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FROM: RMI

MEMO: Policy considerations for growing data center loads within Virginia’s electric cooperatives

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In October 2025, CEUR reached out to RMI for information on growing data center load forecasts at Virginia’s electric cooperatives and broader impacts on Virginia’s future electricity system. This memo provides RMI’s draft, preliminary insights on these issues, and presents some options for further consideration and study. We look forward to the opportunity to work with CEUR to continue to refine and iterate on these ideas.

Overview of Virginia Electric Cooperative Data Center Load Forecasts and Planning

Loads from data center customers are transforming Virginia’s electricity landscape, and electric cooperatives are forecasted to absorb the majority of data center demand.

- Virginia’s data center economy is already the single largest in the world¹ and is forecast to drive a tripling of Virginia’s electricity demand by 2040.²
- Most of these data centers will receive electricity service from one of Virginia’s electric cooperatives, whose members today collectively consume only 17 percent of Virginia’s electricity.³ The Weldon Cooper Center’s forecast of electricity demand in the state estimates that 62% of data center load—roughly equivalent to Dominion’s peak demand in 2024—will be served by cooperatives by 2045.⁴
- For the cooperatives that are absorbing most data center demand, data centers will comprise the majority of their electricity demand by the early 2030s. Examples are Northern Virginia Electric Cooperative (NOVEC), Rappahannock Electric

¹ Joint Legislative Audit and Review Commission (JLARC) (2024), Data Centers in Virginia, <https://jlarc.virginia.gov/pdfs/reports/Rpt598-2.pdf>, p. 6.

² JLARC, p. 28.

³ Analysis of US Energy Information Administration Form 861, 2024.

⁴ Energy & Environmental Economics (E3) (2024), Virginia Data Center Study, https://jlarc.virginia.gov/pdfs/presentations/JLARC%20Virginia%20Data%20Center%20Study_FINAL_12-09-2024.pdf, p. 13.



Cooperative (REC), and generation & transmission cooperative Old Dominion Electric Cooperative (ODEC).⁵

Electric cooperatives' planning practice and oversight differ from Virginia's investor-owned utilities; most do not directly participate in transmission planning and conduct less formal generation planning.

- Virginia's distribution cooperatives own and operate their distribution systems and buy energy supply and transmission service on behalf of their customers.
 - Most Virginia cooperatives procure energy supply through long-term all requirements contracts with ODEC; some procure energy through a combination of bilateral contracts with suppliers, owning and operating their own generation units, or purchasing energy and capacity from the PJM-administered wholesale market.
- As PJM-designated transmission owners, ODEC and Dominion are responsible for planning and building transmission to meet demand in their transmission zone.
 - Individual cooperatives report forecasted system demand to transmission owners, but do not directly participate in transmission planning.
- While cooperative rates are regulated by Virginia's State Corporation Commission (SCC), cooperatives generally do not conduct public, formal long-term planning for their energy supply. Oversight is provided through each cooperative's elected board of directors.
- Cooperatives are using creative methods to procure power supply on data center customers' behalf.
 - Most data center customers at cooperatives are served under market-based rates, by which the cooperative purchases energy and capacity on the data center customer's behalf from the PJM markets.
 - Rappahannock Electric Cooperative has developed a wholly owned subsidiary, Hyperscale Energy Services (HES), which in turn owns individual entities that procure power for individual data center customers.

⁵ Open Remarks Submitted by Gilbert D. Jaramillo on Behalf of Northern Virginia Electric Cooperative (Jaramillo) (2024), Virginia State Corporation Commission (SCC) Case No. PUR-2024-00144, <https://www.scc.virginia.gov/docketsearch/DOCS/82vs01!.PDF>, p. 2; Post-Technical Conference Comments of Old Dominion Electric Cooperative (ODEC) (2024), SCC Case No, PUR-2024-00144 <https://www.scc.virginia.gov/docketsearch/DOCS/83f801!.PDF>, p. 10; Comments of John D. Hewa, President and Chief Executive Officer of Rappahannock Electric Cooperative (REC) (2024), SCC Case No. PUR-2024-00144, <https://www.scc.virginia.gov/docketsearch/DOCS/82w001!.PDF>, p. 3.



Potential Risks for Virginia Ratepayers and Member Owners

Future data center loads, and the uncertainty around how and whether they will materialize, pose potential risks for members at affected cooperatives as well as the general body of Virginia ratepayers. We identify a draft, partial list of risks and opportunities for Virginia ratepayers below:

Forecasting Data Center Loads

Conflicting data center load forecast methodologies and potential duplicate requests can create uncertainty in load forecasts.

- There is currently no standard procedure across load-serving entities in Virginia for forecasting future data center demand.⁶
- Multiple load-serving entities may also receive requests from the same data center customer, who may ultimately commit to only one site.
- Together, these features create uncertainty and the risk for over-forecasting future demand, which in turn presents a risk of over-building electric infrastructure.⁷

If forecasts over-estimate data center demands, existing customers could pay for overbuilt infrastructure.

- Utilities and independent power producers will build energy infrastructure to meet projected demand.* If demand doesn't materialize as anticipated, this infrastructure could go un- or under-used. Existing ratepayers and shareholders would be responsible for recovering these stranded costs.

⁶ ODEC, p. 15.

⁷ ODEC, p. 15.

* Who builds the infrastructure, and bears the risk of over-building, differs by segment and utility type. As the regional transmission provider, Dominion will build transmission infrastructure to meet forecasted demands, the costs of which are spread across all transmission users. For generation, Dominion will build and rate-base generation resources to meet the demands of their customers; cooperatives may plan to purchase energy and capacity from the PJM market on behalf of data center customers, which would insulate the cooperative from additional risk.



Planning and Building Generation

Meeting projected data center demand in Virginia will require unprecedented build-out of new generation resources. Under existing policy, cooperative and independent power producers (IPP) resources will not be subject to VCEA requirements or SCC planning oversight.

- Building enough generation in Virginia to meet projected data center demand would require unprecedented investment and speed.⁸
- Because cooperatives will host most data center demand, generation resources to serve these customers will either be built and owned by cooperatives themselves, or built by independent power producers for the purposes of bilateral contracts or selling into the PJM market.
- Planning for and building these resources will be done under less formal oversight than if resources were built by investor-owned utilities, who must get integrated resource plans approved by the State Corporation Commission. These resources will also not be subject to Virginia Clean Economy Act requirements.
- While PJM sets some minimum capacity requirements for load-serving entities, PJM has limited tools for ensuring that generation capacity is built.⁹ Because cooperatives primarily plan to procure data center energy supply through the PJM market, they will not be a primary driver of new generation to meet data center demands.

Market demand from data center customers could further constrain supply and increase prices for PJM-supplied energy and capacity for all PJM customers.

- Most cooperatives serve data center customers through “market-based” rates, where the cooperative purchases energy and capacity from the PJM market on behalf of the data center customer.¹⁰
- This arrangement insulates the cooperative’s other customers from costs related to providing energy supply to data center customers.¹¹

⁸ JLARC, p. 30.

⁹ JLARC, p. 34.

¹⁰ JLARC, p. 35.

¹¹ NOVEC, p. 14.



- If increased demand on PJM markets from cooperatives' data center customers isn't met with a concurrent increase in supply, however, increased demand from data centers will cause PJM market prices to rise.¹²
- Increased PJM energy and capacity prices would impact all load-serving entities that purchase energy or capacity from PJM.
- Increased reliance on market purchases would also increase market price volatility.¹³

Planning and Building Transmission

Under existing cost allocation methods, existing customers will likely pay for transmission investments needed for new data center customers.

- Serving new data center load in Virginia will require substantial investment in its transmission system.¹⁴
- Transmission costs are typically assigned via FERC-jurisdictional rates to all customers based on their historical share of peak demand. This approach, as opposed to direct assignment of specific transmission costs to specific customers, will cause data center-related transmission costs to be recovered from non-data center customers.

Local transmission planning falls into an oversight gap, which could lead to inefficient planning and additional costs for ratepayers.

- Most data center customers in Virginia will interconnect in an area that Dominion provides transmission service for. Data center customers will require substantial new investments in transmission, both within Dominion's transmission zone and between the Dominion zone and its neighbors.¹⁵
- While PJM conducts transmission planning for regional projects (i.e., transmission lines that move between two transmission zones), it does not provide oversight over individual transmission providers' local projects (called "supplemental" projects in the context of PJM transmission planning). State regulators typically review individual local (supplemental) transmission projects

¹² PJM's market monitor found that data centers were the "primary reason" for recent and expected capacity market conditions. See: Monitoring Analytics (2025), Analysis of the 2026/2027 RPM Base Residual Auction Part A, https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20262027_RPM_Base_Residual_Auction_Part_A_20251001.pdf, p. 1.

¹³ JLARC, p.46.

¹⁴ JLARC, p. 45.

¹⁵ JLARC, p. 28.



to issue a certificate of public convenience and necessity (CPCN), but do not provide oversight on local transmission planning.¹⁶

- Efficient, effective local transmission development is critical for facilitating the overall cost of service, as well as the timeline to interconnection for both new loads and new generation.¹⁷ Inefficient local transmission planning could incur un-necessary costs and delays to grid connection.

Data Centers' Impacts on Host Cooperatives

Data centers will represent a large majority of load and revenue at their host cooperatives, creating liquidity risks for cooperatives and additional costs for other market participants.

- NOVEC, REC, and ODEC anticipate that data centers will represent most of their respective electricity demands by the early 2030s.¹⁸
- Serving these customers can create credit, financial, and cash flow issues for cooperatives. If cooperatives can't quickly recover their data-center-related costs (due to, e.g., a weather-induced spike in prices or a delay in payment), cooperatives may be unable to discharge their payment obligations with remaining cash on hand.
- Default by the cooperative would not only damage the cooperative's credit moving forward, but also create a shortfall at PJM, who would in turn recover those costs from all other PJM members.¹⁹

Decisions about whether and when to interconnect new data center projects might not adequately value system-wide risks and opportunities.

- Utilities have a "duty to serve" customers with reasonable electricity service.²⁰
- In the case of data centers, which may require substantial infrastructure investments before the system can reliably interconnect them, interconnection timelines may extend across months or years.
- Existing Virginia policy does not provide clear direction on why utilities might be permitted to delay connecting new customers (due to, e.g., transmission or

¹⁶ See: RMI (2024), Mind the Regulatory Gap: How to Enhance Local Transmission Oversight, https://rmi.org/wp-content/uploads/dlm_uploads/2024/11/mind_the_regulatory_gap_report.pdf.

¹⁷ JLARC, p. 36.

¹⁸ Jaramillo, p. 2; ODEC, p. 10; REC, p. 3.

¹⁹ ODEC, p. 19.

²⁰ Code of Virginia, § 56-234. Duty to furnish adequate service at reasonable and uniform rates.



generation adequacy issues) while still discharging its obligation to serve.²¹ This ambiguity creates uncertainty and the potential for uneven treatment across entities.

Recommendations for moving forward

Below, we offer multiple potential directions Virginia state policy could take to better understand and mitigate these risks.

Because of the complexity of the subject matter, quickly evolving nature of underlying business trends, and overlapping layers of governance, **we recommend an approach that prioritizes gathering relevant information through a structured process** such as a study by a state agency or an investigatory proceeding by the State Corporation Commission, and then uses that information as a basis for developing tailored, effective policy action.

For each of the policy directions below, we offer potential actions that one or more state entities could take and a preliminary list of information that state entities could gather to better inform specific policy action.

State entities can play a coordinating role to improve transparency and standardization across load forecasts and transmission plans.

Coordinating large load forecasts could reduce forecast uncertainty, surface information about duplicative requests, and mitigate the risk of over-building.²² A coordinating entity such as the SCC could solicit structured information from cooperatives on their large load pipelines and load forecasts, develop a consistent methodology for forecasting load across entities (including treatment of duplicative requests), and publicize regularly updated forecasted loads for relevant areas for use in transmission and generation planning.

Improving transparency and standardization in transmission planning may reduce risks of inefficient build-out. Options for the state to consider after gathering additional information include:

- The SCC could consider conditioning approval of transmission project certificates of public convenience and necessity (CPCNs) based on review and approval of transmission owners' local (supplemental) transmission plan;

²¹ JLARC, p. 37.

²² See: RMI (2025), Get a Load of This: Regulatory Solutions to Enable Better Forecasting of Large Loads, <https://rmi.org/insight/get-a-load-of-this/>.

- In the SCC’s review of supplemental transmission plans, it could take steps to ensure that plans are consistent with least-cost service provision and leverage emerging technical solutions like advanced conductors and grid-enhancing technologies;
- A state agency could investigate whether host cooperatives have sufficient transparency from transmission owners to efficiently interconnect data center customers, based on existing FERC jurisdictional tariffs;²³ and
- Relevant state entities could participate where appropriate in FERC-jurisdictional deliberations on transmission cost allocation.²⁴

Virginia policy has the opportunity to clarify key content issues, such providing additional clarity on obligation to serve, and drive additional confidence and consistency across cooperatives. Cooperatives have some uncertainty, for example, around how their obligation to serve translates to service timelines for data center customers. Virginia policy can clarify specifically utilities’ obligation to serve and under what circumstances utilities can delay connection while building transmission or generation adequacy.

Additional information that state entities could collect to inform next steps:

- Cooperatives’ contracting processes from a prospective customer’s initial request to signature of a service agreement
- Cooperatives’ large load forecasting methodology and treatment of uncertain or potentially duplicative loads
- The amount, cadence, and granularity of information shared between transmission owners and transmission off-takers on project costs and timelines
- Transmission owners’ methodologies for conducting supplemental transmission planning
- Analysis on whether future transmission costs from large load customers would be divided equitably based on current transmission cost allocation methods
- Other tools cooperatives are using to manage data center-related demand and any additional regulatory or legislative policy needed to facilitate risk management

²³ ODEC, p. 37.

²⁴ ODEC, p. 55.



State entities can support co-ops in using key best practices & technical solutions to minimize uncertainty and reduce risks to Virginia’s electricity customers.

Best practices and technical solutions are emerging for integrating data center loads into power systems while managing uncertainty and mitigating risks to ratepayers. As a preliminary list, these include:

- **Flexible demand and accelerated connection:** PJM is evaluating options that would allow data center customers to interconnect without undue impacts on system needs and reliability by agreeing to some level of demand response.²⁵ These options, if adopted by PJM and implemented at cooperatives, could reduce the level of infrastructure needed to serve data center customers. Demand flexibility could be achieved by shifting or reducing gross data center demand, dispatching backup generation, or leveraging offsite options such as virtual power plants to effectively reduce demand or alleviate grid constraints.
- **Large load tariffs with customer safeguards:** Utilities across the country, including cooperatives, are implementing large load tariffs to transparently offer large loads electricity rates and contract terms that safeguard other ratepayers from adverse impacts. Tariffs may include terms that increase the certainty of loads staying within a service territory, such as longer contract term lengths, or provide more certainty of cost recovery, such as minimum monthly charges.²⁶
- **Long-term resource plans for cooperatives:** Cooperatives submit long-term resource plans, to varying levels of oversight and review, in several states.²⁷ If and whether cooperatives shift away from market-based rates for data center customers, long-term resource plans could ensure long-term least-cost power provision for ratepayers.

The State Corporation Commission could solicit information from relevant cooperatives about these practices and processes and, based on their investigation, propose rules for integrating them.

²⁵ PJM (2025), Large Load Additions CIPF Update, <https://www.pjm.com/-/media/DotCom/committees-groups/cifp-lla/2025/20251001/20251001-item-04---cifp---lla-updates---pjm-presentation.pdf>.

²⁶ Database of Emerging Large Load Tariffs, Smart Electric Power Alliance (2025) <https://sepapower.org/large-load-tariffs-database/>

²⁷ “Colorado Public Utilities Commission will oversee Tri-state resource planning,” Clean Cooperative (2019). <https://www.cleancooperative.com/news/colorado-public-utilities-commission-will-oversee-tri-state-resource-planning>; Minnesota Statute (2025) 216B.2422: Resource Planning; Renewable Energy.



Additional information that state entities could collect to inform next steps:

- Relevant cooperatives' coordination with PJM proceedings on expedited interconnection
- Cooperatives' existing and planned tariff options for data center customers and whether they enable demand flexibility
- Cooperatives' existing long-term generation planning processes
- Cooperatives' anticipated changes to market-based rate structures

Given technical complexity and multiple layers of grid governance, more information is needed to develop tailored, effective policy intervention.

Virginia state legislative policy is one of several venues for managing risks related to data center demand growth, and policymakers can understand and coordinate with policy at these other venues to ensure consistency and clarity. Others include:

- PJM, Virginia's regional transmission organization, which performs several functions for the bulk power system, including setting generation capacity requirements for load-serving entities and overseeing regional transmission planning. PJM governance is jurisdictional to federal regulation through FERC; state policy therefore has little leverage over PJM governance.
- The Virginia State Corporation Commission (SCC), which may use its existing authority to manage data center-related risks. The SCC can gather information from key stakeholders via informational proceedings and instate changes to administrative rules through rulemakings.

Additional information that state entities could collect to inform next steps:

- Existing and planned actions at PJM, the SCC, and other state agencies to reduce the risks described above, to more clearly determine gaps state policy should fill.