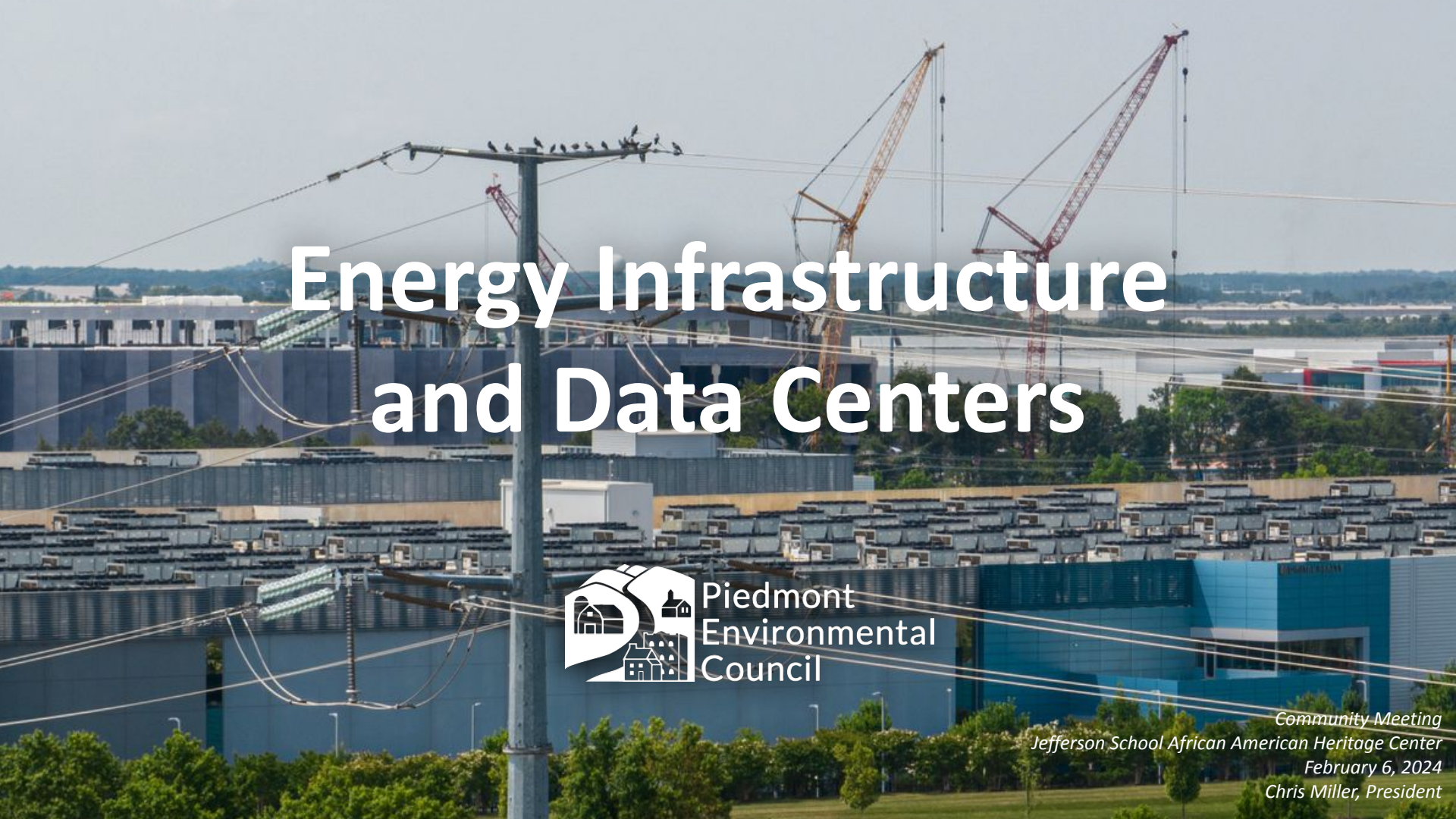


Energy Infrastructure and Data Centers

Piedmont Environmental Council

Community Meeting
Jefferson School African American Heritage Center
February 6, 2024
Chris Miller, President

Chris Miller

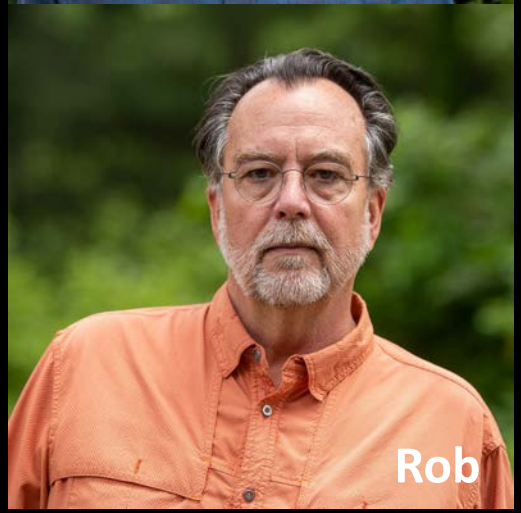
President

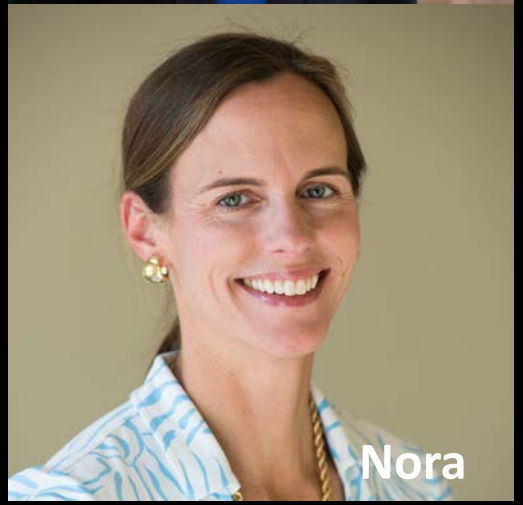
The Piedmont Environmental Council

PEC's Mission

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


0
25
50
Miles
N
MARYLAND
DELAWARE
OHIO
WEST VIRGINIA
KENTUCKY
VIRGINIA
Winchester
DC
Alexandria
Shenandoah River
Potomac River
Rappahannock River
Chesapeake Bay
Charlottesville
James River
Richmond
Roanoke
Roanoke River
Norfolk
Clinch River
Bristol
Danville





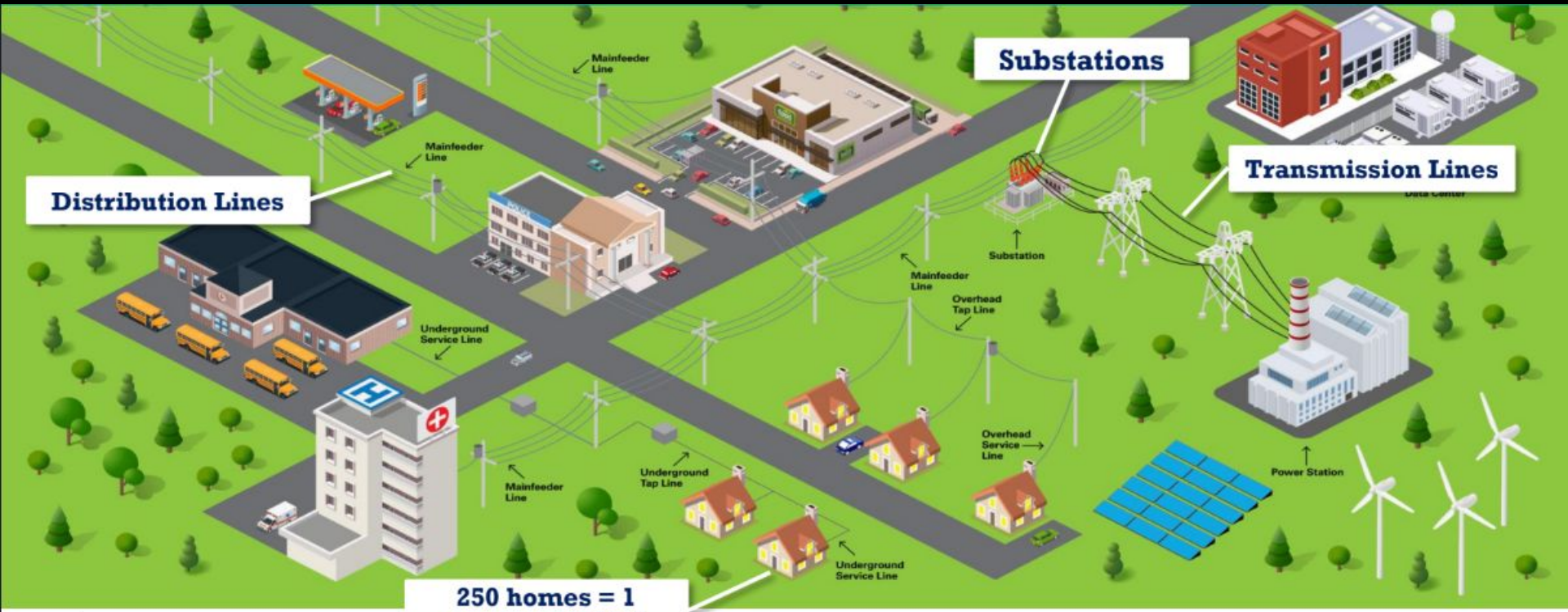
Local Staff


Hidden Costs of the Cloud: Data Centers in Virginia
Share
Watch on YouTube

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

The digital age relies on a reliable power grid



May 22, 2023

*1000 MW = 1 gigawatt

Dominion Energy

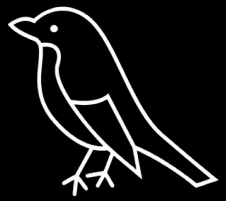
Data centers consume a huge amount of electricity

They create a host of community-level impacts

Parks and Trails

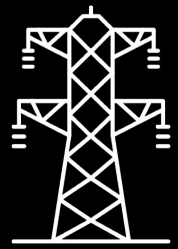
Water

Air Quality



Wildlife Habitat

Design



Transmission

DRAFT 10/5/2023 Proposed Transmission Lines to Serve Data Centers

Piedmont Environmental Council

ACCREDITED LAND TRUST ALLIANCE

PEC Service Area

Electric Transmission Lines

Proposed Transmission Lines up to 500 kV

New Transmission Line

Expand Existing Right of Way

Rebuild in Existing Right of Way

Short List Projects 10-3-23

Substations

New Substations

Expanded Substation

0 10 20 Miles

Map created by PEC for presentation purposes only. Data Source: PJM TEAC RTEP 2022 Window 3 proposals, not all transmission proposals are shown. Although efforts have been made to verify data, accuracy is not guaranteed. For more information please visit pecva.org.
9/21/2023 | Watsun Randolph

CLARKE

LOUDOUN

FAUQUIER

RAPPAHANNOCK

CULPEPER

MADISON

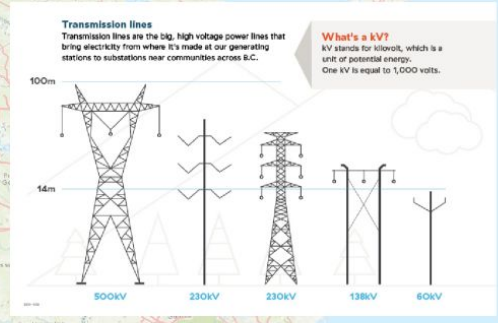
GREENE

ORANGE

ALBEMARLE

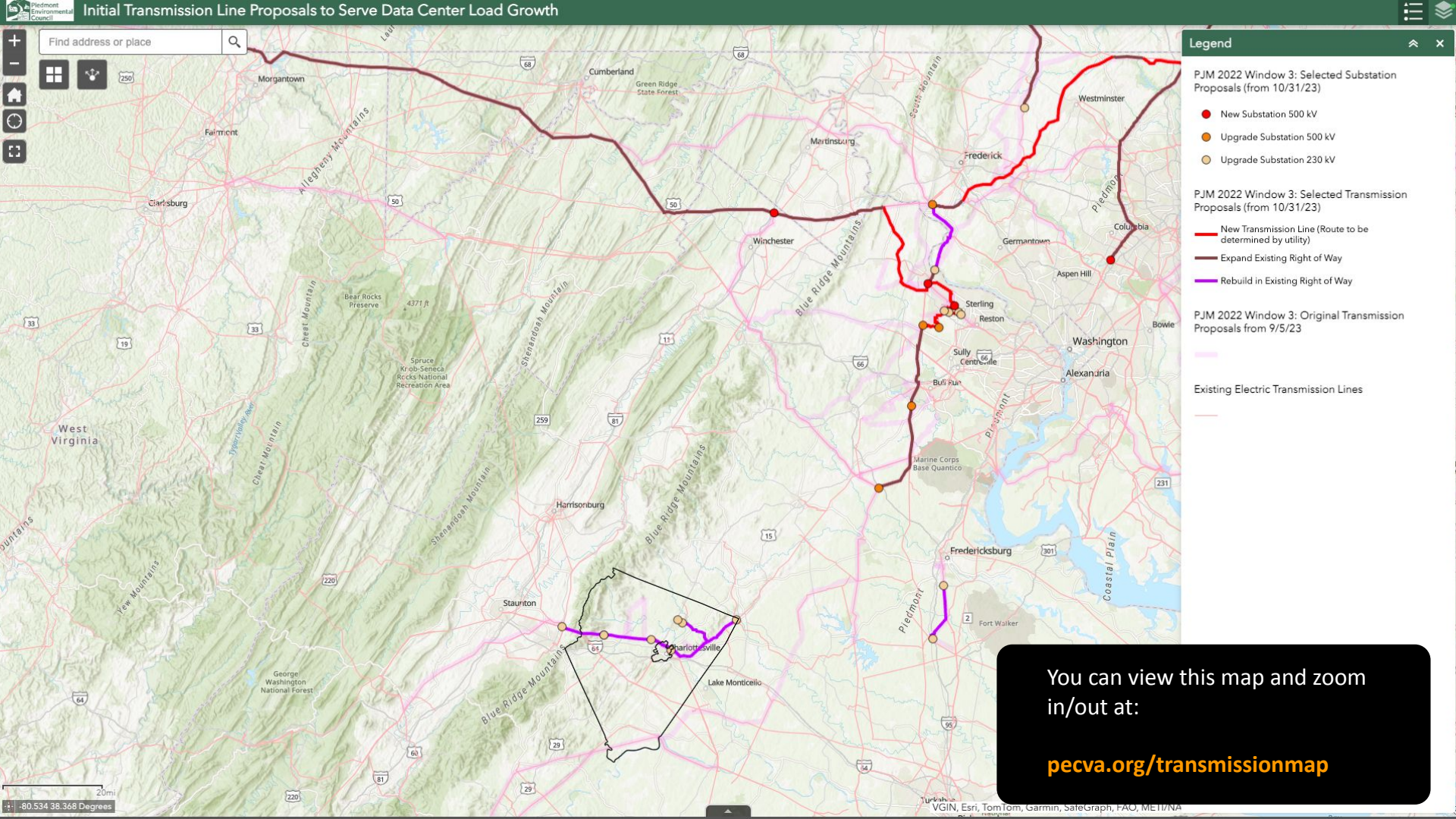
Transmission line proposals to serve the explosive growth of data centers in Virginia over the past few years have begun to roll in. On September 5, 2023, PJM, the organization that coordinates electricity transmission in 13 states and the District of Columbia, published 72 proposals identified as part of its data center load planning initiative. The public will learn more about which projects might move forward during PJM's next Transmission Expansion Advisory Committee (TEAC) meeting on October 3, 2023.

In the meantime, PEC has published this map to make it easier to view some of the proposals related to data center demand growth as of early 2022. Our map was created using PJM maps that do not always align with existing transmission and substation locations, and sometimes fail to match the narratives submitted by different companies as part of the '2022 Window 3 Redacted Proposals.' This map is our best approximation given the information available and will change as PJM releases more information. Please also note, the new transmission lines are depicting general paths, not specific routes.

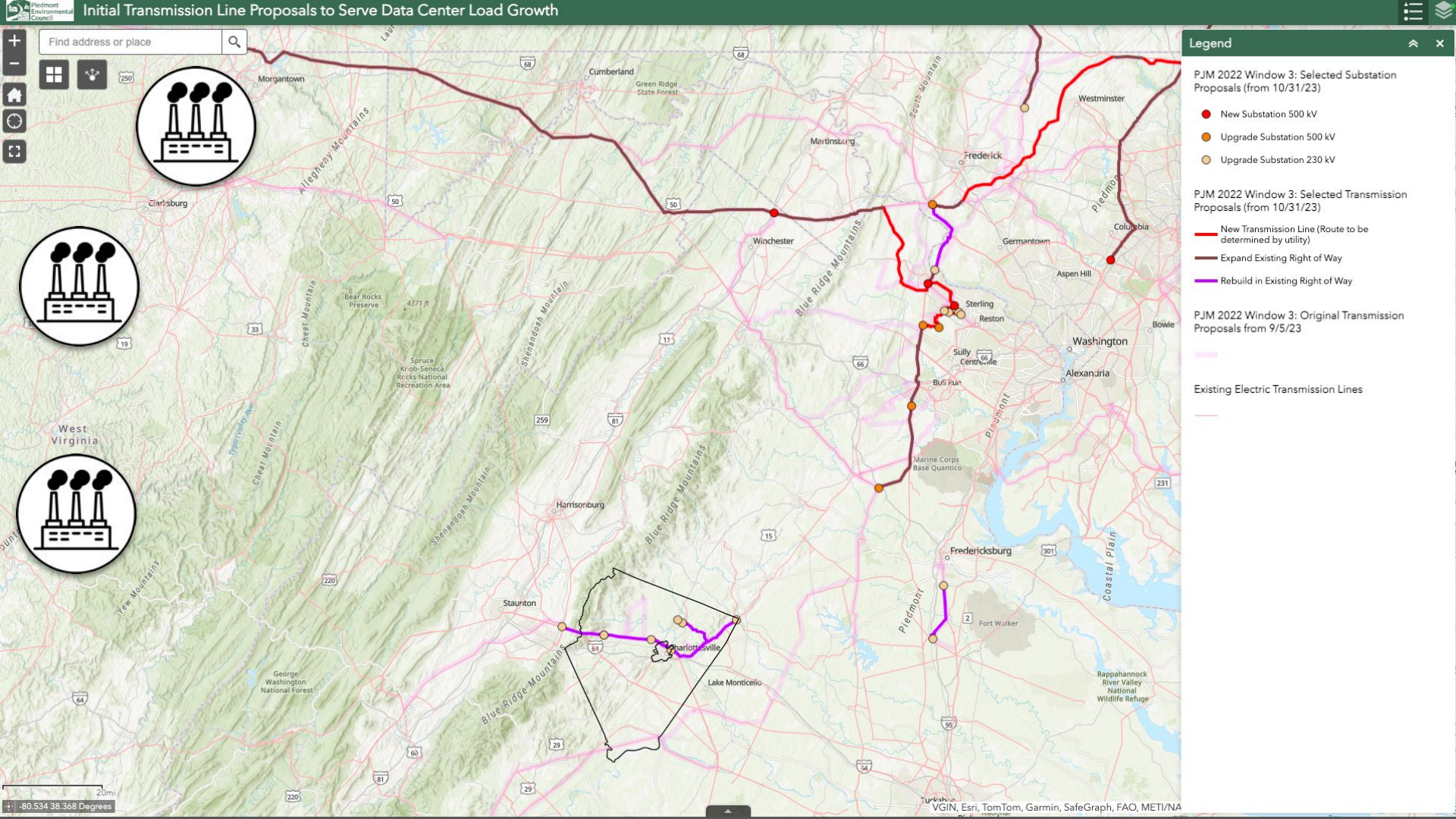


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

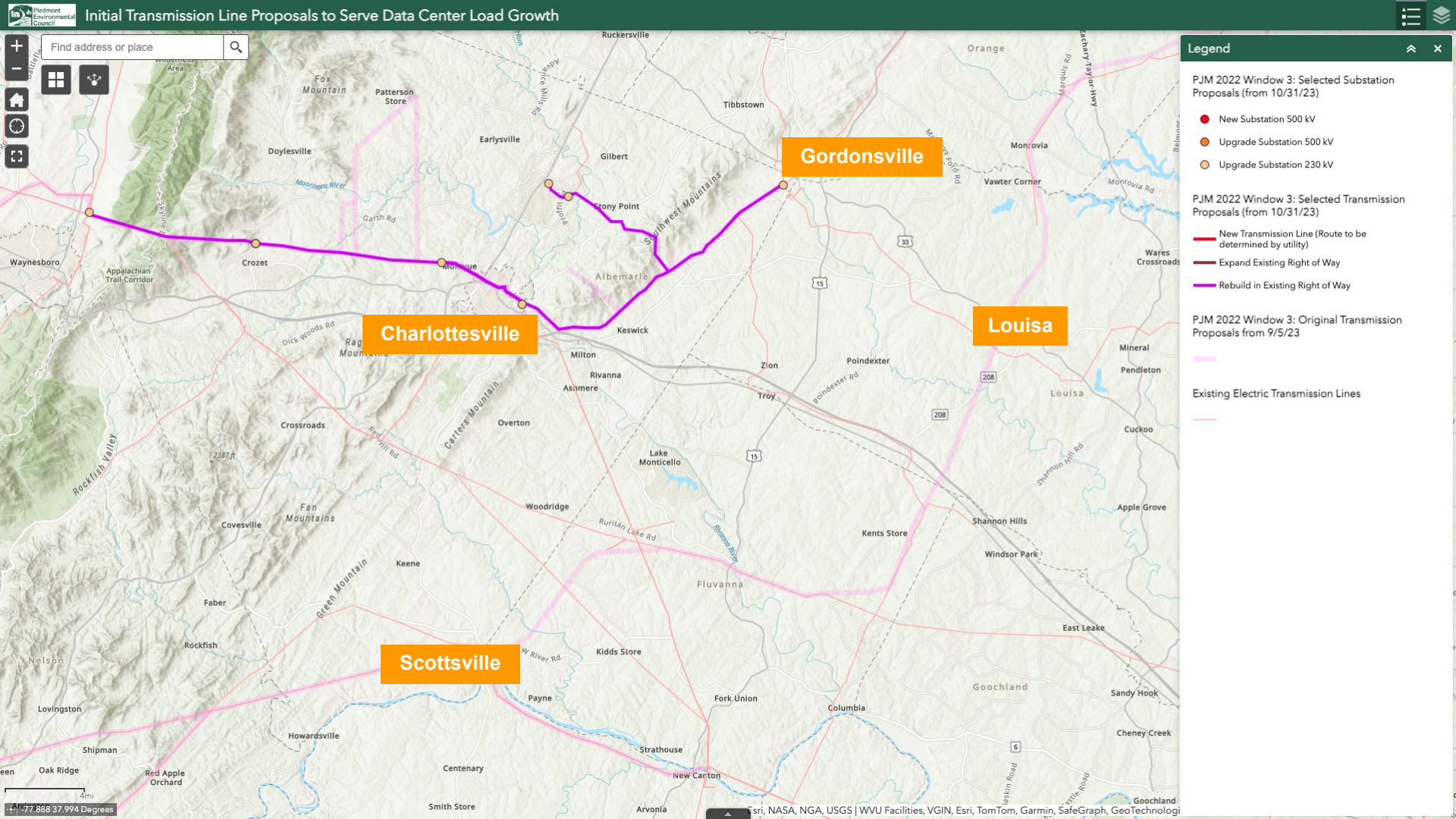
Initial Transmission Line Proposals to Serve Data Center Load Growth



Initial Transmission Line Proposals to Serve Data Center Load Growth



Initial Transmission Line Proposals to Serve Data Center Load Growth




500 kV transmission line

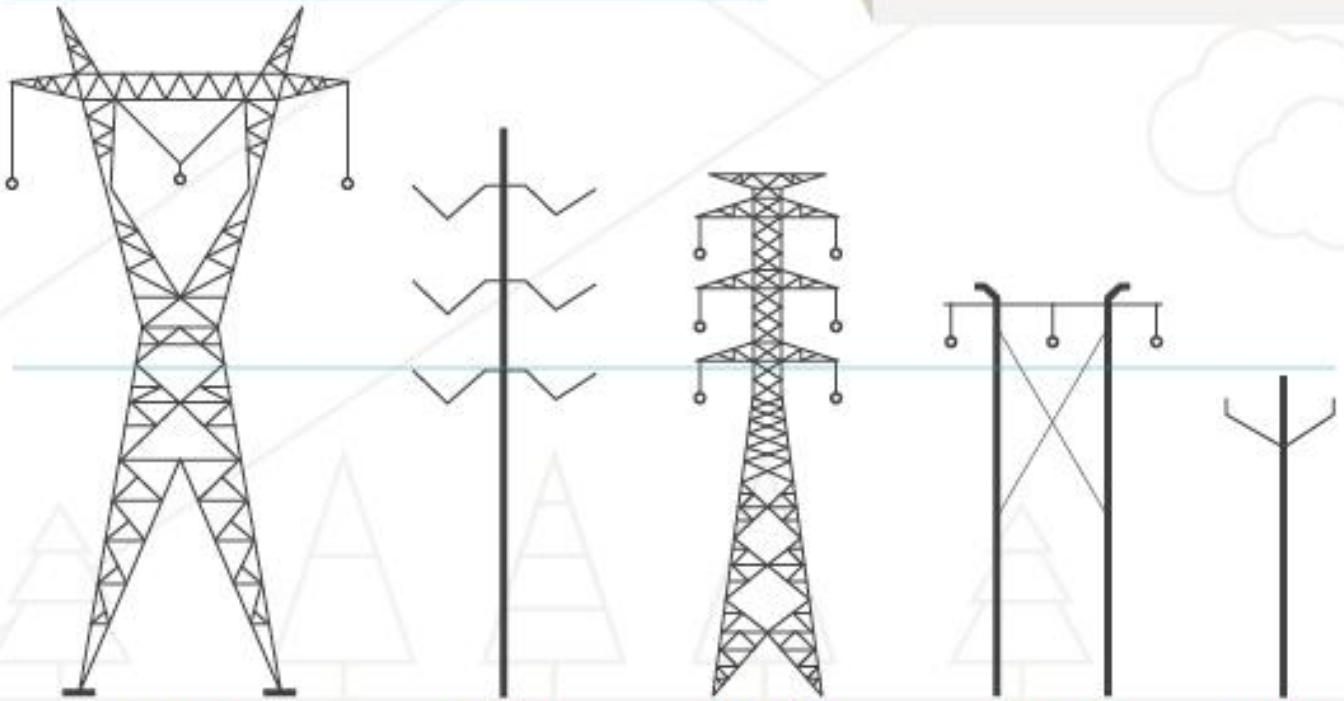

230 kV transmission line

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.



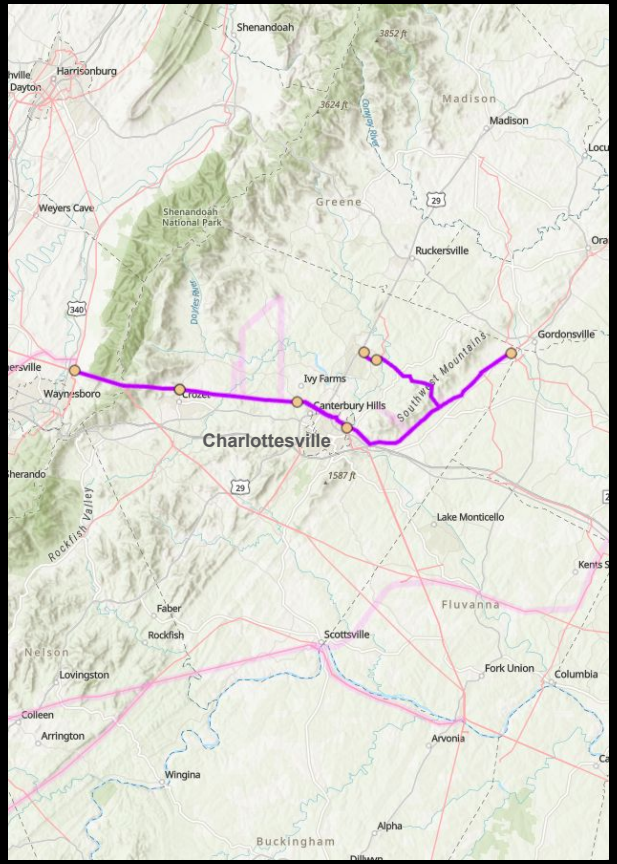
Who?

Dominion Energy®

What?

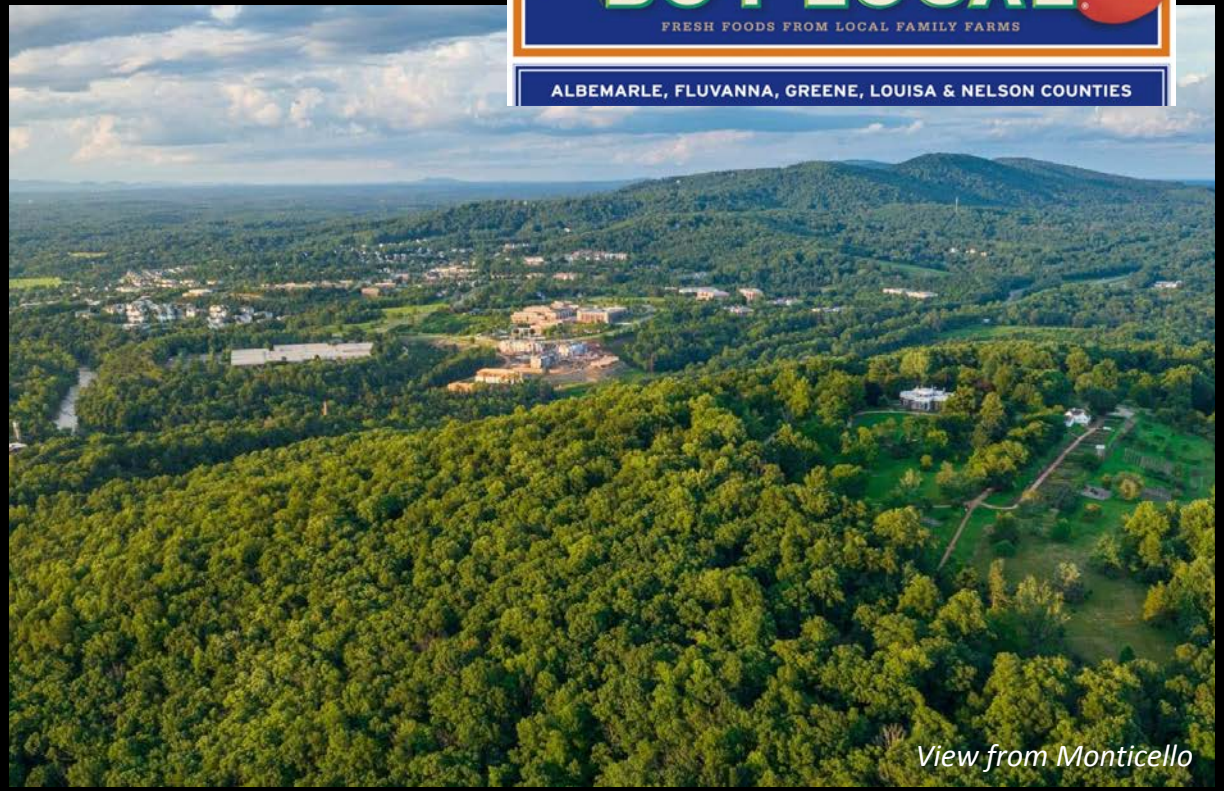
- Wreck and rebuild of existing 230-kV lines; potential 500 KV upgrade
- Estimated price tag: $238 million
- In service date: 2028

Where?



The local economy in this area is primarily based on rural economy, scenic beauty, natural resources, tourism

Veritas Vineyard © Kevin Oliver



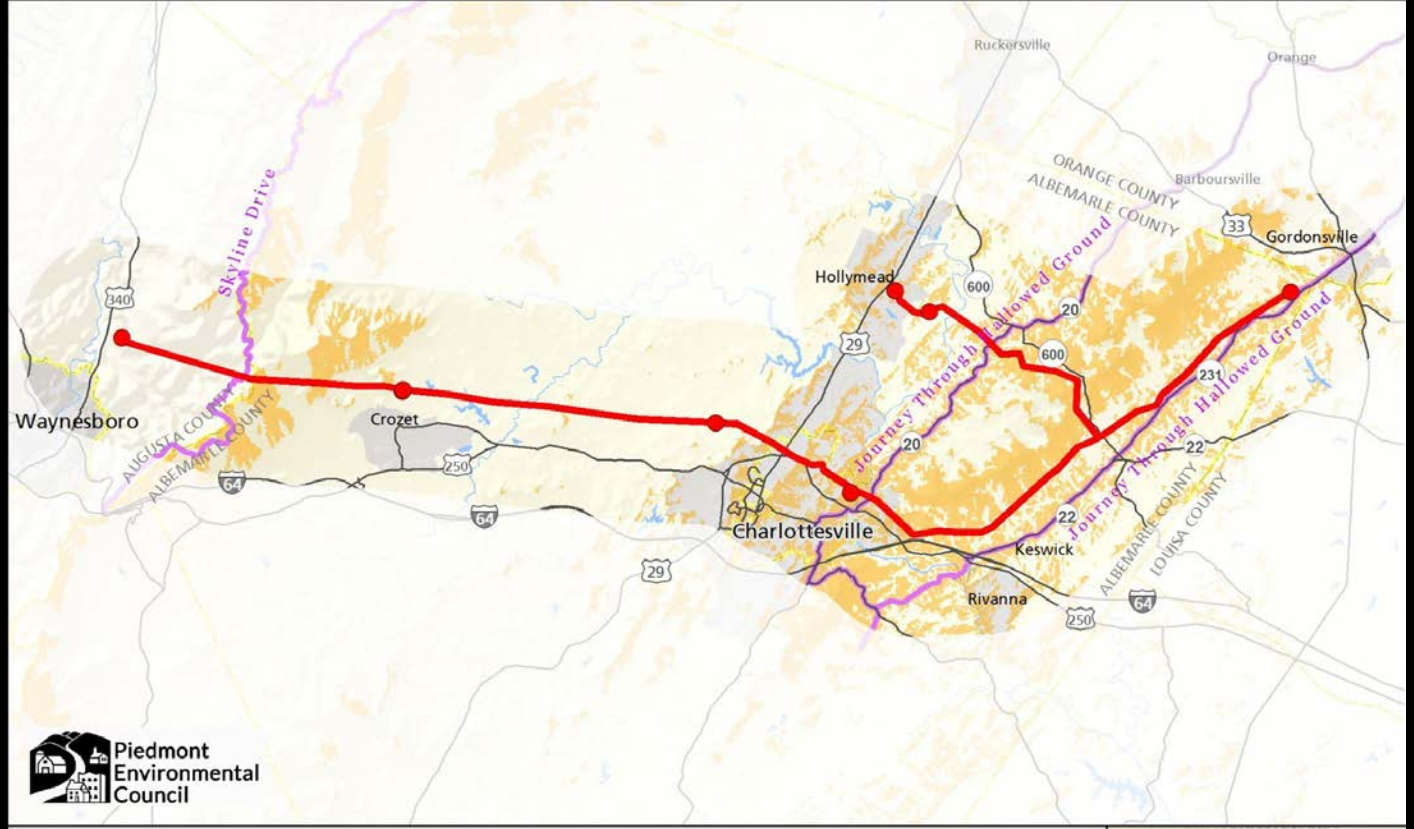
View from Monticello

Resources Potentially Impacted by Transmission Line Wreck and Rebuild

Proposed Transmission Line Wreck And Rebuild

Proposed Upgraded Substation

0 2.5 5 Miles



Resources Potentially Impacted by Transmission Line Wreck and Rebuild

National Scenic Byway

State Scenic Roads

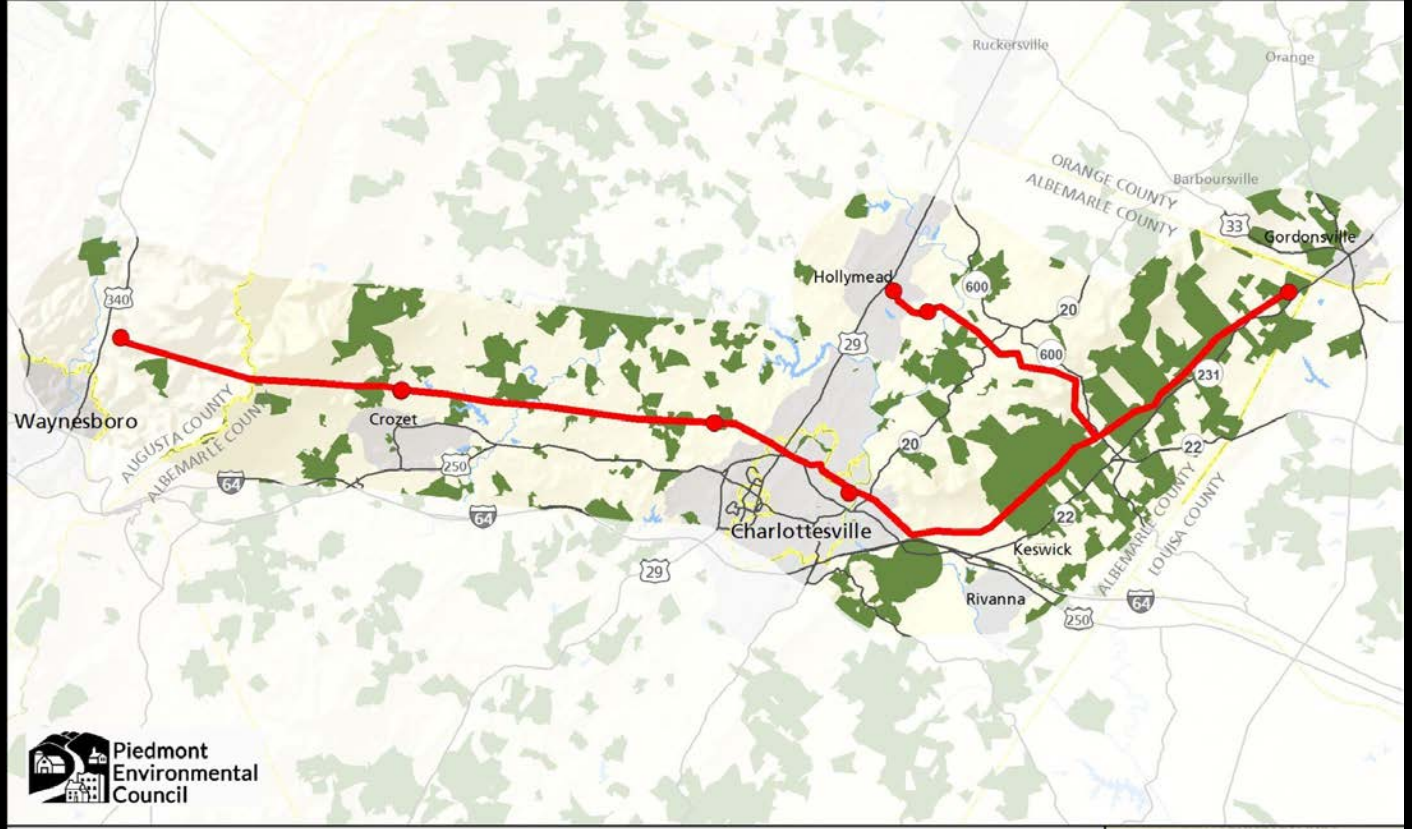
Visible from the Journey Through Hallowed Ground Route

0 2.5 5 Miles

Resources Potentially Impacted by Transmission Line Wreck and Rebuild

Scenic Rivers
- Designated
- Qualified
- Potential

0 2.5 5 Miles

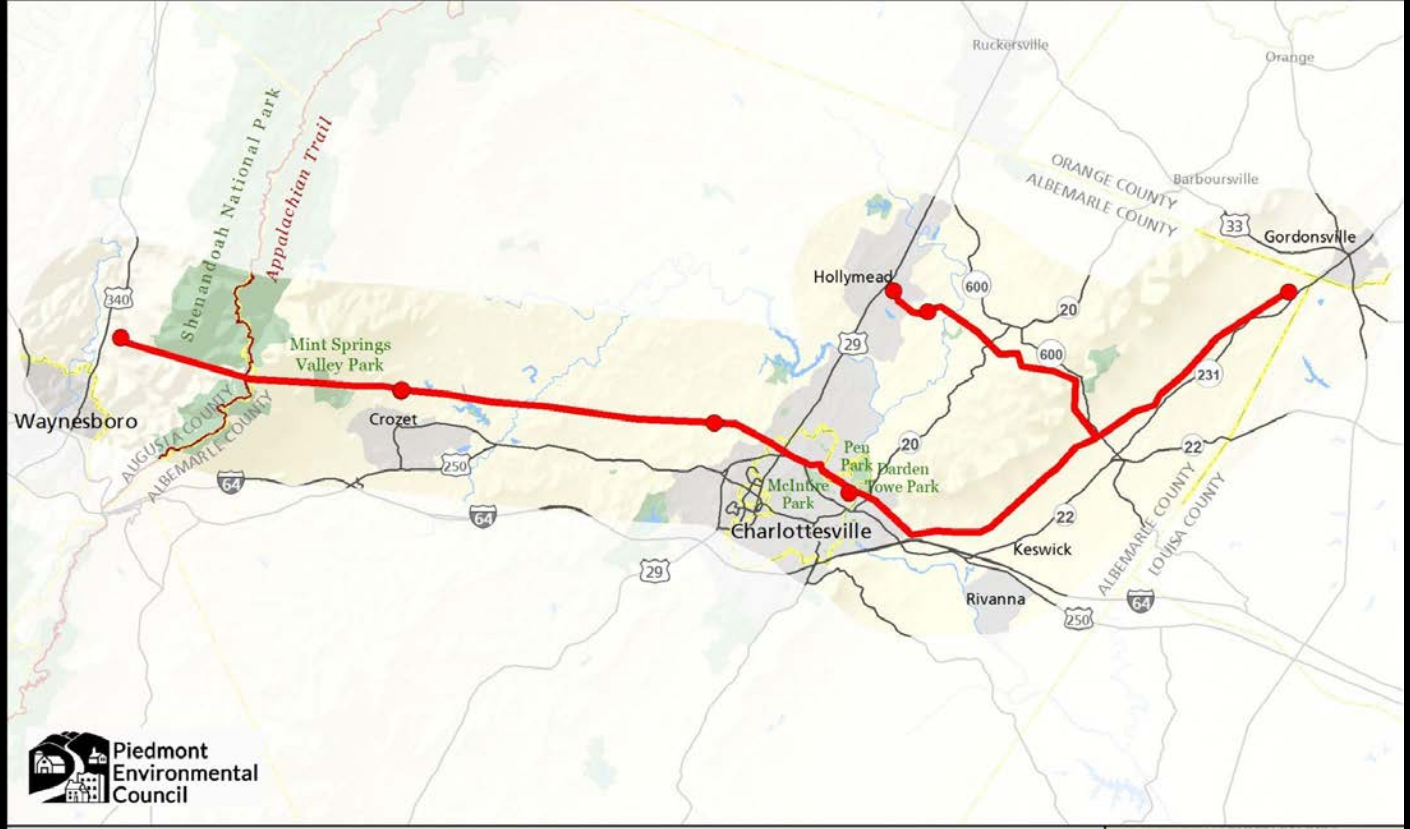


Resources Potentially Impacted by Transmission Line Wreck and Rebuild

Conservation Easements

0 2.5 5 Miles

N

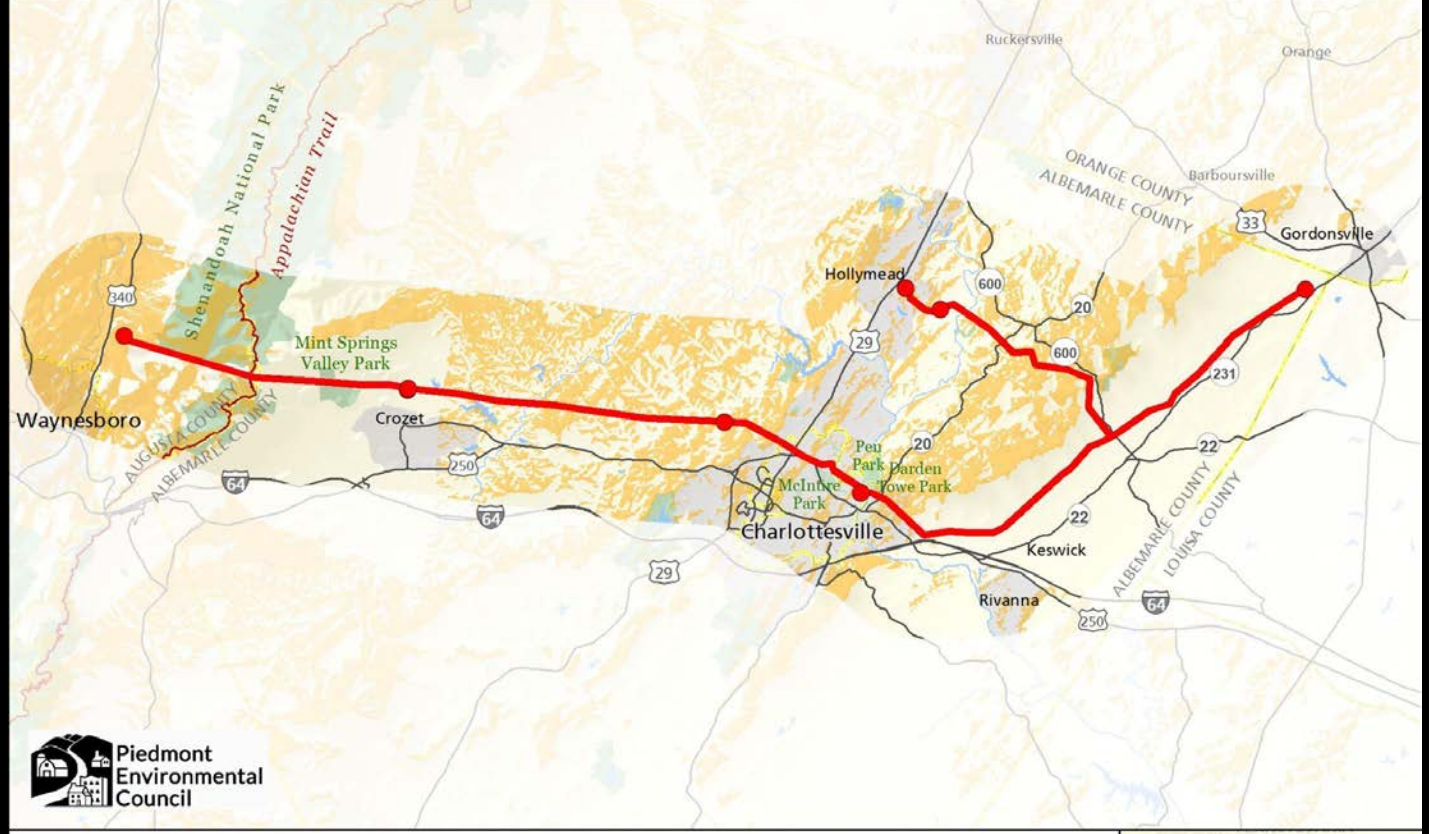


Resources Potentially Impacted by Transmission Line Wreck and Rebuild

Publicly Owned Land

Appalachian Trail

0 2.5 5 Miles



Resources Potentially Impacted by Transmission Line Wreck and Rebuild

Publicly Owned Land

Appalachian Trail

Visible from Skyline Drive

N

0 2.5 5 Miles

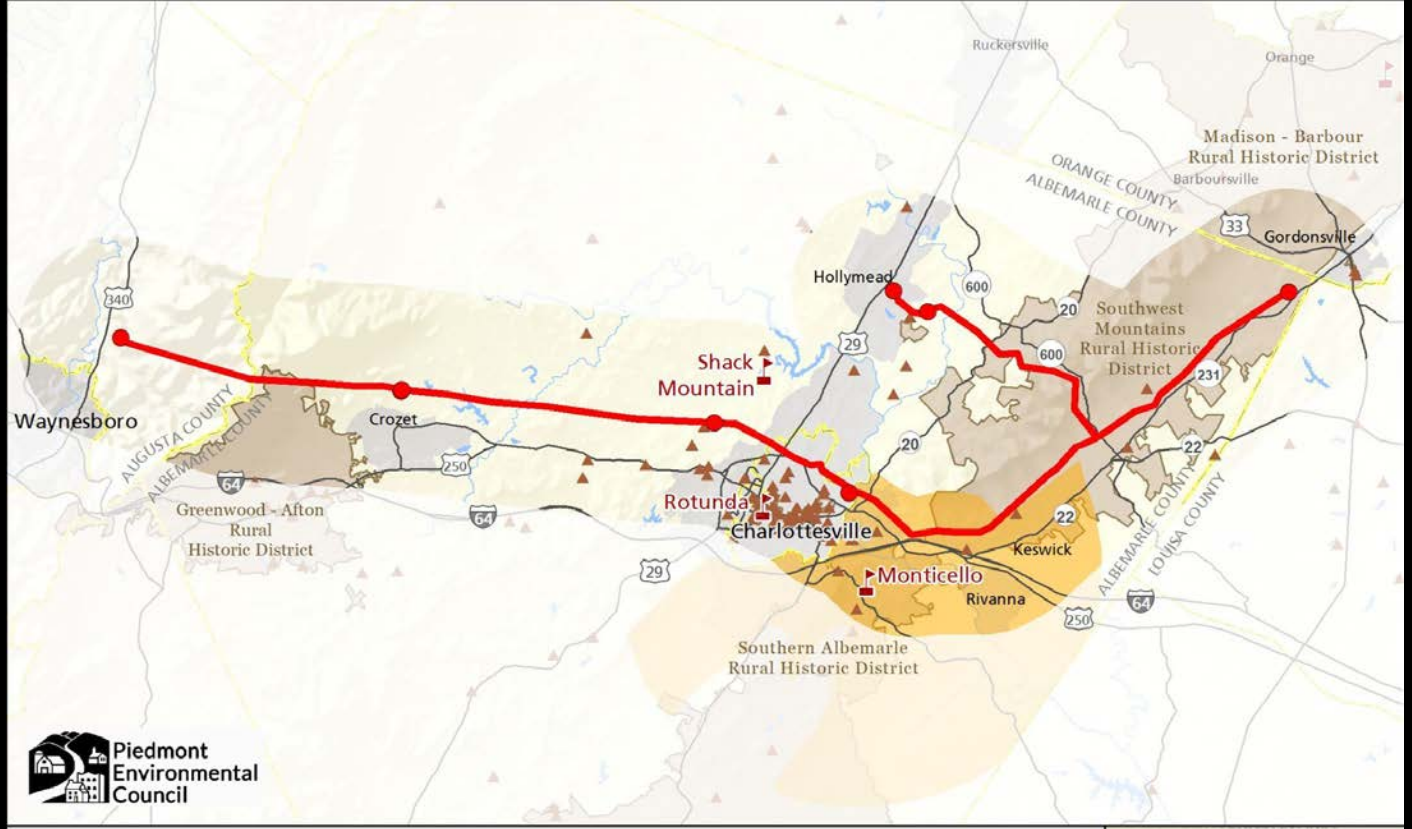
Resources Potentially Impacted by Transmission Line Wreck and Rebuild

National Historic Landmark

Registered Historic Sites

Historic Districts

0 2.5 5 Miles



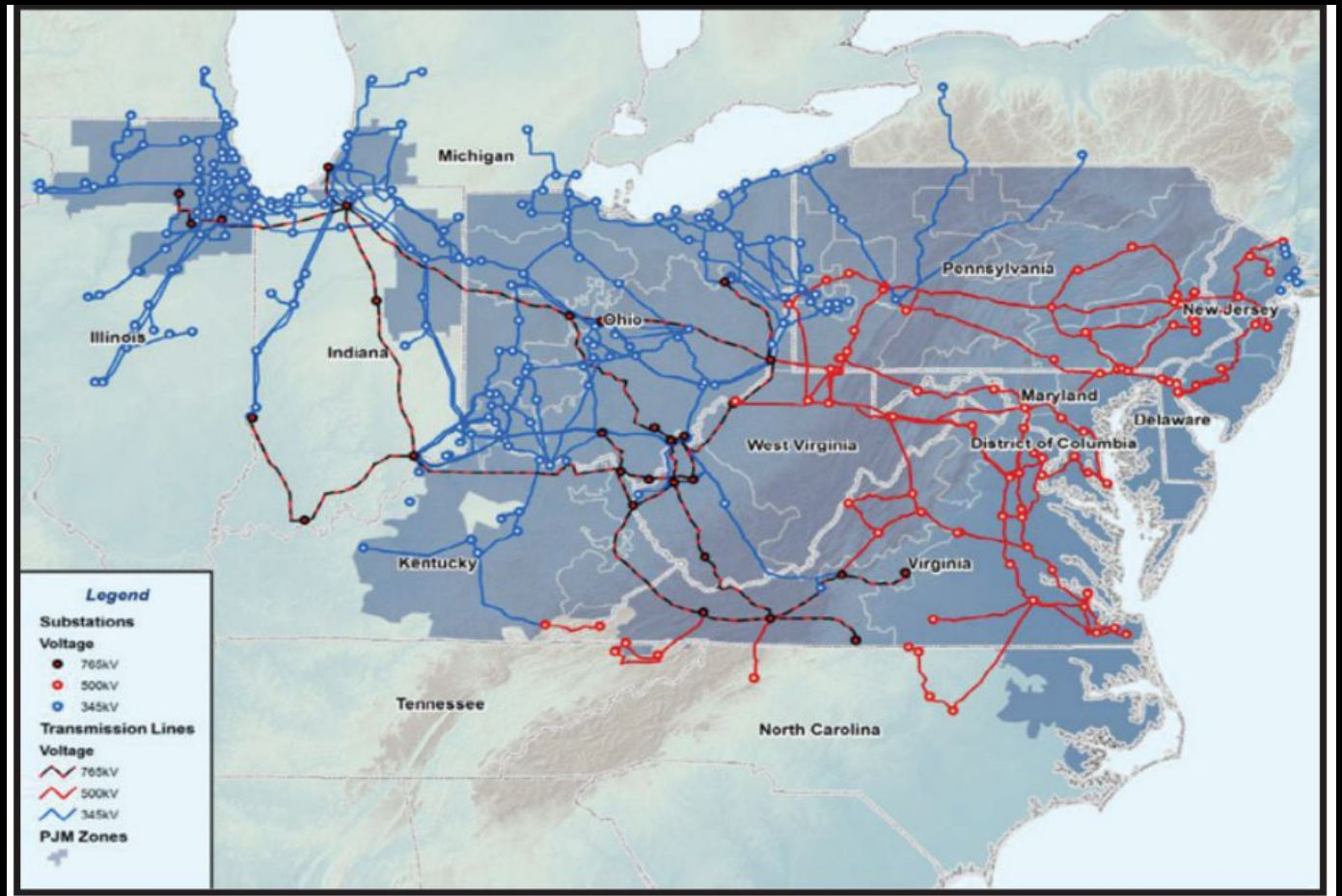
Resources Potentially Impacted by Transmission Line Wreck and Rebuild

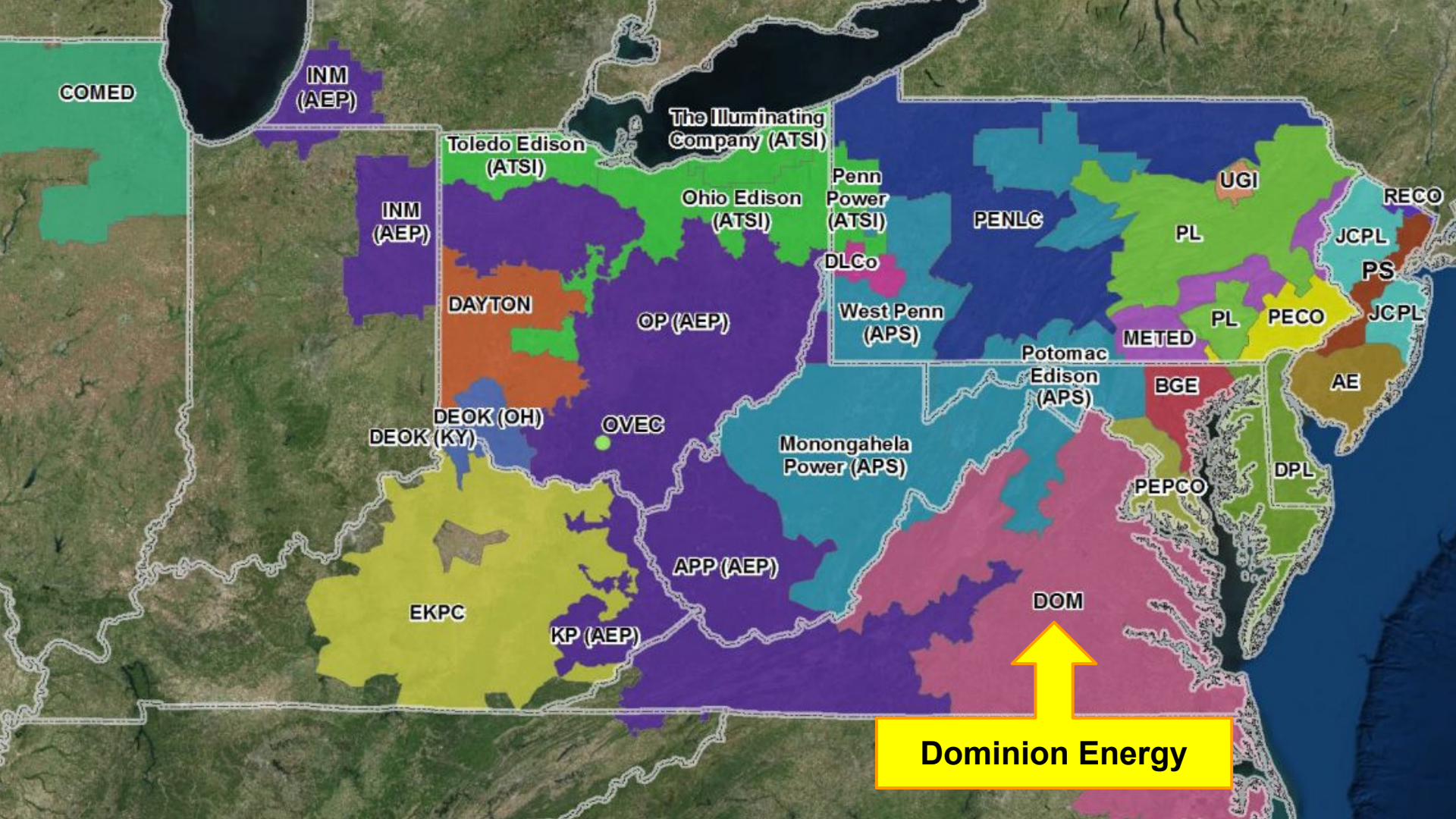
- Monticello Viewshed Protection Area
- National Historic Landmark
- Registered Historic Sites
- Historic Districts

0 2.5 5 Miles

Where is this proposal coming from?

Regional Transmission Operator - PJM



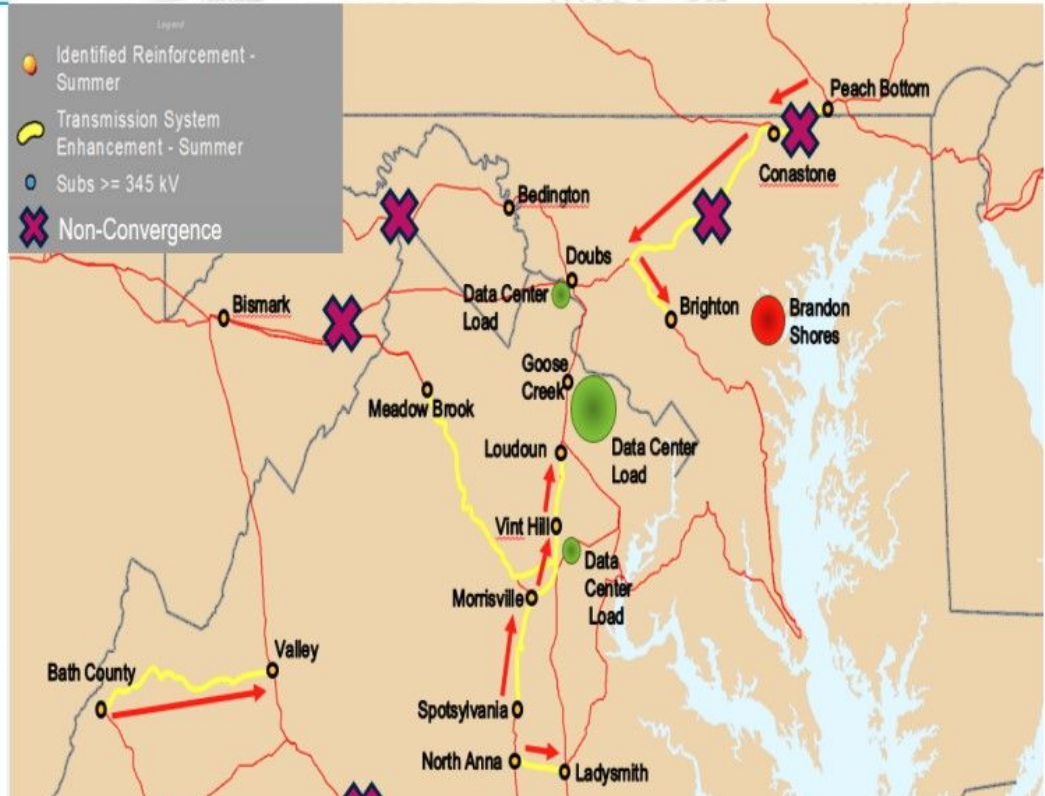

COMED
INM (AEP)
INM (AEP)
The Illuminating Company (ATSI)
Toledo Edison (ATSI)
Ohio Edison (ATSI)
Penn Power (ATSI)
PENLC
UGI
RECO
PL
JCPL
PS
DLCo
DAYTON
OP (AEP)
West Penn (APS)
METED
PL
PECO
JCPL
Potomac Edison (APS)
BGE
AE
DEOK (OH)
DEOK (KY)
OVEC
Monongahela Power (APS)
DPL
PEPCO
APP (AEP)
DOM
EKPC
KP (AEP)
Dominion Energy

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 a[illegible]unced deactivations to the west and south of C[illegible]ne
  - Approx[illegible]00 MW occurring after the 2022
- The[illegible] ISA[illegible]
- The[illegible] to t[illegible] to r[illegible]
- 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%

"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)"



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.

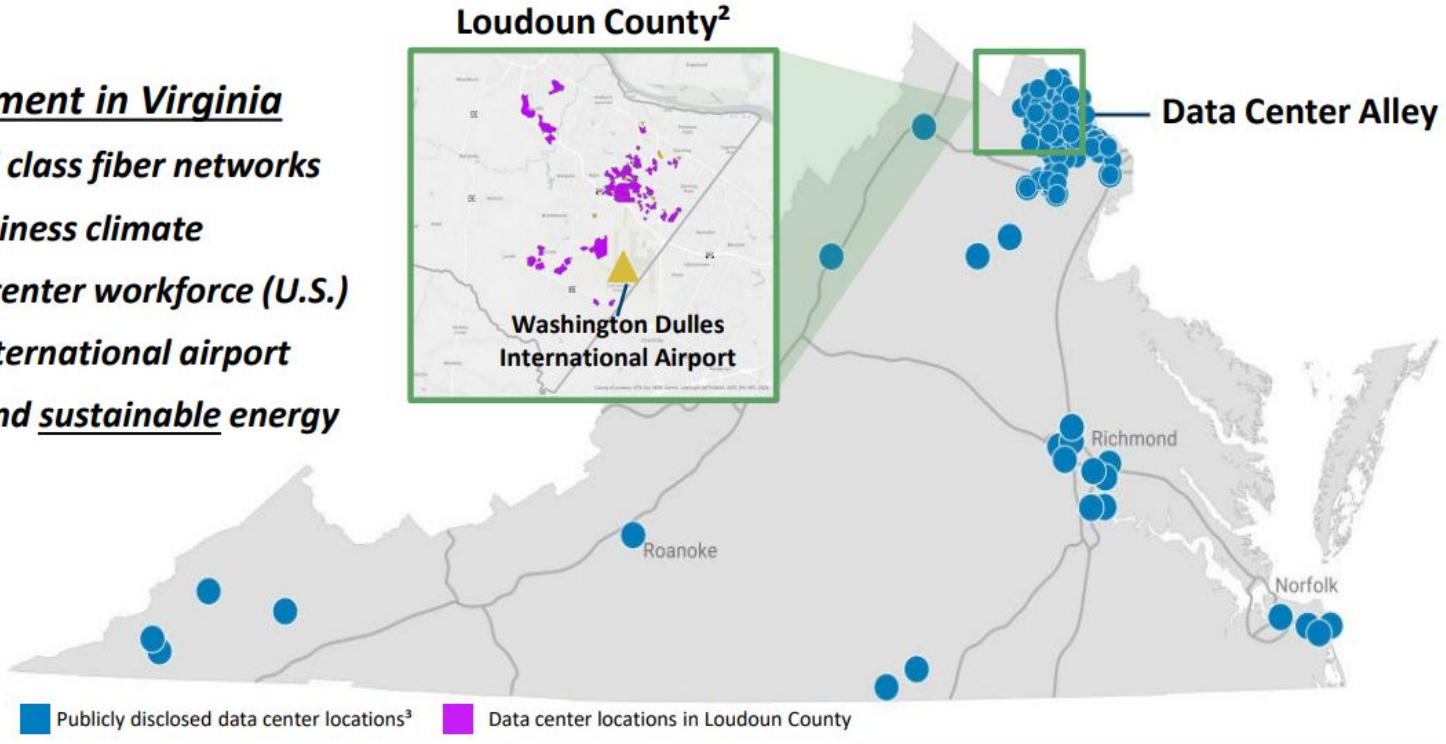
We need to be creative and work together.

Dominion Energy Virginia

Northern Virginia boasts the largest data center market in the world[1]

Data center development in Virginia

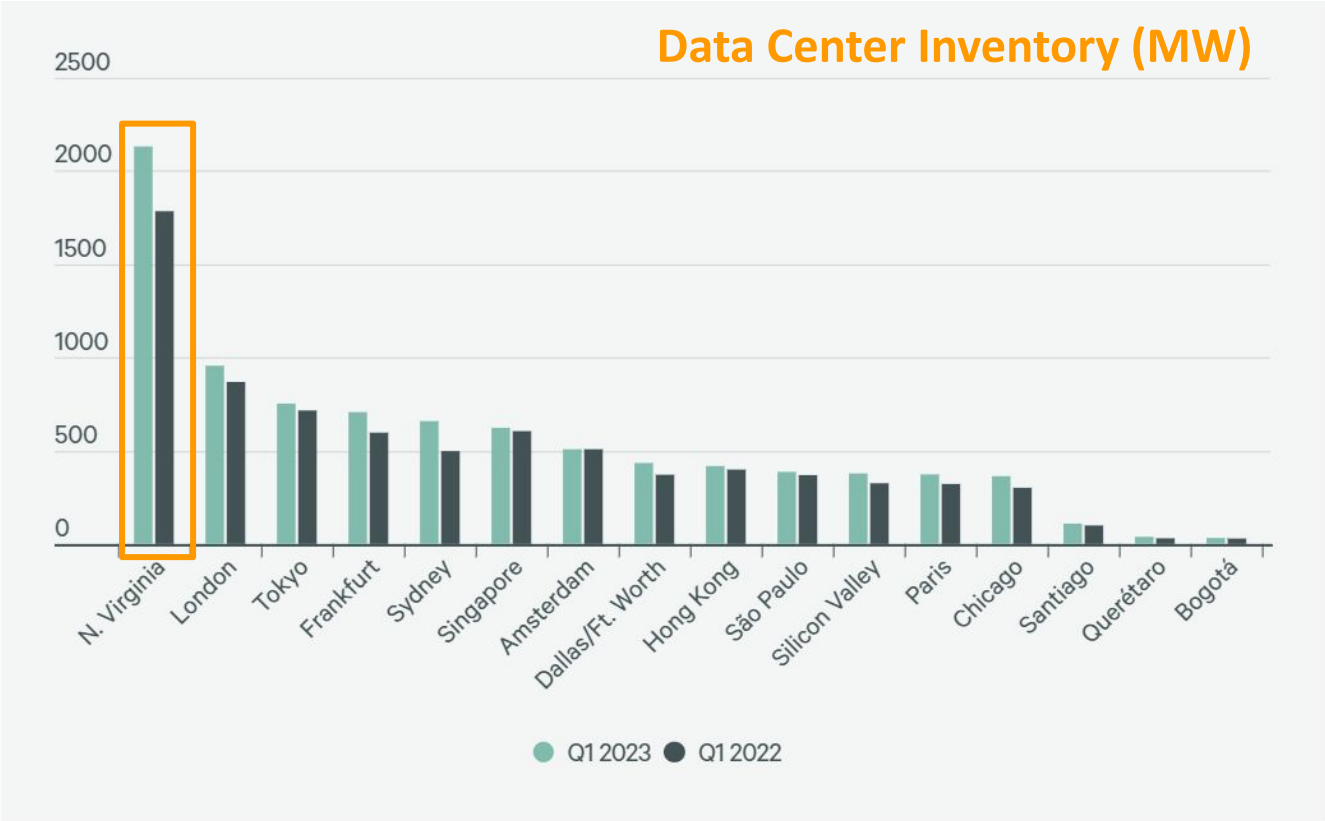
- ✓ *Connectivity to world class fiber networks*
- ✓ *Attractive business climate*
- ✓ *Access to largest data center workforce (U.S.)*
- ✓ *Access to nearby international airport*
- ✓ *Access to affordable and sustainable energy*



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

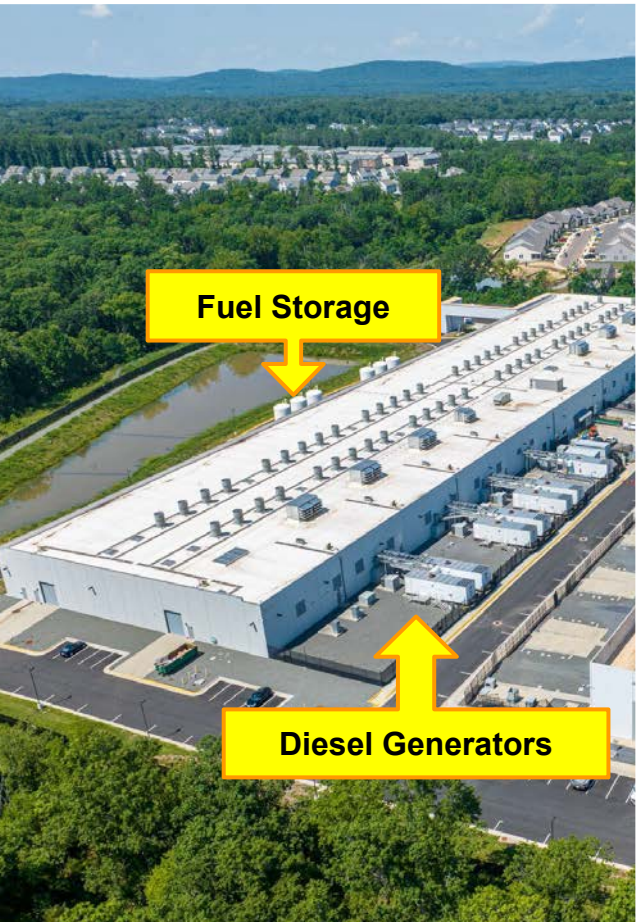
[1] https://www.vedp.org/industry/data-centers [2] February 2022 Loudoun County Data Center Land Study [3] Data Center locations provided by Data Center Hawk

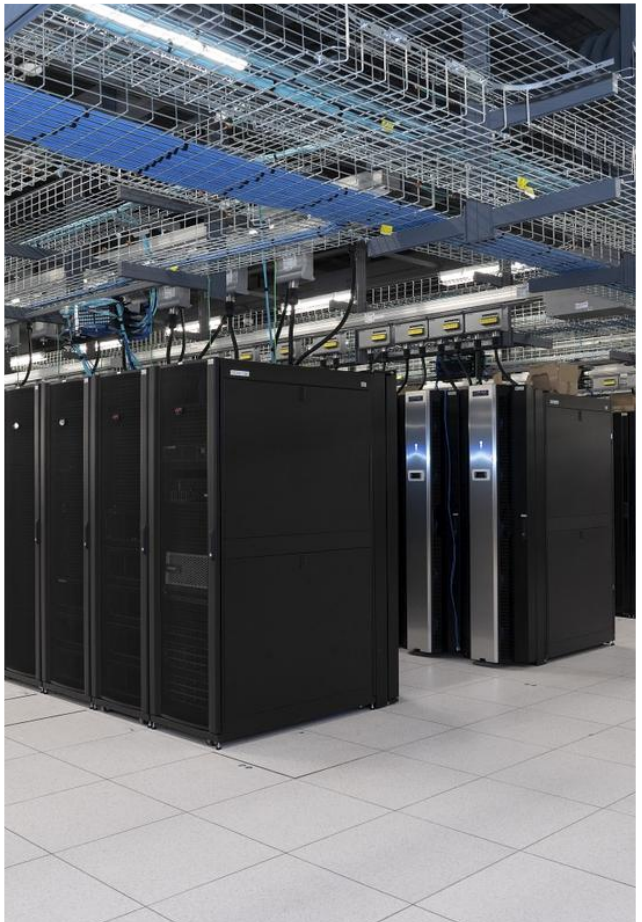
Data Center Inventory (MW)

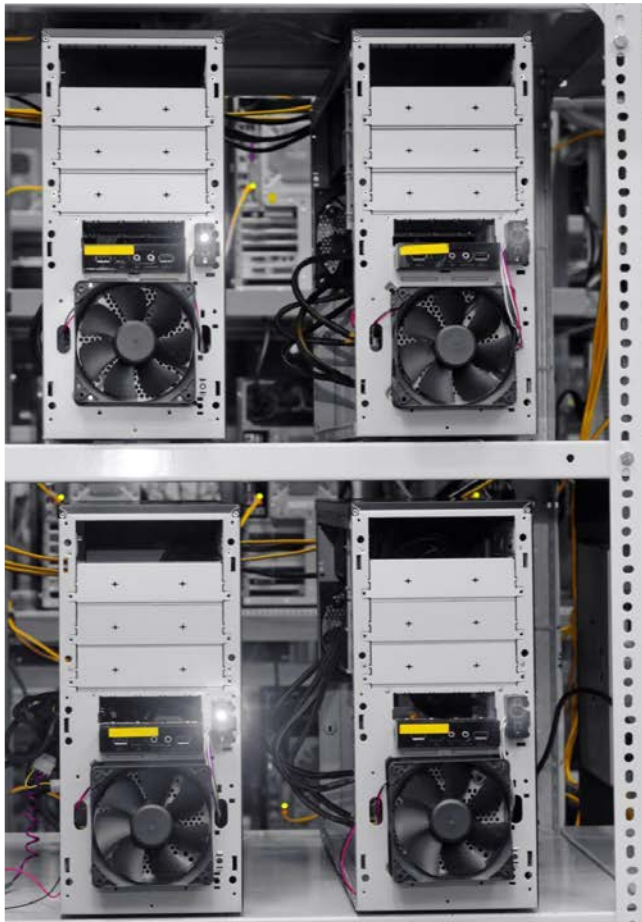


Source: CBRE Research, Q1 2022 & Q1 2023. Figures and data for North American markets include only wholesale colocation facilities. In Europe, Latin America, and Asia-Pacific, total inventory includes both wholesale and retail colocation facilities.

The digital age relies on data centers







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.

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

And more are in the pipeline…

Total Current Load From Data Centers (NoVA)

= 2,100 MW

Total Approved But Unbuilt (VA)

= 7,800–23,400 MW

Total Including Applications (VA)

= 16,000–48,000 MW

Source: PEC analysis of applications in Virginia (Aug. 2023)

Let’s put that energy use in context: 1MW = 250 homes

Total Current Load From Data Centers (NoVA)

= 2,100 MW

Total Approved But Unbuilt (VA)

= 7,800–23,400 MW

Total Including Applications (VA)

= 16,000–48,000 MW

525,000 homes

5.8 million homes

12 million homes

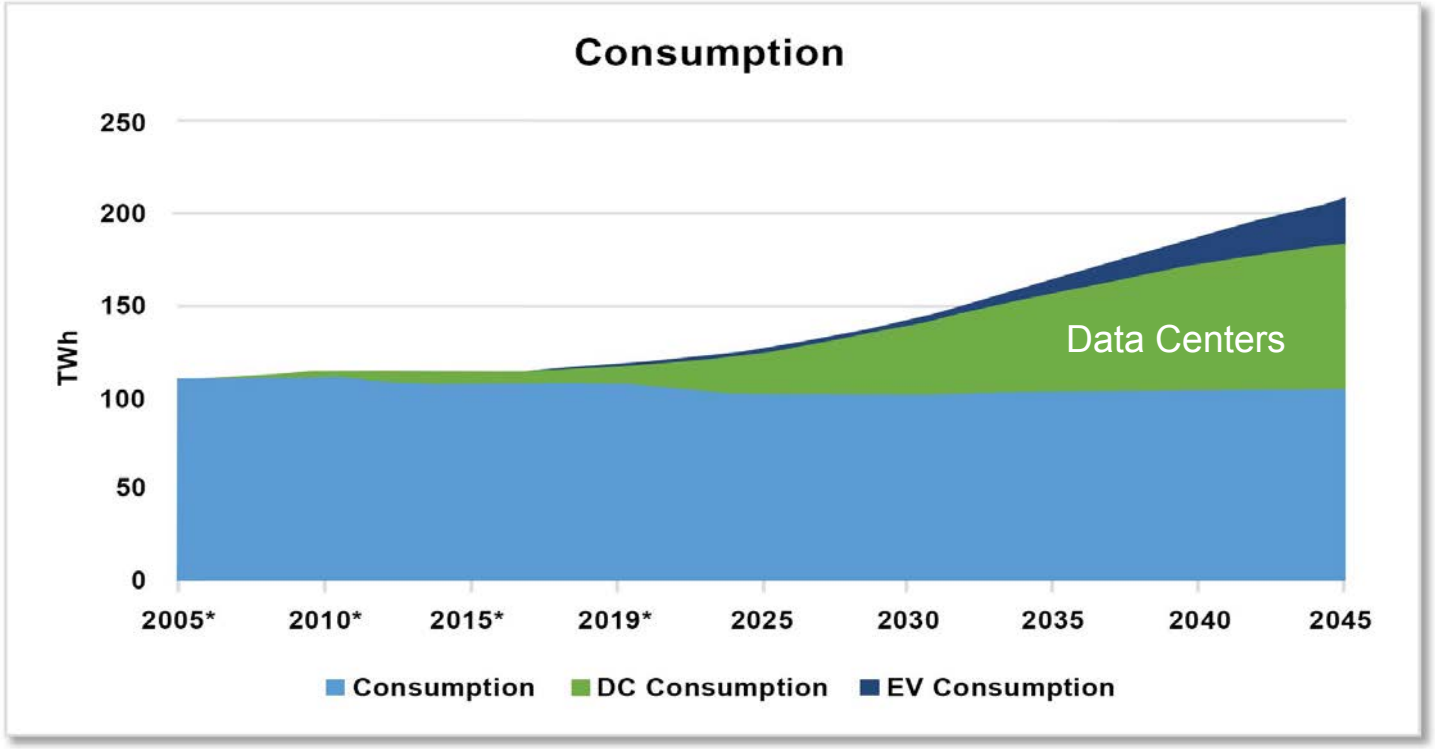


Figure 6: Electricity Sales - Baseline and High Demand Scenarios

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)

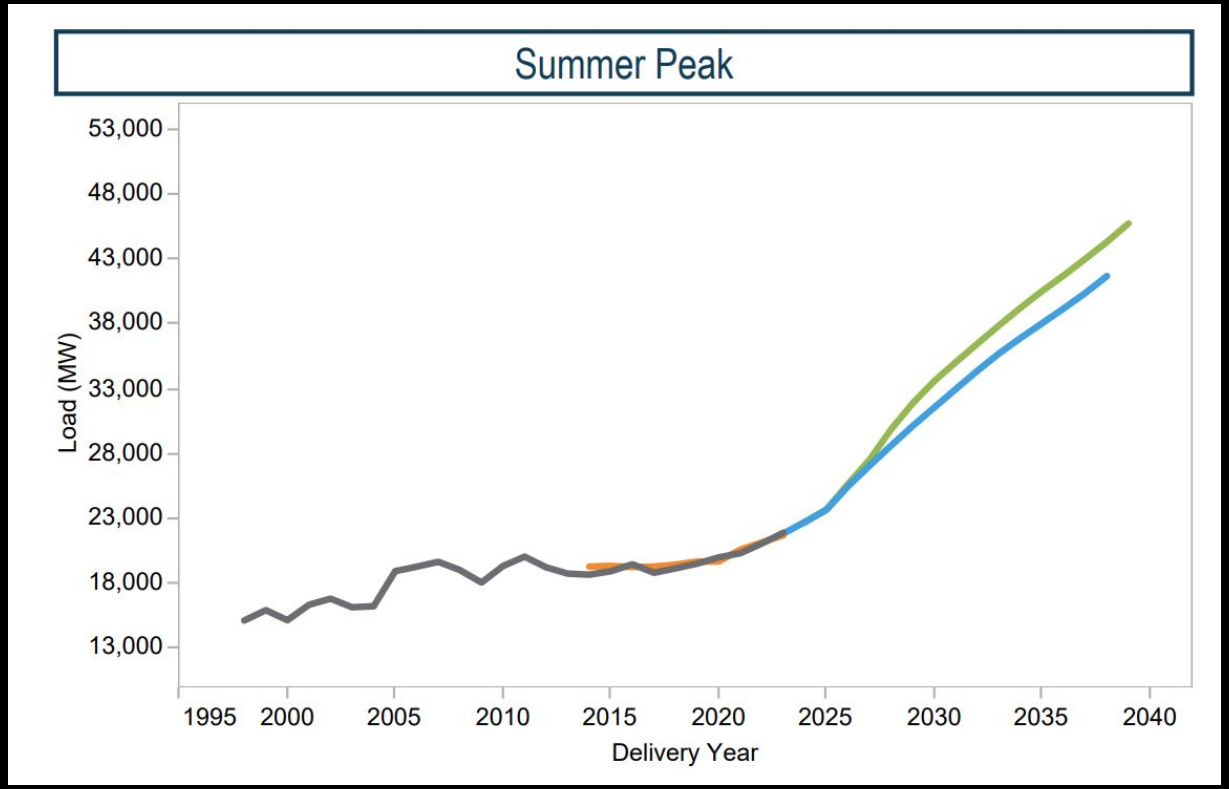
TO THE GENERAL ASSEMBLY OF VIRGINIA

SENATE DOCUMENT NO. 17

COMMONWEALTH OF VIRGINIA
RICHMOND
2021

What's happening in Virginia is unprecedented.

Dominion Territory Explosive Growth Trends



Green = 2024 projection
Blue = 2023 projection

That’s a

doubling of Virginia’s peak load

within 14 years!

Importance of Planning

Prince William Digital Gateway

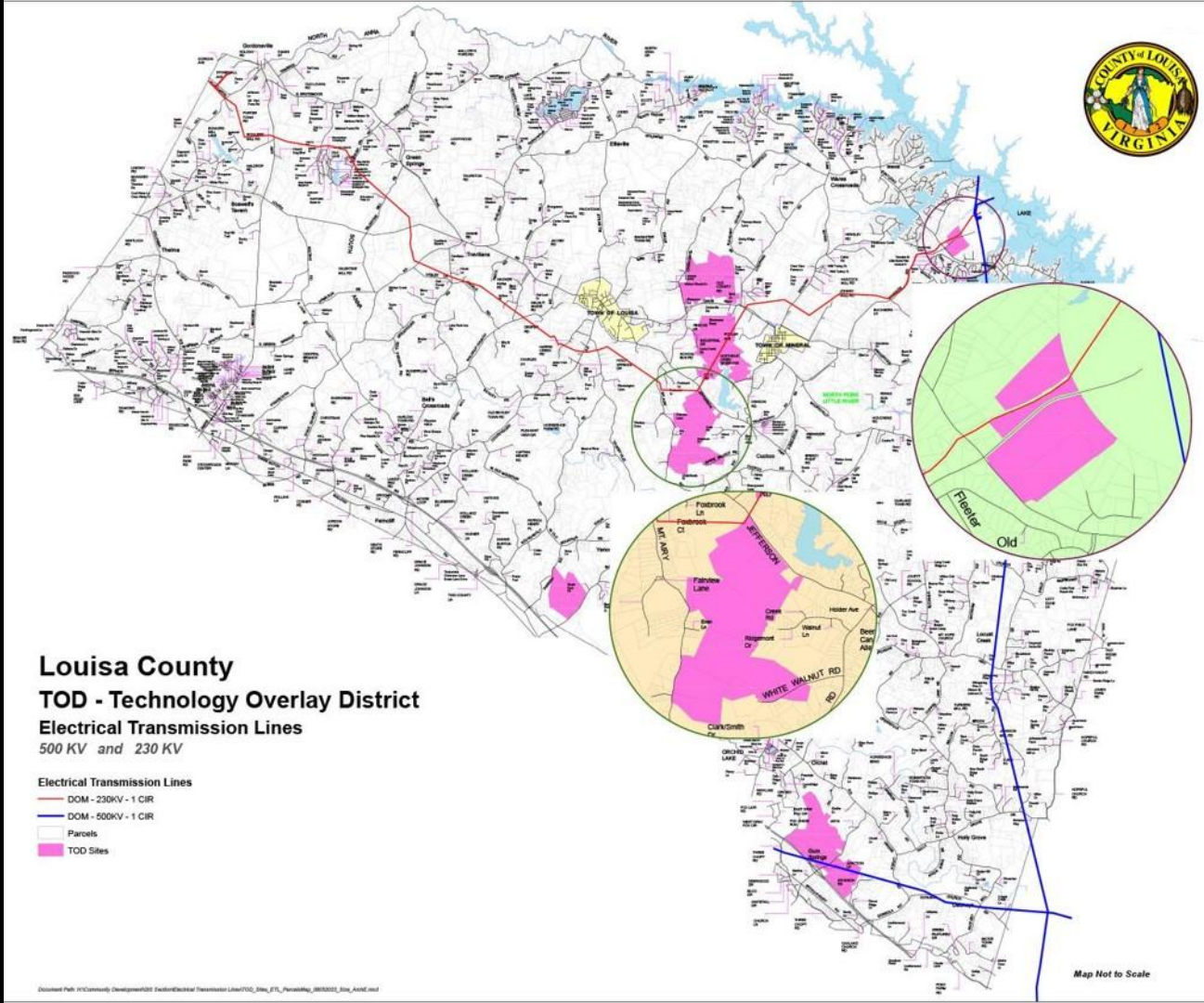
3 gigawatts (GW) of energy, equivalent to the power used by 750,000 homes

37 buildings, 15 substations and no allocated rights of way for transmission connecting the new substations.

Board of Supervisors voted to approve in December. Appeals have been filed.

Amazon Web Services (AWS)

- Investing $11 billion in Louisa County
- 2 data center campuses
- Up to 20-25 data centers



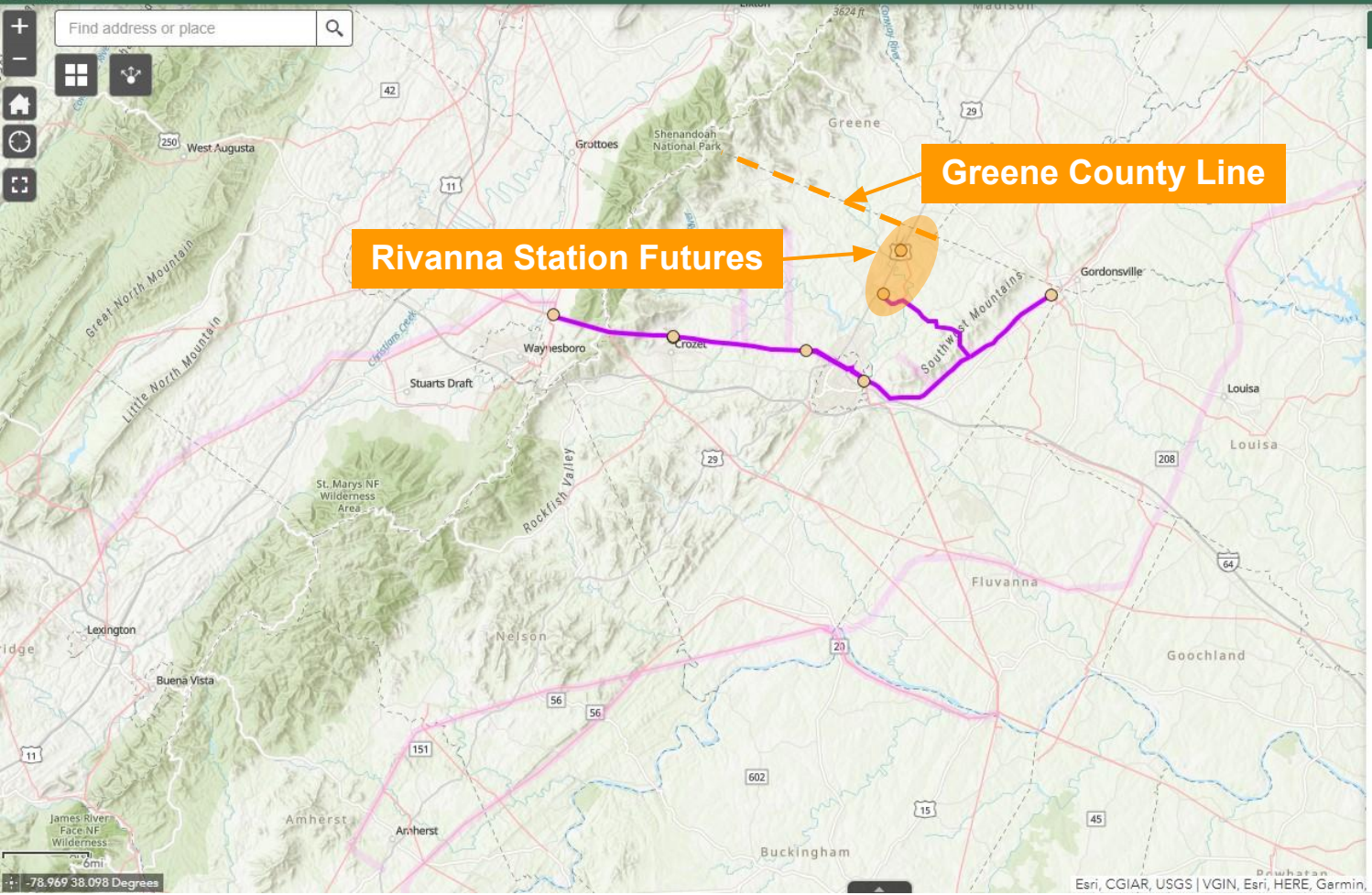
The industry is planning for expansion…

211	**Dominion**	South	Hollymead-Gordonsville Line No. 2135 Rebuild	$54.85	**Yes**	**Yes**	Yes	Required for reliability needs. Considers future load growth in Culpeper and Louisa area by supporting 500 kV developments with double-circuit capable 500/230 kV poles.
967	**Dominion**	South	Charlottesville-Hollymead Line No. 2054 Rebuild	$183.48	**Yes**	**Yes**	Yes *(partial)*	Required for reliability needs. Considers future load growth in Culpeper and Louisa area by supporting 500 kV developments with double-circuit capable 500/230 kV poles.

Rivanna Station Futures

- Intelligence Community Innovation Campus
- Federal Government Contractors
- Higher Education Institutions

Initial Transmission Line Proposals to Serve Data Center Load Growth



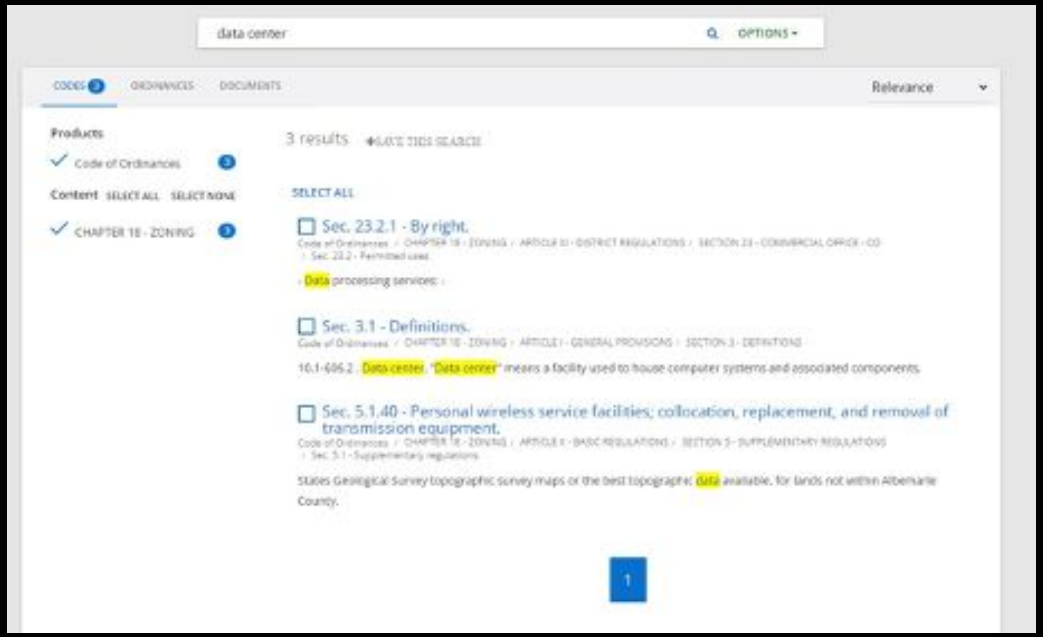
Rivanna Station Futures

"Mr. Henry said that they saw potential for development from North Fork [of the Rivanna River] all the way up to Greene County, approximately eight miles, with the possibility of realizing a **level of potential similar to Silicon Valley at its onset.** He said that they believed the Rivanna Station Futures projects would help anchor that work. He said there was an ecosystem in their community that supported it."

- Trevor Henry, Deputy County Executive, Albemarle County

Albemarle County Planning Commission Work Session Meeting Record, October 24, 2023

How is Albemarle Planning?



Albemarle County updating Comprehensive Plan

Only mention of data centers in Code of Albemarle County is the definition

Where is Dominion going to get all of this power from?

VIRGINIA MERCURY

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

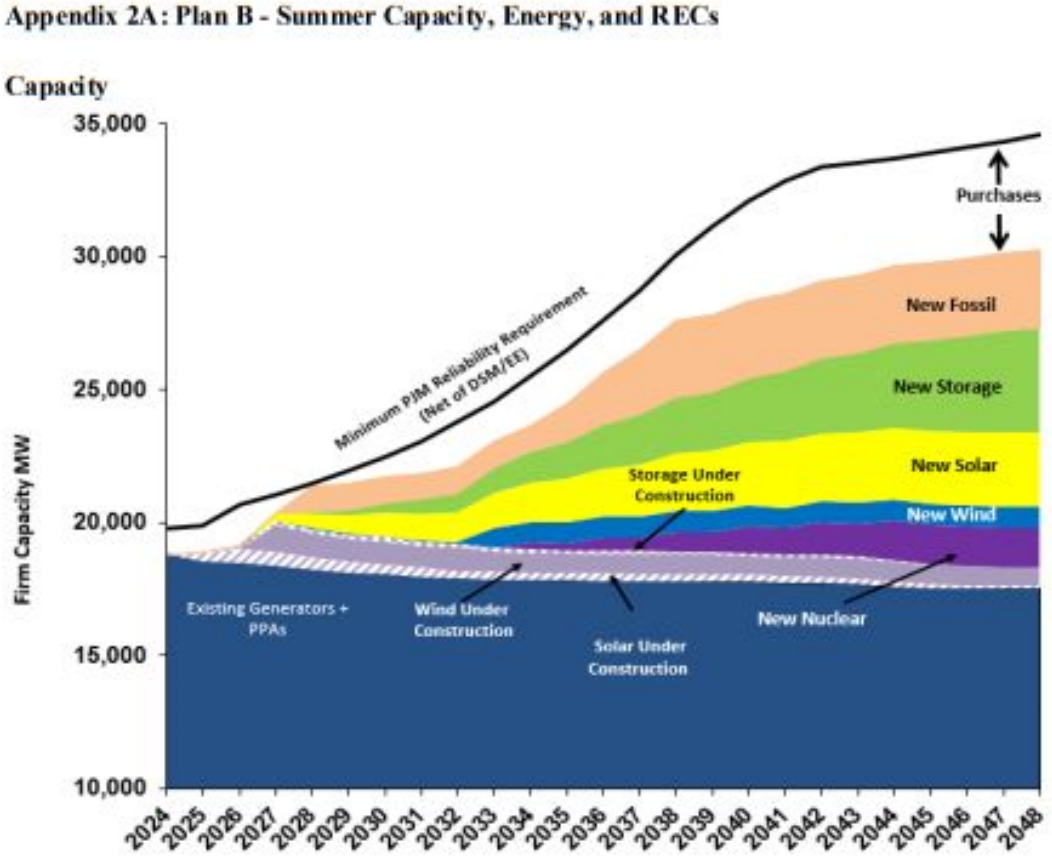
DIVE BRIEF

PJM triples annual load growth forecast to 2.4% driven by data centers, electrification

The PJM Interconnection's fastest-growing zones include ones served by Dominion Energy and FirstEnergy's Metropolitan Edison and Jersey Central Power & Light utilities.

Published Jan. 9, 2024

Dominion's plans rely on…



New natural gas plant plans to open in Chesterfield

Courtesy / Dominion Energ

VPM npr PBS

WCVE News
Here and Now

NEXT UP: 2:0

NEWS LISTEN WATCH SCHEDULES EDUCATION SUPPORT SHOP NEWSLETTERS MY ACCOUNT

Dominion's proposed Chesterfield gas plant draws opposition

VPM | By Patrick Larsen
Published June 28, 2023 at 5:13 PM EDT

▶ LISTEN • 1:10

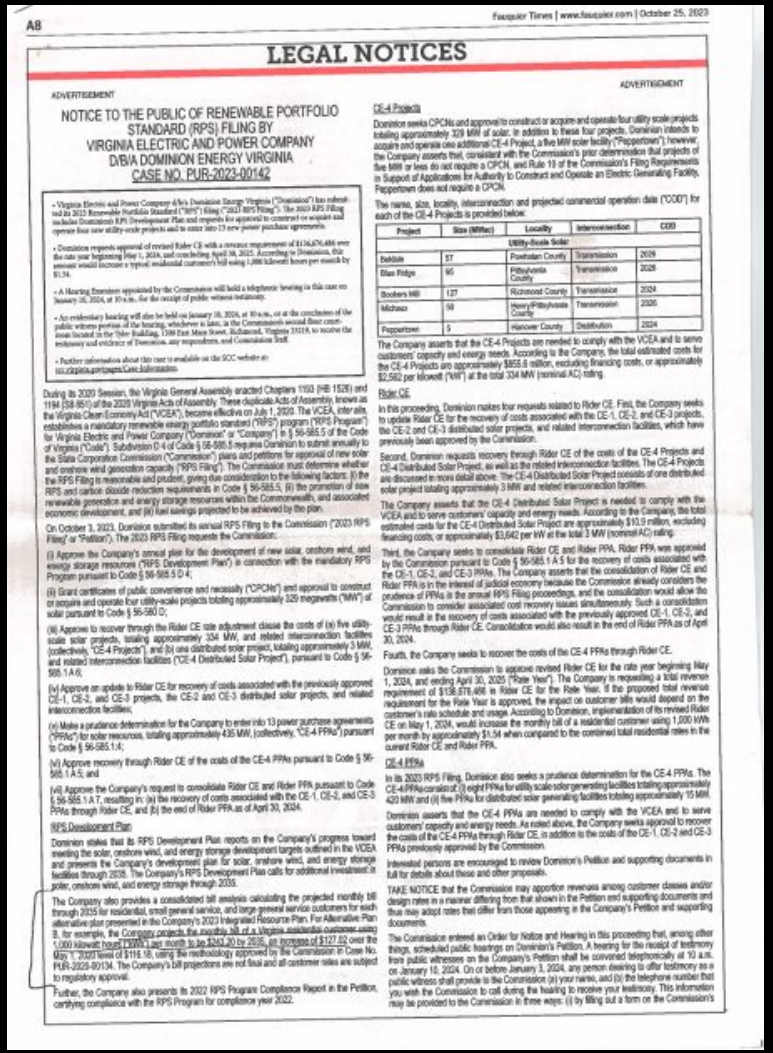
Executive Summary Table: 2023 Plan Results

	Plan A	Plan B	Plan C	Plan D	Plan E
NPV Total ($B)	$109.70	$127.70	$127.20	$140.90	$138.00
Approximate CO_2 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



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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

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CE-4 Projects

Dominion seeks CPCNs and approval to construct or acquire and operate four utility scale projects totaling approximately 329 MW of solar. In addition to these four projects, Dominion intends to acquire and operate one additional CE-4 Project, a five MW solar facility ("Peppertown"); however, the Company asserts that, consistent with the Commission's prior determination that projects of five MW or less do not require a CPCN, and Rule 19 of the Commission's Filing Requirements in Support of Applications for Authority to Construct and Operate an Electric Generating Facility, Peppertown does not require a CPCN.

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

Project	Size (MWac)	Locality	Interconnection	COD
Utility-Scale Solar				
Bellisle	57	Powhatan County	Transmission	2029
Blue Ridge	95	Pittsylvania County	Transmission	2028
Bookers Mill	127	Richmond County	Transmission	2024
Midrace	50	Henry/Pittsylvania County	Transmission	2026
Peppertown	5	Hanover 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 $855.6 million, excluding financing costs, or approximately $2,582 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 for 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 are discussed in more detail above. 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 $10.9 million, excluding financing costs, or approximately $3,642 per kW at the total 3 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 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 issues simultaneously. 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 $138,676,466 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 rate 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 $1.54 when compared to the combined 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 420 MW and (ii) five PPAs for distributed solar generating facilities totaling approximately 15 MW.

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 persons 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 apportion 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 receipt of testimony from public witnesses on the Company's Petition shall be convened telephonically at 10 a.m. on January 18, 2024. On or before January 3, 2024, any person desiring to offer testimony as 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 filling out a form on the Commission's

• Virginia Electric and Power Company d/b/a Dominion Energy Virginia ("Dominion") has submitted its 2023 Renewable Portfolio Standard ("RPS") filing ("2023 RPS Filing"). The 2023 RPS Filing includes Dominion's RPS Development Plan and requests for approval to construct or acquire and operate four new utility-scale projects and to enter into 13 new power purchase agreements.

• Dominion requests approval of revised Rider CE with a revenue requirement of $138,676,466 over the rate year beginning May 1, 2024, and concluding April 30, 2025. According to Dominion, this amount would increase a typical residential customer's bill using 1,000 kilowatt hours per month by $1.54.

• A Hearing Examiner appointed by the Commission will hold a telephonic hearing in this case on January 18, 2024, at 10 a.m., for the receipt of public witness testimony.

• An evidentiary hearing will also be held on January 18, 2024, at 10 a.m., or at the conclusion of the public witness portion of the hearing, whichever is later, in the Commission's second floor courtroom located in the Tyler 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 SCC website at: scc.virginia.gov/pages/Case-Information.

During its 2020 Session, the Virginia General Assembly enacted Chapters 1193 (HB 1526) and 1194 (SB 851) of the 2020 Virginia Acts of Assembly. These duplicate Acts of Assembly, known as the Virginia Clean Economy Act ("VCEA"), became effective on July 1, 2020. 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"). Subdivision D 4 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 must 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 economic development, and (iii) fuel savings projected to be achieved by the plan.

On October 3, 2023, Dominion submitted its annual RPS Filing to the Commission ("2023 RPS Filing" or "Petition"). 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 D 4;

(ii) Grant certificates of public convenience and necessity ("CPCNs") and approval to construct or acquire and operate four utility-scale projects totaling approximately 329 megawatts ("MW") of solar pursuant to Code § 56-580 D;

(iii) Approve to recover through the Rider CE rate adjustment clause the costs of (a) five utility-scale solar projects, totaling approximately 334 MW, and related interconnection facilities (collectively, "CE-4 Projects"), and (b) one distributed solar project, totaling approximately 3 MW, and related interconnection facilities ("CE-4 Distributed Solar Project"), pursuant to Code § 56-585.1 A 6;

(iv) Approve an update to 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 435 MW, (collectively, "CE-4 PPAs") pursuant to Code § 56-585.1:4;

(vi) Approve recovery through Rider CE of the costs of the CE-4 PPAs pursuant to Code § 56-585.1 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: (a) the recovery of costs associated with the CE-1, CE-2, and CE-3 PPAs through Rider CE, and (b) the end 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.

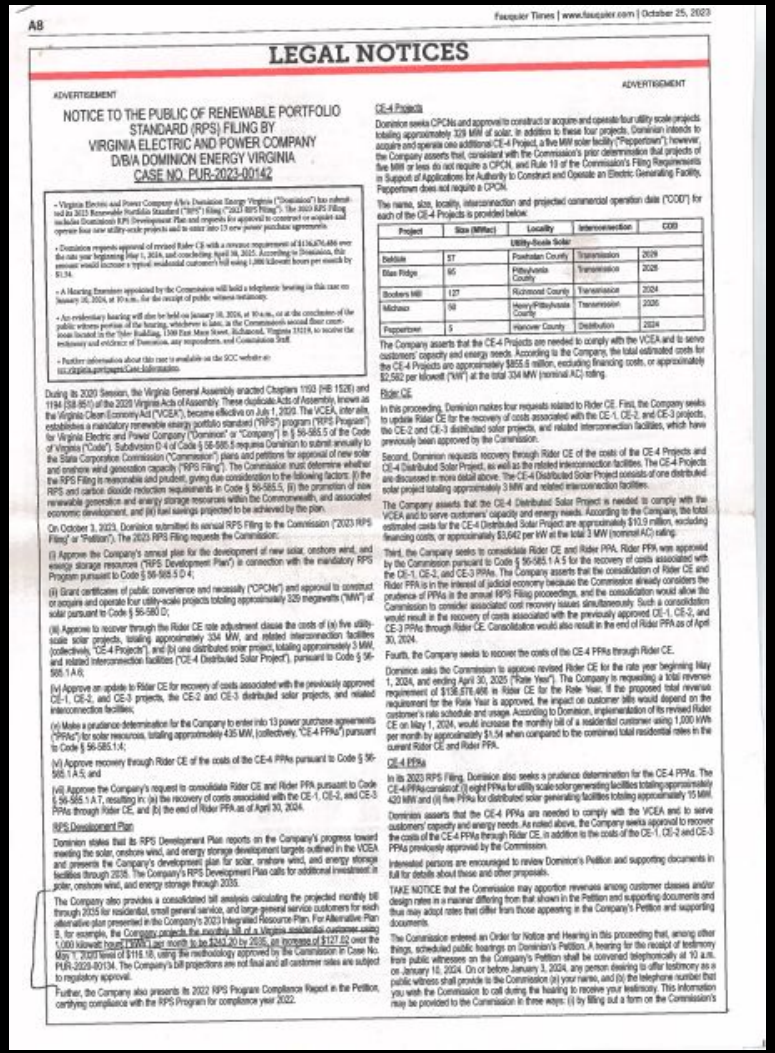
The Company also provides a consolidated bill analysis calculating the projected monthly bill through 2035 for residential, small general service, and large general service customers for each alternative plan presented in the Company's 2023 Integrated Resource Plan. For Alternative Plan B, for example, 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, using the methodology approved by the Commission in Case No. PUR-2020-00134. 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.

"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!



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Virginia cannot continue down this path.

In summary:

- Explosive growth of data centers requires massive amounts of energy and energy infrastructure
- Threatening Virginia's clean energy future, the environment and our communities
- Costs are borne unfairly by existing ratepayers
- Communities that are not benefiting from tax revenue are bearing the brunt of the impacts

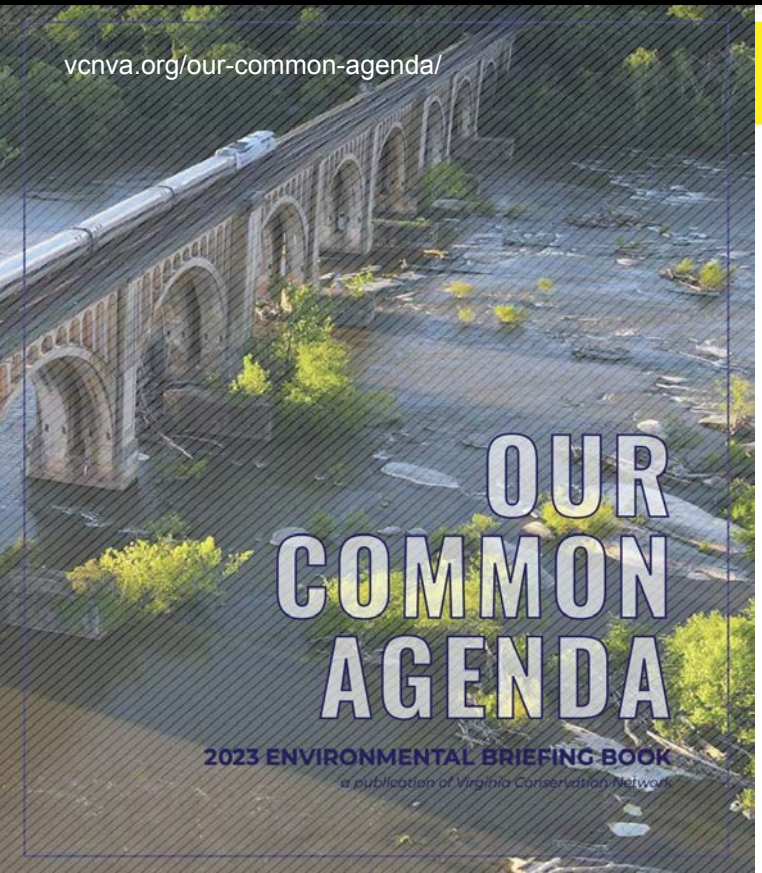
What needs to happen?

- **Better planning and monitoring**
  regional/state plan that guides development and monitors impacts
- **Greater transparency**
  clear information made available about energy demands, water use, cost of infrastructure on a project and cumulative basis, etc.
- **Full impacts are understood**
  policies require local gov. to consider the regional impacts of proposed data centers
- **Improved standards**
  better standards are in place for more sustainable construction, sustainable power, and onsite energy efficiency
- **Industry paying their fair share**
  the data center industry pays for the energy infrastructure they need, relieving the rate payers of this financial obligation
- **Mitigation**
  more robust mitigation paid for by developers to offset impacts to communities and environment

So what are we doing?

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

Advocating for state legislative changes…



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 households[5] [6]. Data centers now make up 21% of Dominion Energy Virginia's power load[7] (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 generators[9] 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
community in Loudoun County. The buildings hold a tota
Photo by Hugh Kenny, 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

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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 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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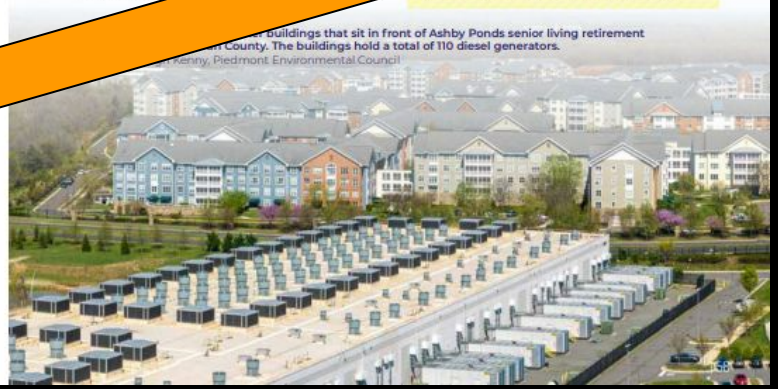


buildings that sit in front of Ashby Ponds senior living retirement
County. The buildings hold a total of 110 diesel generators.
Kenny, Piedmont Environmental Council

Advocating for state legislative changes…

SURGING ENERGY DEMAND FROM DATA CENTERS
DIRTY ENERGY INFRASTRUCTURE

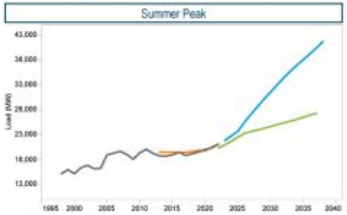
Will Cleveland // Southern Environmental Law Center // wcleaveland@selcva.org
Dan Holmes // Clean Virginia // dan@cleanvirginia.org

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.



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).

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.

Advocating for state legislative changes…

SURGING ENERGY DEMAND FROM DATA CENTERS

DIRTY ENERGY INFRASTRUCTURE

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Dan Holmes // Clean Virginia // dan@cleanvirginia.org

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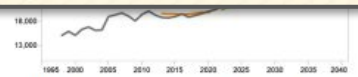

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What can you do?

- **Stay informed**: We'll be sharing more info on the Dominion routing process, county planning and zoning, and opportunities to act
- **Reach out to state elected officials**: ask them to support data center reform legislation
- **Ask County and City officials** how they are planning for this industry's impacts

What can you do?

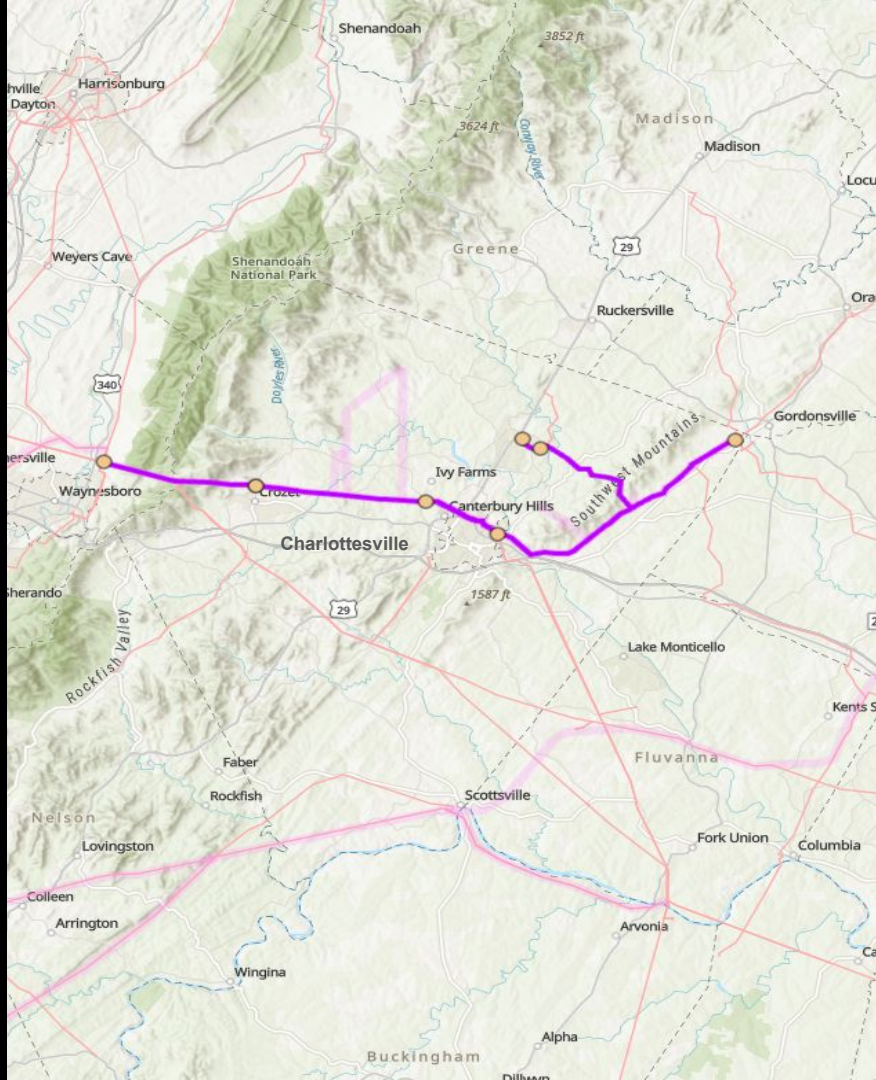
- **Share information** with friends, family, contacts and neighbors.
  - Forward our follow-up
  - There is lots of great info at pecva.org/datacenters

- **Financially support** the local efforts and the broader campaign that is needed!

What can you do about specific **transmission proposals**:

- **Participate**
  - Dominion will likely run a public input process with public meetings and/or comment opportunities.
  - They will file a formal application with the State Corporation Commission and that will have a public comment option.
  - Consider intervening as a formal respondent.

- **Advocate:**
  - Let your elected officials (local and state) know your concerns.
  - Share conflicts with public policy with your local representatives and state electeds.



Questions?

"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