



*Protecting and restoring the lands and waters of the Virginia Piedmont,
while building stronger, more sustainable communities*

September 11, 2023

Piedmont Environmental Council
45 Horner St.
Warrenton, VA 20186

Virginia State Corporation Commission
1300 East Main Street, 1st Floor
Richmond, VA 23219

Re: Case Number PUR-2023-00066 – Dominion Energy Virginia’s Integrated Resource Plan

Dear State Corporation Commission,

The Piedmont Environmental Council (PEC) is a non-profit organization established in 1972 to protect and restore the lands and waters of the Virginia Piedmont, while building stronger, more sustainable communities. Our work is focused primarily on a nine-county region stretching from Clarke and Loudoun counties in the north down to Albemarle County and Charlottesville in the south. We are interested in Dominion’s Integrated Resource Plan (IRP) due to the potential impact it has on the many aspects of our work including the protection of air and water quality, land conservation, preservation of historic resources, access and enjoyment of public parks and trails, energy sustainability, and meeting climate impact reduction goals.

The SCC is charged with approving the utilities’ proposed IRP. The goal of the IRP is to provide a forecast of the electric utility’s load obligations and present a plan to meet those obligations over the next 15 years in a way that promotes reasonable prices, reliable service, energy independence, and protects environmental quality¹. We believe that Dominion’s submission fails in all of these particulars. It fails to ensure the most cost effective solution for ratepayers, it fails to select the least environmentally polluting option (or even analyze the impacts on the environment of the different options) or meet state law mandating a clean energy transition, it fails to select an option that preserves energy independence, and it does not clearly demonstrate

¹ SCC Seeks Public Comments on Dominion Energy Virginia’s Integrated Resource Plan. www.scc.virginia.gov/newsreleases/release/SCC-Invites-Comment-on-Dominion-Resource-Plan. May 24, 2023.

an enhancement in reliability. The purpose of the proposal seems to be to leverage, further billow and expand, and profit from the explosive growth of one industry (data centers), taking advantage of the increased demand from the data center industry (which is dependent on massive amounts of power being available) and the cost-of-service regulatory model in place, to profit from an unprecedented expansion of infrastructure. This plan puts company profits over ratepayers and the needs and desires of the people of Virginia.

Our organization has been following both local and statewide data center development closely and is concerned that the utility and parties to the case seem to lack a comprehensive understanding of the data center industry, especially recent trends related to demand growth, local approvals and the size of newer proposals. Virginia is currently in the midst of a data center development gold rush and the SCC must be cautious in how it allows the utility to react to this unprecedented demand.

Projections offered by Dominion and participants in the case fail to account for recent approvals by localities and the cumulative impact of these decisions on regional electrical infrastructure, water supply, air quality, parks, historic resources, and the Commonwealth's climate goals. Many localities have approved or now allow data center development by-right on large acreages of land. There continues to be pressure in Northern Virginia with around 10 million sq ft under review in Loudoun and over 40 million sq ft of data center space under review by Prince William County². In addition, there are a growing number of approvals and applications for large data center campuses in Fauquier, Culpeper, Spotsylvania, Caroline, Stafford, Surry, King George, Prince Edward, Henrico, Louisa, and other jurisdictions³. From our review of current and planned data center projects, current and future energy demand is not specified in most land use permissions but based on load requests we've seen, 150-450 watts per square foot of data center space seem to be the range.

The 2023 regular session of the Virginia General Assembly passed HB 2482 / SB 1541, which expedited review of the Wishing Star to Mars 500 kV transmission line, a \$600 million dollar section of a new 500kV loop planned for the Loudoun corridor dubbed "data center alley"⁴. We've participated in Dominion stakeholder meetings on these projects and the utility has been very clear on the positive correlation between the need for new transmission lines and data center load requests (covering the next 5 years worth of build out) in the area. Some land development approvals on the ground go well beyond a 5 year build out or have not submitted load requests

² See attachment 1: List of Data Center Applications in Loudoun and Prince William.

³ See attachment 2: List of Some of the Data Center Approvals and Applications in Other Areas of Virginia

⁴ Dominion Loudoun Reliability Project: <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/power-line-projects/nova/maps/loudoun-reliability-projects.pdf?la=en&rev=2b4624fa8fb94922b92adea57e12c386&hash=9DB73CAAC5B3DF639EBF5424FC92E0B9>.

yet. Dominion representatives have confirmed this short planning horizon in meeting data center demand increases during local discussions in Loudoun, Prince William, and Culpeper. In addition, we've been told by industry experts that existing data centers are likely to start requesting increased power loads as their customers incorporate AI into their applications and processing.⁵

In the near future, the SCC will be faced with new proposals by the utilities and recommendations from PJM for additional transmission investments needed to meet existing reliability and demand conditions. Currently there are 72 projects in the PJM RTEP 2022 Window 3. The majority of these proposals are proposed as options to address data center load growth in the northern Virginia area but the additional upgrades for transmission extend well beyond the current demand area of data center alley.⁶ It is clear that power demand for data centers is currently increasing; the scale and scope of those increases, however, is poorly documented. What is even less clear is if that trend will continue, decrease or increase. The trend over the past decade is to increase the density and overall intensity of computing within data center structures, meaning the energy required for both computing and cooling per square foot is increasing despite a steady PUE (Power Usage Effectiveness, an industry measure of energy efficiency).⁷ Dominion has told local stakeholder groups in Loudoun, Prince William, and Culpeper, all of which PEC participates in, that the power requests it has received for data centers have increased from around 30 MW per building in 2021 to between 60-90MW per building in 2023. It is unclear if this is due to increased building size or increased processing power of servers and associated cooling.

The information shared in the IRP outlining the methodology for forecasting the future load seems overly dependent on historical trends of the last 3 years. It is our understanding that Dominion only accepts load requests for a 5 year time period. This is problematic, because many of these campuses will likely be built out over a longer period of time, with increases in demand growing as the campuses develop. This seems likely if we accept the limiting factor for their growth is availability of electricity and just getting the transmission line to their facility is the first step. For this reason we believe a more accurate way of forecasting this growth would be to factor in a local buildout analysis based on the data center development approved by localities in the Dominion territory. A buildout analysis looks ahead to a defined planning horizon in order to

⁵ Building a Colocation Strategy to Take on AI. www.coresite.com/blog/building-a-colocation-strategy-to-take-on-ai. Accessed September 8, 2023.

⁶ Data Center Planning & Need Assessment Update. <https://www.pjm.com/-/media/committees-groups/committees/teac/2023/20230110/item-04---data-center-load-planning.ashx>. January 10, 2023.

⁷The cloud uses massive amounts of energy. Generative AI will be way worse. www.businessinsider.com/ai-data-centers-energy-cloud-microsoft-chatpgt-amazon-google-2023-7. July 14, 2023.

project the amount and location of growth allowed under existing land use regulations. Other factors that would increase or decrease future load demand should also be taken into consideration. These include supply chain⁸ and staff limitations⁹ that might hinder further data center development as well as the use of AI or machine learning which according to industry experts could increase future demand from the sector by 2-5 times current levels by 2030¹⁰.

To ensure continued affordability and reliability of the electric grid our recommendation is that the SCC should request that the load forecasting in the Dominion IRP be redone by an independent third party and include:

- Multiple scenarios ranging from high growth to slower growth with assumptions
- Incorporate information about local build out of approved data center development at various stages (ie zoning, owned by data center company, building permit issued, under construction, occupancy permit issued)
- Require the utility to start accepting planning information about full buildout beyond current 5 year load requests. While the utility is appropriately focused on current loads and should not overbuild for a future buildout that may never happen, in order for the SCC to have any confidence in the IRP projections, a more robust understanding of the needs over the next 15-20 years is essential.
- Incorporate market trends (ie supply chain or staffing limitations that might slow growth or increased interest in AI development that might increase growth)
- Incorporate technological trends (ie increased energy efficiency in computing/cooling or increase energy usage by data centers due to broader adoption of AI¹¹)

The SCC must ensure that the load forecasting is accurate. We neither want to overbuild or underbuild because the results are either excessive cost of unneeded infrastructure placed on ratepayers or reliability issues due to an overstrained grid.

The second part of our comments will focus on the appropriateness of the plan put forward to meet obligations over the next 15 years. This plan ignores current law and policy of the Commonwealth, failing to meet the Virginia Clean Economy Act and climate policies more broadly. The SCC is charged with protecting the public interest and rate payers, ensuring our utilities are in compliance with Virginia law and the guidance given by the legislature. The

⁸ Supply-chain constraints spike data-center outages. www.networkworld.com/article/3700151/supply-chain-constraints-spike-data-center-outages.html. June 20, 2023.

⁹ Data center staffing — an ongoing struggle. <https://journal.uptimeinstitute.com/data-center-staffing-an-ongoing-struggle/>. March 1, 2023.

¹⁰ The Hidden Cost of AI: Impending Energy and Resource Strain. <https://environment.upenn.edu/events-insights/news/hidden-costs-ai-impending-energy-and-resource-strain>. March 8, 2023.

¹¹ AI Power Consumption Exploding. <https://semiengineering.com/ai-power-consumption-exploding/>. September 6, 2023.

proposed plans all include delayed retirement of fossil fuel power sources, a heavy reliance on purchasing out of state power, billions of dollars for new transmission lines to move that purchased power, new “fracked” natural gas power generation, and small modular nuclear (a costly and heretofore unproven technology). These actions are not consistent with the goals of the IRP (to meet obligations over the next 15 years while promoting reasonable prices, reliable service, energy independence, and environmental quality) or the goals and timelines set forth in the VCEA. We believe that this proposal is not about ensuring reliability but about leveraging, further billowing and expanding, and profiting from the explosive growth of one industry.

Buddy Rizer, economic development director of Loudoun County and 7 times running Tech Titan of the Washington Area¹², stated in a recent interview with the Prince William Times, “I think the industry has done an amazing job of flexing loads and transferring loads and reassessing timelines. This is what the (data center) industry does, by and large. And the thing that people forget is, *power is their currency*. That's what they sell.”¹³ (emphasis added) The article explains what happened in July of 2022 when Dominion announced power delivery would be severely limited until January 2026 as it temporarily paused hookups for new data centers. Since then promises seem to have been made and the state and localities have continued to passed tax incentives and streamlined approval processes to induce even more growth¹⁴ under the assumption that massive amounts of power is going to be built out in an expedited fashion. But the role of the utility is to provide safe, reliable, affordable power, and sustainable energy to all ratepayers, not to provide massive amounts of power and infrastructure to support one industry at the expense of all ratepayers.

Data center developers all over the world are building out to meet ever increasing demand and part of the calculus about where to invest is dependent on where they can secure power. The bottom line is that power and data center development is intricately tied together and the data center development proposed on the ground can not come to fruition without the energy infrastructure. This is a different dynamic than any other business and therefore the SCC must be careful not to place the burden of providing massive amounts of infrastructure on ratepayers. Multiple data centers have required miles of transmission lines extended out for the purpose of economic development such as Amazon in Culpeper¹⁵. Not only do rate payers have to pay for

¹² Buddy Rizer Named a Washingtonian Tech Titan for 7th Consecutive Year. <https://biz.loudoun.gov/2023/08/31/buddy-rizer-named-a-washingtonian-tech-titan-for-7th-consecutive-year/>. August 31, 2023.

¹³ Dominion Scrambles to Meet Soaring Power Demand. www.princewilliamtimes.com/news/dominion-scrambles-to-meet-soaring-power-demand/article_f475db14-1215-53d9-8130-cb3f83d254cd.html. July 20, 2023.

¹⁴ Virginia Updates Incentives to Land \$35 Billion Data Center Buildout by AWS. www.datacenterfrontier.com/cloud/article/21545918/virginia-updates-incentives-to-land-35-billion-data-center-buildout-by-aws. January 23, 2023.

¹⁵ Germanna Transmission Line: www.dominionenergy.com/projects-and-facilities/electric-projects/power-line-projects/germanna. Accessed September 6, 2023.

these lines but eminent domain is used to acquire the ROW for the purposes of economic development, arguably in violation of the intent of the Virginia Constitution. This plan would go further placing the additional cost of generation and long-distance transmission on ratepayers as well along with the impacts of greenhouse gasses and local air pollution associated with fossil fuel energy sources. To add insult to injury residential and commercial sectors have been making per capita gains in energy efficiency, while the data center industry has been gobbling up these gains and single handedly causing energy use to skyrocket.

The plan put forward in the utilities IRP must recognize this unique industries demand and address it in a way that meets their obligation to serve power over the next 15 years while promoting reasonable prices, reliable service, energy independence, and environmental quality. That means shifting the cost of infrastructure and additional power generation to the industry requiring these massive increases so that it does not fall on ratepayers creating unreasonable increases in price, meeting the requirements of the VCEA and broader climate policy goals, avoiding overreliance on other states and utility areas for power generation, and ensuring continued reliable service for existing customers.

In conclusion we believe the Dominion IRP as submitted should be rejected in full. We ask that the SCC request two things. First, an independent analysis showing multiple scenarios is needed that factors in more information about local land use approvals and power demands at full buildout for data centers along with market and technology trends in this industry. Second, a plan for the 15 year planning horizon that is in line with the state law and policies, appropriately allocates the cost of the unique power demands of the data center industry, and promotes reasonable prices, reliable service, energy independence, and environmental quality. Ratepayers should not be asked to subsidize this massive infrastructure expansion to support a single industry, especially without the utility or the state having a full understanding of what that expansion could actually entail or how speculative it might be. Virginians should not be asked to endure the burden of this additional infrastructure and forfeit commitments to climate goals to allow a plan that does include a single option that does not conflict with the Virginia Clean Economy Act. The SCC and the utility have an obligation to develop an accurate forecast and adopt a plan that reflects the states policies and laws and protects ratepayers from excessive risks, costs, and environmental impacts.

Sincerely,

Julie Bolthouse
Director of Land Use
Piedmont Environmental Council

Attachment 1

Information Source	County	Status	Development Sqft
Economic Development Existing (as of 2021)	Loudoun	Existing	27,665,660
Loudoun Online Land Applications	Loudoun	Approved	12,286,529
Loudoun Online Land Applications	Loudoun	Applications	10,938,449
Development Services EPortal Data	Prince William	Existing	6,810,239
Development Services EPortal Data	Prince William	Approved	10,719,948
Development Services Eportal Data	Prince William	Applications	42,510,328
			110,931,153 sqft

Note: Data is not comprehensive and does not include data center space allowed by-right. Economic Development in Loudoun has stated that they estimate there is another 10 million sq ft allowed by right.

Other data center land studies just for reference:

Loudoun Data Center Land Study

https://loudoun.granicus.com/MetaViewer.php?view_id=77&event_id=3407&meta_id=206361

Prince William Targeted Industry Land Need Analysis

<https://www.pwcva.gov/assets/2022-05/Camoin%20-%20Targeted%20Industry%20Land%20Need%20Analysis%20-%20PWC-5.13.2022.pdf>

"PWC's current data center inventory is about 5MSF, with 2-3MSF currently under construction, and another 8-10MSF potentially in the development pipeline"

Attachment 2

Information Source	County	Status	Development Sqft
Fauquier Land Development Portal and News	Fauquier	Approved	2,901,000
Fauquier Land Development Portal and News	Fauquier	Applications	1,400,000
Local News and Economic Development	Culpeper	Approved	4,630,000
Culpeper Planning Commission Agenda	Culpeper	Applications	1,990,000
King George BOS Agenda	King George	Approved	7,250,000
Prince Edward Economic Development	Prince Edward	Approved	1,300,000
Rough Estimate Based on Press Release, Zoning, and Properties Identified (≈1020 acres)	Lousia	Approved	8,700,000
Stafford Page on Development Review Meetings/New Applications	Stafford	Applications	6,010,000
Spotsylvania Page on Rezoning Cases	Spotsylvania	Application	2,100,000
Caroline County Planning Commission Agenda	Caroline/Spotsy	Application	4,500,000

Total 40,781,000 sq ft

Note: Data is not comprehensive and only covers a few Virginia counties.