and CE-4 distributed solar projects, as well as the related interconnection facilities. The CE-4 Projects are discussed in more detail below. The CE-4 Distributed Solar Project consists of one distributed solar project totaling approximately 3 MW and related interconnection facilities.

The Company asserts that the CE-4 Distributed Solar Project is needed to comply with the VCEA and to serve customers' capacity and energy needs. According to the Company, the total estimated costs for the CE-4 Distributed Solar Project are approximately \$10.3 million, excluding financing costs, or approximately \$3,642 per kW at the total 3 MW (nominal AC) output.

Third, the Company seeks to consolidate Rider CE and Rider PPA. Rider PPA was approved by the Commission pursuant to Code § 56-585.1 A 5 for the recovery of costs associated with the CE-1, CE-2, and CE-3 PPAs. The Company asserts that the consolidation of Rider CE and Rider PPA is in the interest of judicial economy because the Commission already considers the prudence of PPAs in the annual RPS Filing proceedings, and the consolidation would allow the Commission to consider associated cost recovery requirements. Such a consolidation would result in the recovery of costs associated with the previously approved CE-1, CE-2, and CE-3 PPAs through Rider CE. Consolidation would also result in the end of Rider PPA as of April 30, 2024.

Fourth, the Company seeks to recover the costs of the CE-4 PPAs through Rider CE. Dominion asks the Commission to approve revised Rider CE for the rate year beginning May 1, 2024, and ending April 30, 2025 ("Rate Year"). The Company is requesting a total revenue requirement of \$138,578,496 in Rider CE for the Rate Year. If the proposed total revenue requirement for the Rate Year is approved, the impact on customer bills would depend on the customer's bill schedule and usage. According to Dominion, implementation of revised Rider CE on May 1, 2024, would increase the monthly bill of a residential customer using 1,000 kWh per month by approximately \$1.54 when compared to the historical total residential rates in the current Rider CE and Rider PPA.

CE-4 PPAs
In its 2023 RPS Filing, Dominion also seeks a prudence determination for the CE-4 PPAs. The CE-4 PPAs consist of (i) eight PPAs for utility-scale solar generating facilities totaling approximately 425 MW and (ii) the PPA for distributed solar generating facilities totaling approximately 15 MW and 420 kW and (iii) the PPA for distributed solar generating facilities totaling approximately 15 MW and 420 kW and (iv) the PPA for distributed solar generating facilities totaling approximately 15 MW and 420 kW. Dominion asserts that the CE-4 PPAs are needed to comply with the VCEA and to serve customers' capacity and energy needs. As noted above, the Company seeks approval to recover the costs of the CE-4 PPAs through Rider CE. In addition to the costs of the CE-1, CE-2 and CE-3 PPAs previously approved by the Commission.

Interested parties are encouraged to review Dominion's Petition and supporting documents in full for details about these and other proposals.

TAKE NOTICE that the Commission may approve revenues among customer classes and/or design rates in a manner differing from that shown in the Petition and supporting documents and thus may adopt rates that differ from those appearing in the Company's Petition and supporting documents.

The Commission entered an Order for Notice and Hearing in this proceeding that, among other things, scheduled public hearings on Dominion's Petition. A hearing for the recovery of testimony from public witnesses in the Company's Petition shall be conducted telephonically at 10 a.m. on January 18, 2024, or before January 1, 2024, at any other time during the latter testimony if a public witness shall provide to the Commission (a) your name, and (b) the telephone number that you wish the Commission to call during the hearing to receive your testimony. This information may be provided to the Commission in three ways: (i) by filing said form on the Commission's

"For Alternative Plan B... the Company projects the monthly bill of a Virginia residential customer using 1,000 kilowatt hours ("kWh") per month to be \$243.20 by 2035, an increase of \$127.02 over the May 1, 2020 level..."

- Dominion legal notice Oct. 25, 2023

That's a 100% increase by 2035!

LEGAL NOTICES

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NOTICE TO THE PUBLIC OF RENEWABLE PORTFOLIO STANDARD (RPS) FILING BY VIRGINIA ELECTRIC AND POWER COMPANY D/B/A DOMINION ENERGY VIRGINIA CASE NO. PUR-2023-00142

- Virginia Electric and Power Company d/b/a Dominion Energy Virginia ("Dominion") has submitted a 2023 Renewable Portfolio Standard ("RPS") filing ("2023 RPS filing") to the 2023 RPS filing subcommittee on October 18, 2023 and is seeking approval to acquire or acquire and operate four new utility-scale projects and to enter into 13 new power purchase agreements ("PPAs").
- Dominion requests approval of revised Rider CE with a revenue requirement of \$14,000,000 over the rate year beginning in 2024 and concluding April 30, 2024. According to Dominion, the revenue would increase a typical residential customer's bill by 1,000 kilowatt hours per month by \$124.
- A Hearing Examiner appointed by the Commission will hold a telephone hearing in this case on November 30, 2023, at 9:00 a.m. for the purpose of public notice only.
- An evidentiary hearing will also be held on January 10, 2024, at 9:00 a.m., at the conclusion of the public hearing portion of the hearing, whether in person at the Commission's second floor courtroom located at the New Building, 1300 East Main Street, Richmond, Virginia 23219, to receive the testimony and evidence of Dominion, any respondents, and Commission staff.
- Further information about this case is available on the SOC website at: soc.electricpowers.com/caselistings.

During its 2023 Session, the Virginia General Assembly enacted Chapters 903 (HB 1528) and 914 (SB 865) of the 2023 Virginia Acts of Assembly. These legislative Acts of Assembly, known as the Virginia Clean Economy Act ("VCEA"), became effective on July 1, 2023. The VCEA, inter alia, establishes a mandatory renewable energy portfolio standard ("RPS") program ("RPS Program") for Virginia Electric and Power Company ("Dominion" or "Company") in § 56-585.5 of the Code of Virginia ("Code"). Subsection (f) of Code § 56-585.5 requires Dominion to submit annually to the State Corporation Commission ("Commission") plans and petitions for approval of new solar and onshore wind generation capacity ("RPS filing"). The Commission shall determine whether the RPS filing is reasonable and prudent, giving due consideration to the following factors: (i) the RPS and carbon dioxide reduction requirements in Code § 56-585.5, (ii) the promotion of new renewable generation and energy storage resources within the Commonwealth, and associated environmental, and (iii) navigable projects to be achieved by 2035.

- On October 3, 2023, Dominion submitted its annual RPS filing to the Commission ("2023 RPS Filing" or "RPS"). The 2023 RPS Filing requests the Commission:
- (i) Approve the Company's annual plan for the development of new solar, onshore wind, and energy storage resources ("RPS development plan") in connection with the mandatory RPS Program pursuant to Code § 56-585.5; and
 - (ii) Grant certification of public convenience and necessity ("CPNC") and approval to construct (a) four acquisition and/or utility-scale projects totaling approximately 320 megawatts ("MW") of solar pursuant to Code § 56-580.0; (b) approval to recover through the Rider CE rate adjustment clause the costs of (i) six utility-scale solar projects totaling approximately 334 MW and related interconnection facilities ("CE-4 Projects" or "CE-4"), and (ii) one distributed solar project, totaling approximately 3 MW and related interconnection facilities ("CE-4 Distributed Solar Project"), pursuant to Code § 56-508.1 A, B; (iii) Approve an update to the Rider CE for recovery of costs associated with the previously approved CE-1, CE-2, and CE-3 projects, the CE-2 and CE-3 distributed solar projects, and related interconnection facilities; (iv) Make a prudence determination for the Company to enter into 13 power purchase agreements ("PPAs") for solar resources, totaling approximately 425 MW, collectively, "CE-4 PPAs" pursuant to Code § 56-585.1 A; (v) Approve recovery through Rider CE of the costs of the CE-4 PPAs pursuant to Code § 56-506.1 A, B; and (vi) Approve the Company's request to consolidate Rider CE and Rider PPA pursuant to Code § 56-585.1 A, T, resulting in: (a) the recovery of costs associated with CE-1, CE-2, and CE-3 PPA through Rider CE, and (b) the recovery of Rider PPA as of April 30, 2024.
- RPS Development Plan**
Dominion states that its RPS Development Plan reports on the Company's progress toward meeting the solar, onshore wind, and energy storage development targets outlined in the VCEA and presents the Company's development plan for solar, onshore wind, and energy storage facilities through 2035. The Company's RPS Development Plan calls for additional investment in solar, onshore wind, and energy storage through 2035.
- The Company also provides a consolidated bill analysis calculating the projected monthly bill through 2035 for residential, small general service, and large general service customers for alternative rate structures presented to the Company in 2023 through its Resource Plan for Alternative Plan B. For example, the Company projects the monthly bill of a Virginia residential customer using 1,000 kilowatt hours ("kWh") per month to be \$243.20 by 2035, an increase of \$127.02 over the May 1, 2020 level of \$116.18, using the methodology approved by the Commission in Case No. PUR-2023-00134. The Company's bill projections are not final and all customer rates are subject to regulatory approval.
- Further, the Company also presents its 2023 RPS Program Compliance Report in the Petition, certifying compliance with the RPS Program for compliance year 2022.

CE-4 Projects
Dominion seeks CPNCs and approval to construct or acquire and operate four utility-scale projects totaling approximately 320 MW of solar. In addition to these four projects, Dominion intends to acquire and operate one additional CE-4 Project, a New River facility ("Proposed"), however, the Company asserts that, consistent with the Commission's prior determination that projects of the MW or less do not require a CPNC, and Rule 19 of the Commission's Filing Requirements in Support of Applications for Authority to Construct and Operate an Electric Generating Facility, Proprietor does not require a CPNC.

The name, size, location, interconnection and projected commercial operation date ("COO") for each of the CE-4 Projects is provided below:

Project	Size (MW)	Locality	Interconnection	COO
Utility-Scale Solar				
Station	57	Frederick County	Transmission	2028
East Ridge	95	Philadelphia County	Transmission	2028
Bookers Hill	127	Richmond County	Transmission	2024
Milbus	50	Frederick County	Transmission	2026
Proprietor	5	Harrods County	Distribution	2024

The Company asserts that the CE-4 Projects are needed to comply with the VCEA and to serve customers' capacity and energy needs. According to the Company, the total estimated costs for the CE-4 Projects are approximately \$55.9 million, excluding financing costs, or approximately \$2.60 per kilowatt ("kW") at the total 334 MW (nominal AC) rating.

- Rider CE**
In this proceeding, Dominion makes four requests related to Rider CE. First, the Company seeks to update Rider CE to the recovery of costs associated with the CE-1, CE-2, and CE-3 projects. The CE-2 and CE-3 distributed solar projects and related interconnection facilities, which have previously been approved by the Commission.
Second, Dominion requests recovery through Rider CE of the costs of the CE-4 Projects and CE-4 Distributed Solar Project, as well as the related interconnection facilities. The CE-4 Projects and CE-4 Distributed Solar Project are needed to comply with the VCEA and to serve customers' capacity and energy needs. According to the Company, the total estimated costs for the CE-4 Distributed Solar Project are approximately \$13.3 million, excluding financing costs, or approximately \$3,642 per kW at the total 3.7 MW (nominal AC) rating.
Third, the Company seeks to consolidate Rider CE and Rider PPA. Rider PPA was approved by the Commission pursuant to Code § 56-585.1 A for the recovery of costs associated with the CE-1, CE-2, and CE-3 PPA. The Company asserts that the consolidation of Rider CE and Rider PPA is in the interest of judicial economy because the Commission already considers the prudence of PPA in the annual RPS filing proceedings, and the consolidation would allow the Commission to consider associated cost recovery issues more efficiently. Such a consolidation would result in the recovery of costs associated with the previously approved CE-1, CE-2, and CE-3 PPA through Rider CE. Consolidation would also result in the end of Rider PPA as of April 30, 2024.
Fourth, the Company seeks to increase the costs of the CE-4 PPA through Rider CE. Dominion seeks the Commission to approve revised Rider CE for the rate year beginning May 1, 2024, and ending April 30, 2025 ("Rate Year"). The Company is requesting a solar revenue requirement of \$136,575,496 in Rider CE for the Rate Year. If the proposed bill revenue requirement for the Rate Year is approved, the impact on customer bills would depend on the customer's bill schedule and usage. According to Dominion, implementation of its revised Rider CE on May 1, 2024, would increase the monthly bill of a residential customer using 1,000 kWh per month by approximately \$124 when compared to the historical total residential rates in the current Rider CE and Rider PPA.
CE-4 PPA
In its 2023 RPS Filing, Dominion also seeks a prudence determination for the CE-4 PPA. The CE-4 PPA consists of: (i) eight PPAs for utility-scale solar generating facilities totaling approximately 425 MW and (ii) the PPA for distributed solar generating facilities totaling approximately 3 MW. Dominion asserts that the CE-4 PPA are needed to comply with the VCEA and to serve customers' capacity and energy needs. As noted above, the Company seeks approval to recover the costs of the CE-4 PPA through Rider CE. In addition to the costs of the CE-1, CE-2 and CE-3 PPA previously approved by the Commission.
Interested parties are encouraged to review Dominion's Petition and supporting documents in full for details about these and other proposals.
HEARINGS NOTICE
The Commission may approve or reconsider any answer documents and/or dissent rates in a manner differing from that shown in the Petition and supporting documents and thus may adopt rates that differ from those appearing in the Company's Petition and supporting documents.
The Commission entered an Order for Notice and Hearing in this proceeding that, among other things, scheduled public hearings on Dominion's Petition. A hearing for the review of testimony from public witnesses on the Company's Petition shall be conducted telephonically at 10 a.m. on January 10, 2024. On or before January 3, 2024, any person desiring to offer testimony as a public witness shall provide to the Commission (a) his name, and (b) the telephone number that will be used by the Commission to call during the hearing to receive his testimony. This information may be provided to the Commission in three ways: (i) by filing said form on the Commission's

COMMENTARY

Are Virginia ratepayers and residents subsidizing the data center industry?



GUEST COLUMN

FEBRUARY 2, 2023 12:05 AM



Virginia cannot continue down this path.

So what are **we** doing?

Spreading the word and pushing for state oversight of data center industry



Advocating for state legislative changes...

vcnva.org/our-common-agenda/

OUR COMMON AGENDA

2023 ENVIRONMENTAL BRIEFING BOOK
a publication of Virginia Conservation Network

MITIGATING DATA CENTER DEVELOPMENT'S IMPACTS

LAND USE REFORM

Julie Bolthouse // Piedmont
Kyle Hart // National P

EXECUTIVE SUMMARY

Virginia is home to the largest concentration of data centers in the world, widely cited as hosting 70% of global internet traffic.¹ This massive industry is continuing to grow very fast, requiring huge amounts of energy, land, and water to operate, resulting in widespread community impacts. Yet, the Commonwealth does not currently have any regulatory oversight of data center development and localities continue to approve more facilities without considering the cumulative impacts. This explosive growth of data centers threatens to derail state efforts to meet climate goals, improve air and water quality, advance land conservation, and protect national and state parks.

CHALLENGE

Data center development in Virginia has been accelerating for years with the hub in Northern Virginia known as the largest in the world. Recently that demand has exploded throughout the state, with buildings larger than big box stores and as tall as 90 feet on sprawling campuses. Developments are now being proposed in environmentally sensitive areas next to our national, state, and local parks,² in close proximity to our rivers and streams,³ and in rural areas requiring costly new electrical infrastructure.⁴ Others are adjacent to residential neighborhoods, schools, medical facilities, and nursing homes.

THE GIGANTIC FOOTPRINT OF THE DATA CENTER INDUSTRY THREATENS REGIONAL POWER, LAND CONSERVATION, AND AIR & WATER QUALITY

The footprint of this industry is gigantic and threatens regional power supply, water quality, land conservation, and air quality beyond individual localities reviewing the application. A single data center building now uses between 60-90MW of power at peak demand which is more than 15,000 households⁵. Data centers now make up 21% of Dominion Energy Virginia's

power load⁷ (see SURGING ENERGY DEMAND FROM DATA CENTERS, pg 105). A data center can also consume 3-5 million gallons of water a day for cooling – the equivalent of a small city's overall annual consumption.⁸ They consume massive amounts of land as well. Digital Gateway, a proposal in Prince William County, would allow 27 million square feet of data center development which is the equivalent of about 150 Wal-Mart Supercenters. All of this impervious surface results in increased stormwater runoff and pollution.

To ensure uninterrupted 24/7 service, data center facilities have commercial-sized backup power generators and large fuel tanks on site in the case of a grid outage. According to DEQ, data centers in Loudoun County have air permits for more than 4,000 backup diesel generators⁹ with a total rated capacity of over 11 gigawatts of power! For context, the North Anna nuclear power facility has a rated capacity of 1.8 gigawatts. If the rapid pace of data center construction continues, further straining power, these backup generators could increasingly be put to use, putting air quality and public health at risk.¹⁰

SOLUTION

Despite Virginia having the highest number of data centers in the world, the state lacks critical information about their impacts on our environment and energy grid. Currently, approvals are made unilaterally by localities, which have a strong tax incentive to approve proposals without considering the broader statewide impacts. A comprehensive study of the impacts on the Commonwealth's electrical grid, environment, historic and recreational resources, environmental justice concerns, and ability to meet climate goals is critically needed to protect our communities especially those residents most vulnerable to utility rate hikes, air pollution, and climate impacts.

The National Academies of Science is an independent academic institution with the

ability to lead this study and provide objective advice to inform policy as they have done on past issues such as gold mining and uranium mining. Using data from utilities, localities, and state agencies, the study would include a buildout analysis of what is in operation, approved, and planned and an evaluation of impacts on the electrical grid and ratepayers, climate goals, water consumption, water quality, air quality, land conservation, recreation, and historic preservation.

The General Assembly must also establish a process for state review, including a grid impact statement submitted to Virginia Energy for all new data center power demand requests and a regional review of impacts from new data center proposals by federal and state agencies and regional utilities. Virginia Energy review would provide oversight to ensure continued grid reliability and prevent excessively high costs falling to the ratepayers. The regional review would provide an opportunity for these entities

One of six Amazon data center buildings that sit in front of community in Loudoun County. The buildings hold a total
Photo by Hugh Kenney, Piedmont Environmental Council



Advocating for state legislative changes...

MITIGATING DATA CENTER DEVELOPMENT'S IMPACTS

LAND USE REFORM

Julie Bolthouse // Piedmont Environmental Council // jbolthouse@pecva.org
Kyle Hart // National Parks Conservation Association // khart@npca.org

EXECUTIVE SUMMARY

Virginia is home to the largest concentration of data centers in the world, widely cited as hosting 70% of global internet traffic.¹ This massive industry is continuing to grow very fast, requiring huge amounts of energy, land, and water to operate, resulting in widespread community impacts. Yet, the Commonwealth does not currently have any regulatory oversight of data center development and localities continue to approve more facilities

power load” (see SURGING ENERGY DEMAND FROM DATA CENTERS, pg 105). A data center can also consume 3-5 million gallons of water a day for cooling – the equivalent of a small city’s overall annual consumption.² They consume massive amounts of land as well. Digital Gateway, a proposal in Prince William County, would allow 27 million square feet of data center development which is the equivalent of about 150 Wal-Mart Supercenters. All of this impervious surface results in increased stormwater runoff and pollution.

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to comment on regional impacts and for the public to weigh in on this additional information through a formal comment process.

Collectively, the study and the grid impact and regional review process will help the state determine where we are and create a sustainable path forward on data center development.

POLICY RECOMMENDATIONS

Study the impacts of data center development on the Commonwealth’s electrical grid, environment, historic and recreational resources, and ability to meet climate goals through The National Academies of Science.

Require a grid impact statement be submitted to and approved by the State Corporation Commission for all new data center power demand requests.

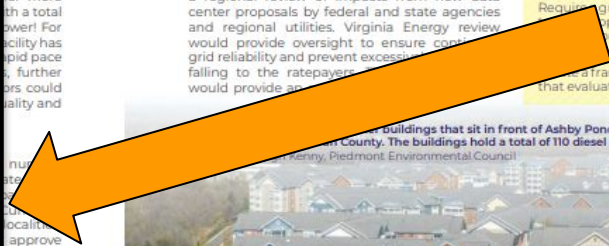
Create a framework for a regional review board that evaluates large data center projects.

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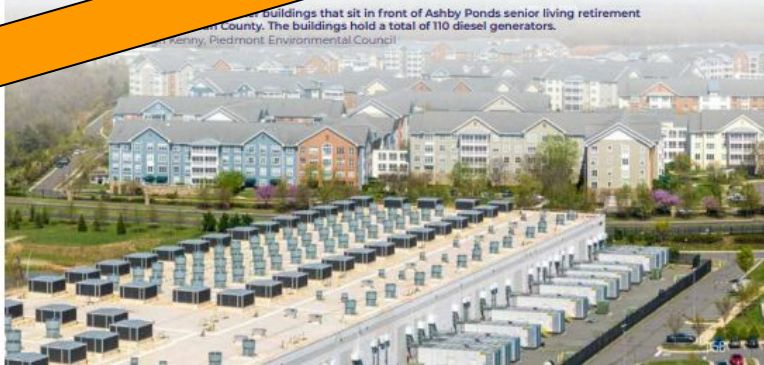
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Advocating for state legislative changes...

SURGING ENERGY DEMAND FROM DATA CENTERS

DIRTY ENERGY INFRASTRUCTURE

Will Cleveland // Southern Environmental Law Center // wcleaveland@selcva.org
Dan Holmes // Clean Virginia // dan@cleanvirginia.org

EXECUTIVE SUMMARY

Data centers are large industrial buildings filled with computers that store, process, and distribute large amounts of digital information. Northern Virginia leads the world in data center development, housing nearly 50% of all US facilities.¹ While data centers generate significant tax revenue for the localities in which they reside, they are also the primary driver behind a massive spike in peak electricity demand in Virginia, which through some estimates is projected to more than double by 2038. Virginia needs to chart a responsible path forward, balancing the growth of our digital world with the need to power that growth with affordable carbon-free energy.

CHALLENGE

Data storage needs have grown exponentially with the rise of the internet and new trends like Artificial Intelligence (AI), cryptocurrency, and the expansion of rural broadband have dramatically accelerated this pace. For a variety of reasons, including industry tax breaks, low costs, and an existing fiber network, Northern Virginia is

expected to continue to serve as a favorable location for new data centers. As a result, the industry's planned growth in the region is projected to more than double the state's peak electricity demand through 2038, according to PJM and Dominion Energy, the state's largest electricity provider (see graph below). This increase is by no means certain; Dominion Energy has a long track record of predicting far more growth than actually occurs, and uncertainty is even greater about data centers since the projections involve only one industry. While we should not accept these forecasts as guaranteed, we should take seriously the problems that such growth could cause and plan accordingly.

DATA CENTER DEVELOPMENT IS PROJECTED TO MORE THAN DOUBLE THE STATE'S PEAK ELECTRICITY DEMAND THROUGH 2038

In their latest long-term Integrated Resource Plan (IRP) filed in April, Dominion Energy has suggested meeting demand growth by building a substantial amount of renewable energy and storage. But this plan also proposes preserving existing coal and natural gas generation as well as building new fossil fuel generation and costly Small Modular Nuclear Reactors (SMNRs). This plan ignores Virginia's clean energy requirements and places a significant burden on families and other businesses to subsidize the construction and operation of the significant infrastructure necessary to meet the increase in electricity demand.

In addition to a massive increase in needed electric generation, data center growth will also require significant new transmission infrastructure. Just this past General Assembly session, legislation was passed recognizing a \$627 million emergency transmission project in response to the Northern Virginia data center cluster. Strain on the grid has also brought an increased use of diesel generators which serve as

the backup power source for data centers, raising concerns about local air quality.

Currently, data centers are approved at the town/city/county level. The local process does not address cumulative state and regional level impacts on Virginia's energy grid, natural resources and land use (see MITIGATING DATA CENTER DEVELOPMENT, pg 57). Without significant state oversight and planning, Virginia could face unsustainable energy demand, potentially leading our utilities to pursue unnecessary generation projects, including fossil fuel generation in direct opposition to clean energy policies.

SOLUTION

This level of data center expansion is a new and global trend of which Virginia is at the forefront. If Virginia is to continue recruiting this industry, numerous questions must be answered to determine a sustainable path forward.

While data centers are an important part of Virginia's economic development plan, that plan must align with our ability to protect the environment and provide for a clean, affordable energy transition for all. Virginia is facing an unprecedented energy challenge with explosive growth in this sector. Proper planning can offset some of the anticipated impacts, and we can take steps now to provide appropriate cost allocation, ensuring responsible parties are paying for the necessary upgrades to our electric system. But in order to develop a holistic and sustainable solution, we need to establish a proper accounting of the externalities of the industry.

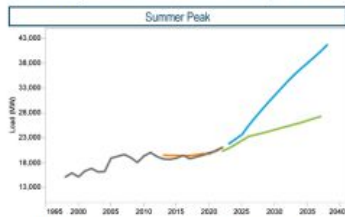
A comprehensive study is necessary to illustrate the opportunities and challenges related to different scenarios for buildout of the data industry in Virginia. This study should address energy demand and gauge our ability to meet our goal of a clean energy transition while avoiding unnecessary impacts on communities and natural resources.

POLICY RECOMMENDATIONS

An Independent Study: Contract with an independent body like the National Academy of Sciences to study all costs and benefits of the data center industry. Specifically related to energy demand it should evaluate impacts to the grid and our ability to reliably meet demand with carbon-free energy resources. It should integrate efforts of the industry to improve efficiency and procure clean energy so as to avoid duplication of efforts by our utilities and highlight impacts to ratepayers.

Permitting, Planning, and Education: Implement a state review process for new proposals. A review of individual projects that fails to account for the aggregate impacts of all projects invariably means that no one fully appreciates the total picture. The Department of Energy, in coordination with the Department of Environmental Quality, should provide assistance to local governments, including siting criteria information related to the necessary energy infrastructure to power the project.

Protect from Cost Shift: The rules governing approval and allocation of costs for new transmission and generation approval should be examined and – if necessary – changed to ensure that parties causing investments bear the costs of those investments, preventing residential energy customers from shouldering this burden.



The January 2023 PJM Load Forecast projects that the data center industry's planned growth in the region will more than double the state's peak electricity demand through 2038 (blue line).

Advocating for state legislative changes...

SURGING ENERGY DEMAND FROM DATA CENTERS

DIRTY ENERGY INFRASTRUCTURE

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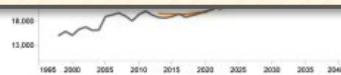
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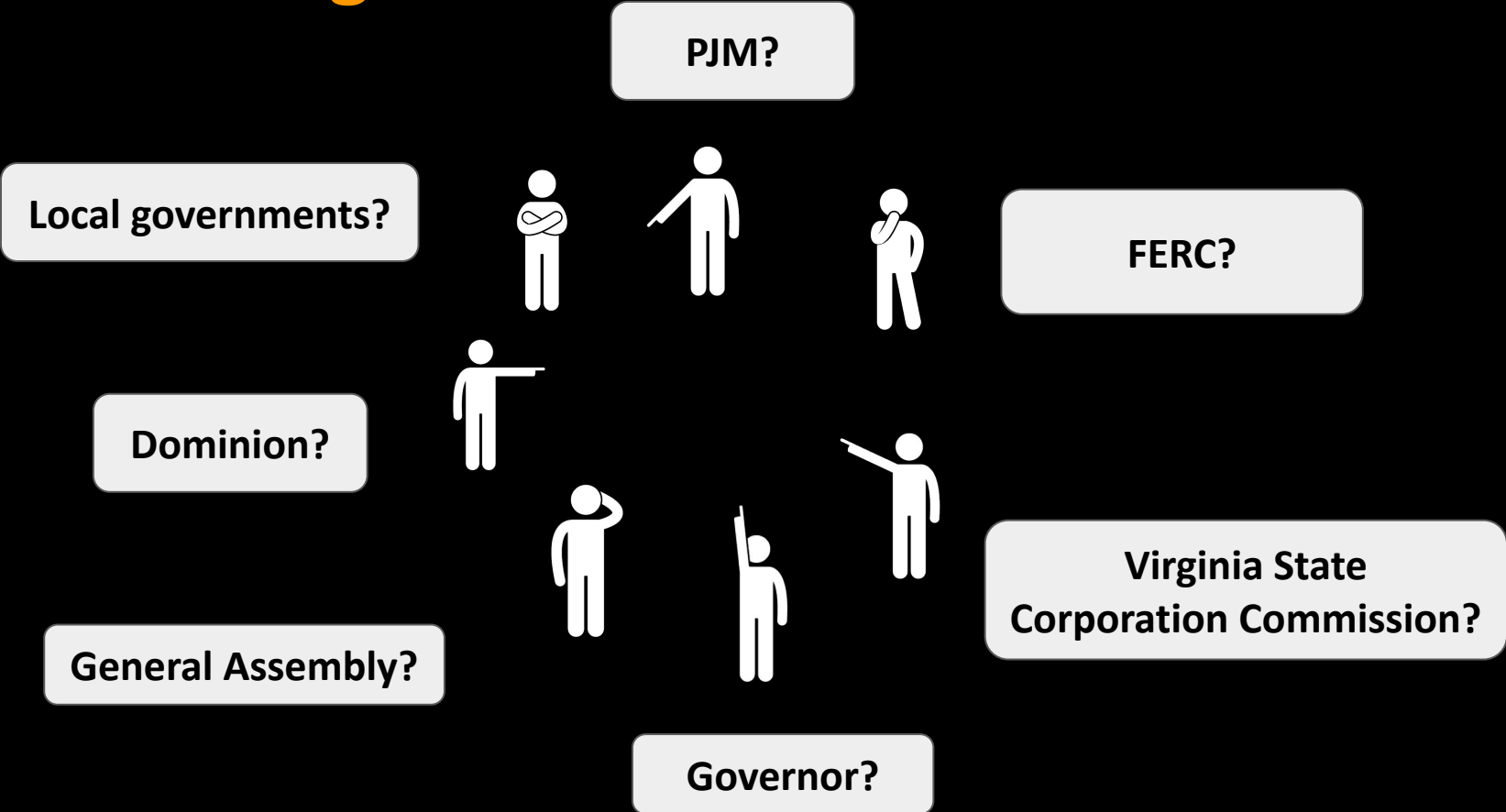
demand.
In addition to a massive increase in needed electric generation, data center growth will also require significant new transmission infrastructure. Just this past General Assembly session, legislation was passed recognizing a \$627 million emergency transmission project in response to the Northern Virginia data center cluster. Strain on the grid has also brought an increased use of diesel generators which serve as

Loudoun Has An Important Role...

- **Data center applications**
- **Zoning Ordinance Rewrite**
 - **Public hearing December 13**
- **2024/2025 changes to Comp Plan and Zoning Ordinance**



Who is in charge?



PJM?

Local governments?

FERC?

Dominion?

Virginia State Corporation Commission?

General Assembly?

Governor?

What can **you** do?

- Send comments to PJM ASAP
- Comment at the BOS Dec 13th Zoning Ordinance public hearing
- Stay informed - NextEra routing process, County Zoning and Planning, etc.
- Reach out to elected officials and support data center reform legislation
- Share information with friends, family, contacts and neighbors
- Financially support the local efforts and the broader campaign that is needed



Questions?

Final Thoughts

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has”

~ Margaret Mead

Homework!

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