VIRGINIA CLEAN ECONOMY ACT: ASSESSMENT OF DISPROPORTIONATE EFFECTS ON HISTORICALLY ECONOMICALLY DISADVANTAGED COMMUNITIES

VIRGINIA DEPARTMENT OF ENERGY

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VIRGINIA Energy

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INTRODUCTION

The 2020 Virginia Clean Economy Act (VCEA) requires the Virginia Department of Energy (Virginia Energy) to report every three years as to whether the VCEA imposes a disproportionate burden on Historically Economically Disadvantaged Communities (HEDC). Per the legislation:

That beginning September 1, 2022, and every three years thereafter, the Department of Mines, Minerals and Energy, in consultation with the Council on Environmental Justice and appropriate stakeholders, shall determine whether implementation of this act imposes a disproportionate burden on historically economically disadvantaged communities, as defined in § 56-576 of the Code of Virginia, as amended by this act, and shall report by January 1, 2023, and every three years thereafter, to the Chairs of the House Committee on Labor and Commerce and the Senate Committee on Commerce and Labor and to the Council on Environmental Justice.

In its 2022 assessment, Virginia Energy determined that there was insufficient data available to make a meaningful assessment of the VCEA's impacts at that time. The lead time required to plan and develop projects associated with the VCEA meant that key implications of the legislation, including effects on health, economics, and other relevant factors, had not materialized at that time. Therefore, a 2022 report was not published due to a lack of meaningful evidence.

In 2023, 955 of Virginia's 2,169 census tracts were HEDC eligible based on either low-income or community of color criteria. This represents a slight decrease from 2022, when 993 census tracts met the criteria. The total population residing within HEDC eligible tracts in 2023 was 3,760,928, around 43% of Virginia's population.

RESIDENTIAL BILL IMPACTS

Figures 1 and 2 from the State Corporation Commission's 2025 Report *Implementation of the Virginia Electric Utility Regulation Act Pursuant to §§ 56-596 B and 30-205 of the Code of Virginia* display the change in the average residential bill for customers of Dominion and Appalachian Power between 2007 and 2025 [Note: the VCEA took effect on July 1, 2020].

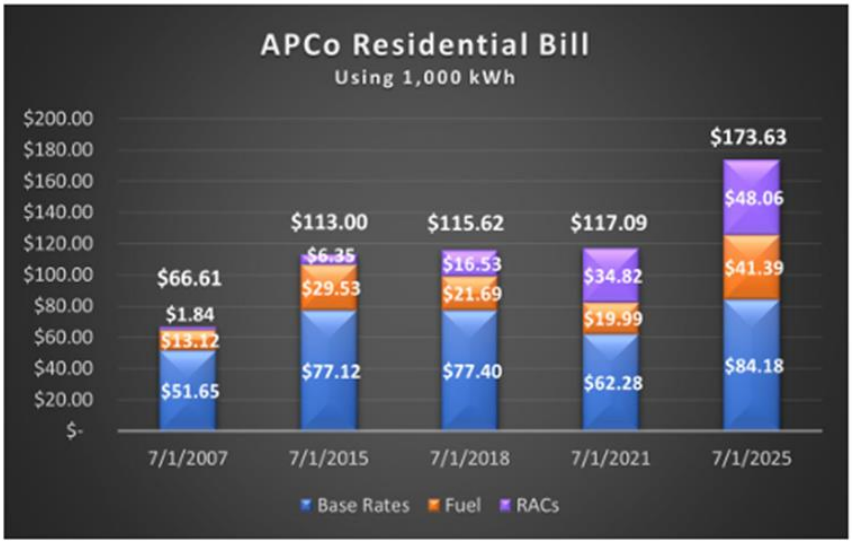

Figure 1 Appalachian Power Average Residential Bill

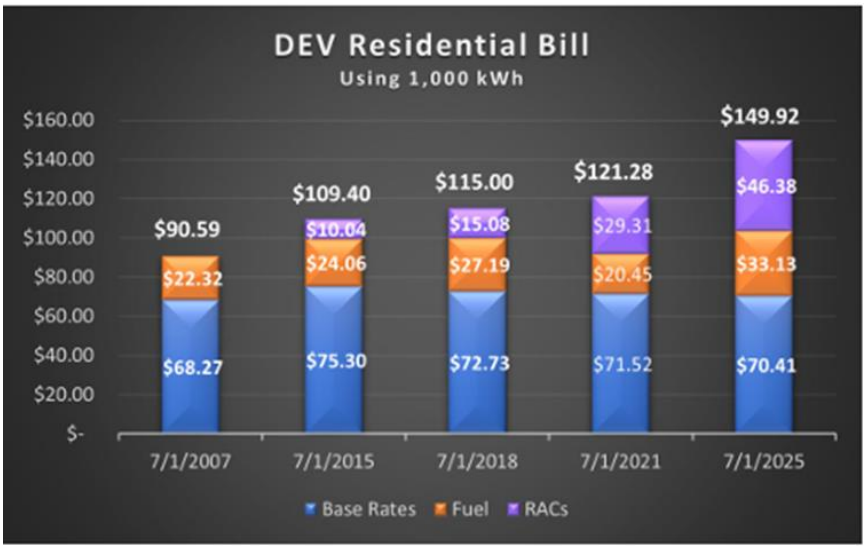

Figure 2 Dominion Average Residential Bill

In its 2025 IRP filing[1] Dominion Energy provided forecasts for future bill increases, which incorporate regulatory requirements under the VCEA, known as the "Preferred Plan – Company's". Between May 2020 and December 2025, monthly residential electricity bills have increased by $42.70, from $116.18 to $158.88. Of this $42.70, $22.88 is for renewable portfolio standard (RPS) related resources, such as solar, offshore wind, and purchasing renewable energy credits. According to the IRP's Virginia Residential Bill Analysis, the most realistic development plan would increase the typical monthly bill from $158.86 in December 2025 to $255.79 by the end of 2035 for a residential customer using 1,000 kWh. Almost 15% of the $96.93 projected monthly bill increase is driven by

[1] Dominion Energy (2025). *2025 Integrated Resource Plan Update*.

costs contained in RPS program resources category, which was $0.37 in 2021 and is projected to rise to $36.68 by December 2035.

ENERGY BURDEN

Per the 2022 Statewide Housing Study conducted by the Virginia Department of Housing and Community Development (DHCD) [2], low-income households are considerably more likely to qualify as energy-burdened and increased energy costs often lead to reduced spending on other essentials, such as food and healthcare. DHCD further explains:

"This disproportionate energy cost burden is partly due to low-income households occupying less efficient homes and apartments. Over 57 percent of all households below 50 percent AMI in the state live in homes built more than 40 years ago."

Given these circumstances, Virginians with lower incomes are much more sensitive to changes in rates than other groups and any of the VCEA-driven bill increases will disproportionately affect these citizens. The VCEA includes the percentage of income payment program (PIPP) which caps bills for any person or household whose income does not exceed 150% of the federal poverty level by limiting electric bill payments to no more 6% of the annual household income if the household's heating source is anything other than electricity, and to no more than 10% of annual household income on electricity costs if the household's primary heating source is electricity.[3] This program will provide some mitigation to certain customers in Historically Economically Disadvantaged Communities (HEDCs); however, its criteria for eligibility are different from the definition of a HEDC, therefore, it is unlikely that all HEDCs will avoid the disproportionate impact of higher bills through this program and some may experience even greater impact as the costs of PIPP are recovered from other ratepayers.[4] See the appendix for HEDC mapping and details.

RELIABILITY IMPACTS

Electrical Reliability

The VCEA contains provisions that exempt utilities and the SCC from taking certain actions if there is a threat to "the reliability or security of electric service to customers". In its 2022 annual report on utility regulation, the SCC identified potential issues with this authority "specifically the Commission's lack of proactive authority".[5] While the SCC was specifically addressing authority

[2] Virginia Department of Housing and Community Development (2025). *Statewide Housing Study* (Ch 27).Retrieved from: https://dmz1.dhcd.virginia.gov/hb854/part-5-utility.html.

[3] Virginia Department of Social Services. Retrieved from: https://www.dss.virginia.gov/benefit/PIPP/index.cgi#:~:text=What%20is%20PIPP?,previous%20balance%20will%20be%20eliminated.

related to retirements in this instance, the exemptions related to the construction of new carbon-emitting facilities and the broader exemption contained in Enactment Clause 9 may place the same limitations on the SCC's ability to proactively address reliability and security concerns.

National Electrical Reliability Challenges

Both PJM and NERC have highlighted concerns about the pace of generator retirements and additions. PJM's analysis indicates that up to 21% of its current generating capacity is at risk of retirement due to state and federal policies.[6] However, planned replacement generation is primarily from renewable sources, which have historically high attrition rates and cannot provide the same consistent power and grid stability as thermal resources. NERC's 2024 Long-Term Reliability Assessment (LTRA) projects that nationwide confirmed retirements could reach 52 GW by 2029, with announced retirements totaling 115 GW over the next decade.[7] These trends indicate that Virginia may struggle to generate power in-state and procure exports in the coming years with negative implications for reliability and affordability. The provisions of the VCEA potentially compound rather than mitigate these risks as it preferences intermittent generation over firm resources.

Land Use Effects Under the VCEA

Since 2016, utility-scale solar farms in Virginia have covered nearly 30,632 acres of land.[8] Under the VCEA, Dominion and Appalachian Power must propose 16,700 MW of new solar and onshore wind resources. Based on a historical land use average for utility-scale solar of 6.93 acres per MW, meeting this build out requirement would require 115,731 acres.[9]

Most utility-scale solar is being sited in rural localities. In terms of land cover prior to conversion, about 50% of the arrays since 2016 are built on former forest land, 28% on cropland, 11% on pasture, around 11% on other types of land.[10] Where the VCEA, rather than least-cost utility planning, is driving generation development towards land-intensive uses, such as solar, it may increase leasing costs for small farmers, including those in HEDCs, however there is currently insufficient data to make a determination of disproportionate land use impacts in HEDCs.

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[4] Per § 56-576:
"Historically economically disadvantaged community" means (i) a community in which a majority of the population are people of color or (ii) a low-income geographic area.
"Community in which a majority of the population are people of color" means a U.S. Census tract where more than 50 percent of the population comprises individuals who identify as belonging to one or more of the following groups: Black, African American, Asian, Pacific Islander, Native American, other non-white race, mixed race, Hispanic, Latino, or linguistically isolated.
"Low-income geographic area" means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service.

[5] State Corporation Commission (2022). *Status Report: Implementation of the Virginia Electric Utility Regulation Act Pursuant to § 56-596 B of the Code of Virginia – September 1, 2022*, 47.

[6] PJM Interconnection (2023). *Energy transition in PJM: Resource retirements, replacements & risks*, 5.

CONCLUSION

Per utility forecasts, the VCEA has been and will remain a primary driver of the substantial rate increases anticipated over the next ten years. While electricity rates increase at a constant level for all residential customers, low-income households are typically less energy efficient and may face a larger monthly bill increase due to their higher consumption levels. Additionally, low-income households could be considered disproportionately impacted in terms of affordability when energy costs rise due to their inability to absorb higher bills. Therefore, implementation of the VCEA will impose a disproportionate burden on historically economically disadvantaged communities based on low-income status. However, there is not enough data currently to quantify the impact to these customers, beyond recognizing the increasing bill trends as a result of the VCEA, because the VCEA compliant system is more expensive than the least cost optimized system.

Disproportionate effects of the VCEA on communities in which a majority of the population are people of color are not yet supported by the available evidence. This will continue to be evaluated alongside impacts to low-income communities.

[7] *2024 Long-Term Reliability Assessment*. North American Electric Reliability Corporation, 8.
[8] Pitt, D., Berryhill, A., & Ciminelli, J. (2024). *Re-evaluating the land use impacts of utility-scale solar energy development in Virginia*. VCU Scholars Compass, 12.
[9] Onshore wind has not been deployed at scale in Virginia hence solar is currently the best proxy for land use. Additionally, it is important to note that the solar and onshore wind designated to be in the public interest represents a floor for development of these resources not a maximum value. Load growth and the VCEA requirements for RPS-compliant resources may necessitate even greater build outs.
[10] Pitt, D., Berryhill, A., & Ciminelli, J. (2024). *Re-evaluating the land use impacts of utility-scale solar energy development in Virginia*. VCU Scholars Compass, 22.

APPENDIX: MAPS

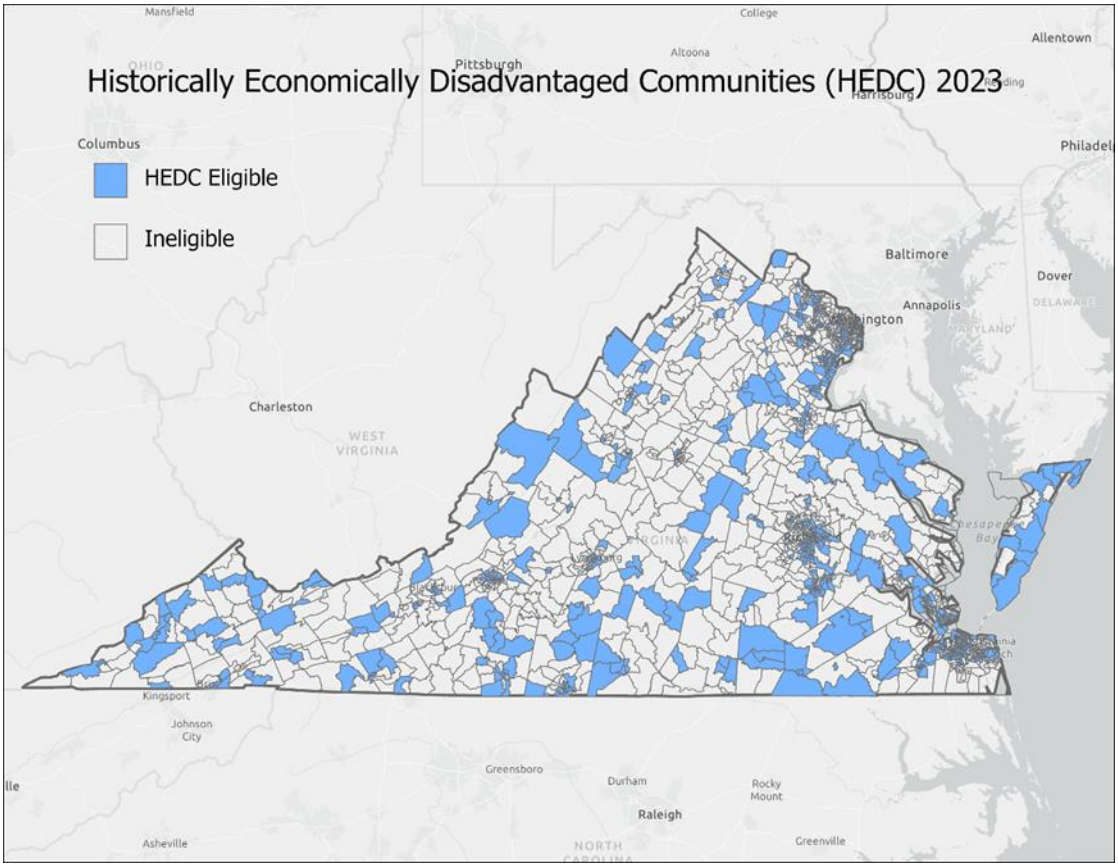

Figure 1: HEDC Census Tracts

A census tract is a US Census Bureau unit of measurement that contains between 1,000 to 8,000 people. They represent a more granular view of HEDCs. Census tracts change each decennial census based on demographic changes.

In 2023, 955 of Virginia's 2,169 census tracts were HEDC eligible based on either low income or community of color criteria. This represents a slight decrease from 2022, when 993 census tracts met the criteria. The total population residing within HEDC eligible tracts in 2023 was 3,760,928, around 43% of Virginia's population.

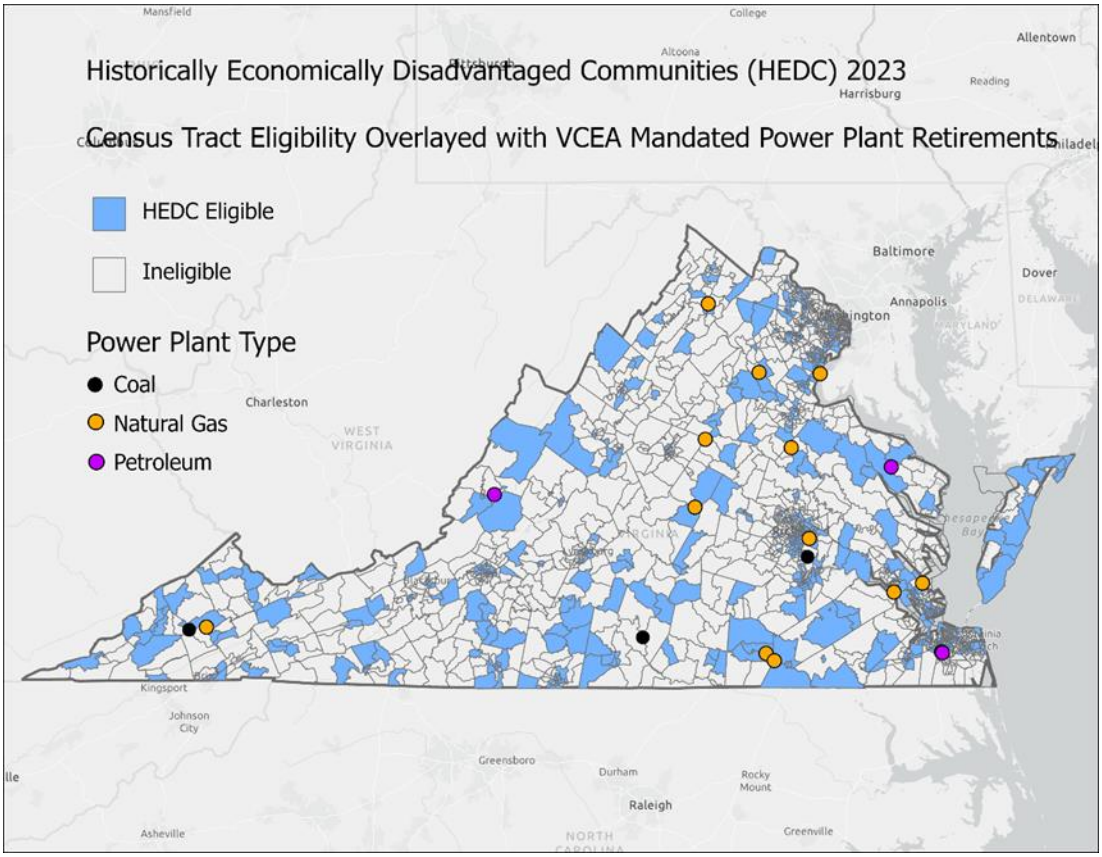

Figure 2: HEDC Census Tracts with Power Plants Scheduled for Retirement

At the tract level, 10 power plants mandated to retire under the VCEA intersect HEDC-designated tracts. These power plants collectively represent 7,226.5 MW of installed generation capacity (1,499.5, 82.8, 709, 368.4, 705.5, 388.8, 1,472.2, 559, 668, and 1,773.3 MW).

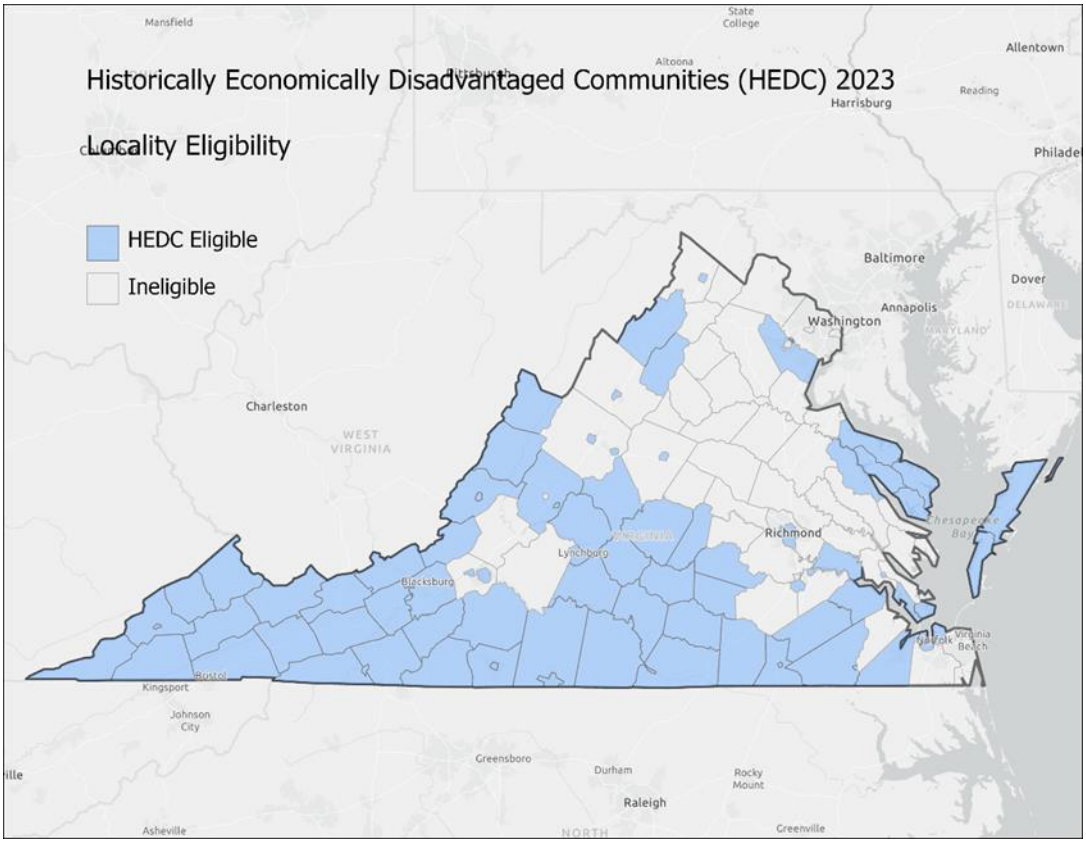

Figure 3: HEDC Localities

At the locality level, 83 of Virginia's 133 counties and independent cities qualified as HEDCs in 2023, compared to 82 in 2022. The combined HEDC population across localities was 3,320,521, representing around 38% of Virginia's population. Notably, the census tract-based analysis identifies a greater share of the population as living within HEDCs than the locality-based approach. This indicates that HEDC characteristics are often localized within specific neighborhoods or tracts inside otherwise ineligible localities.

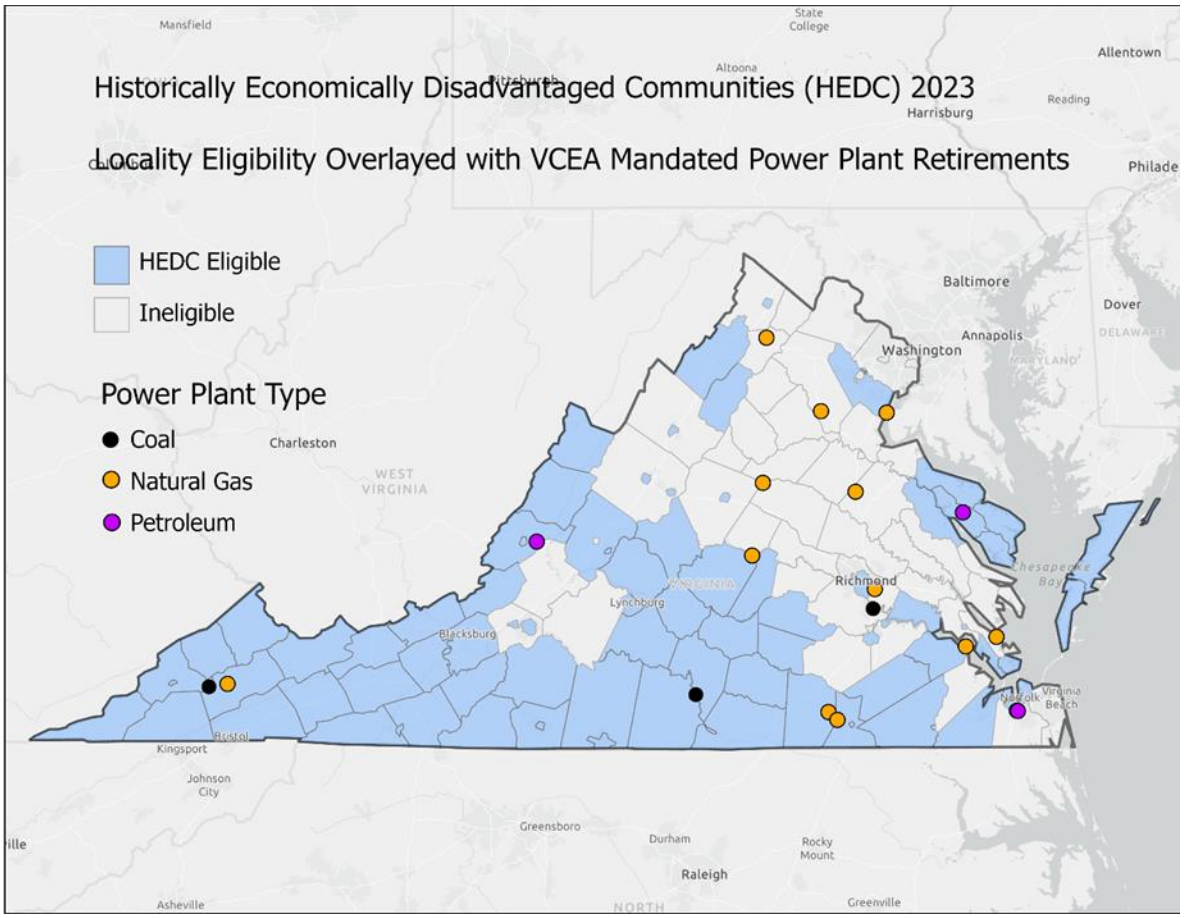

Figure 4: HEDC Localities with Power Plants Scheduled for Retirement (VCEA)

Under the VCEA, nine HEDC-designated localities host power plants scheduled for retirement: Alleghany, Brunswick, Buckingham, Greensville, Halifax, Richmond County, Russell, Surry, and Wise Counties. These facilities represent a combined 6,366.8 megawatts (MW) of installed generation capacity, distributed as follows: 475, 82.8, 82.8, 407.7, 848, 1,472.2, 559, 668, and 1,773.3 MW, respectively.

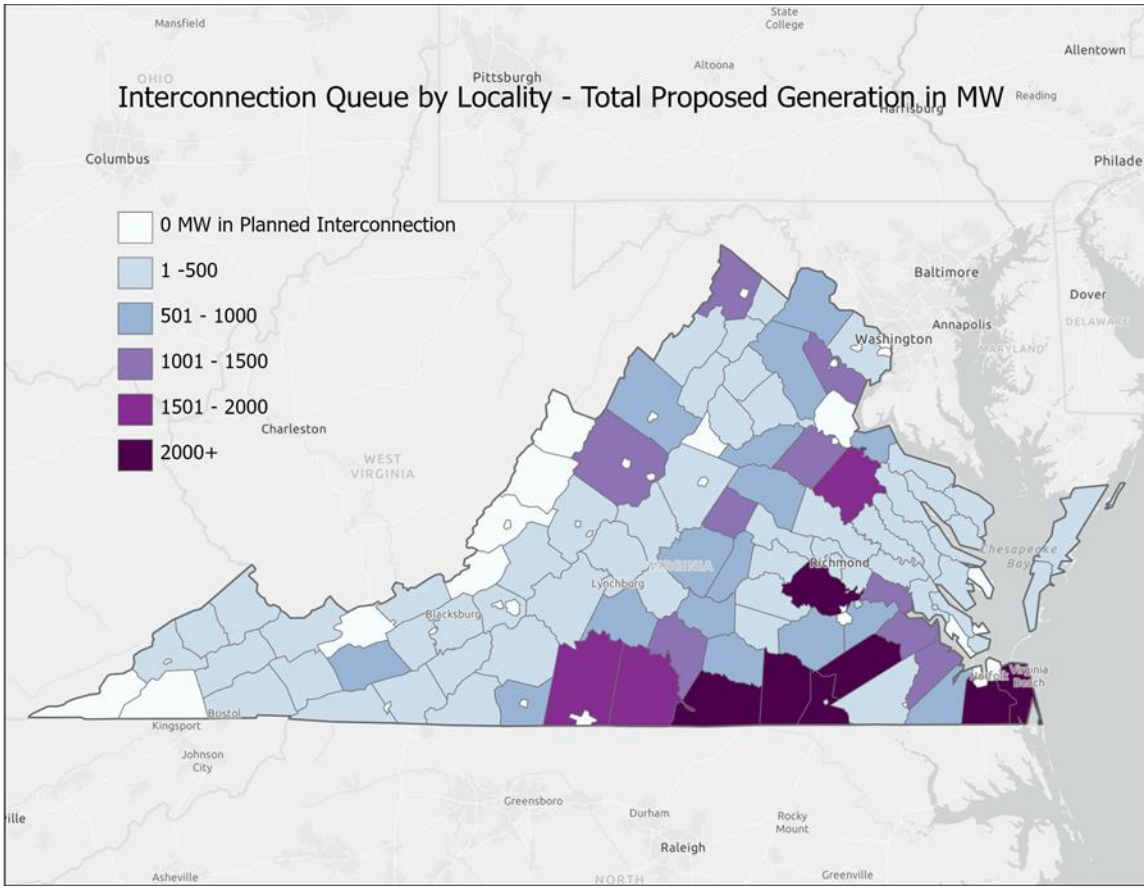

Figure 5: Interconnection Queue by Locality – Total Proposed Generation in MW

This map displays the total megawatts (MW) of generation projects seeking interconnection to the PJM transmission grid. The values displayed on the map represent proposed capacities from generation projects that have not yet been connected to the grid and are in the process of completing PJM's interconnection milestones. The process from application to connection is referred to as the "interconnection queue."

This dataset includes proposed solar, wind, energy storage, and natural gas projects aggregated at the county and independent city level. Localities shown in white have no current interconnection requests. The interconnection queue for Virginia has 58,961.90MW of nameplate capacity in proposed generation across all technology types.

This data is sourced from the Lawrence Berkeley National Lab's "Interconnection Queue Dataset & Summarized Data Files, through 2024" report (published August 2025). This dataset contains the latest publicly available figures on Virginia's interconnection queue. The national lab obtained this information from PJM. Not all projects in the queue ultimately advance to construction or grid connection, and proposed capacity values are estimates based on project applications.

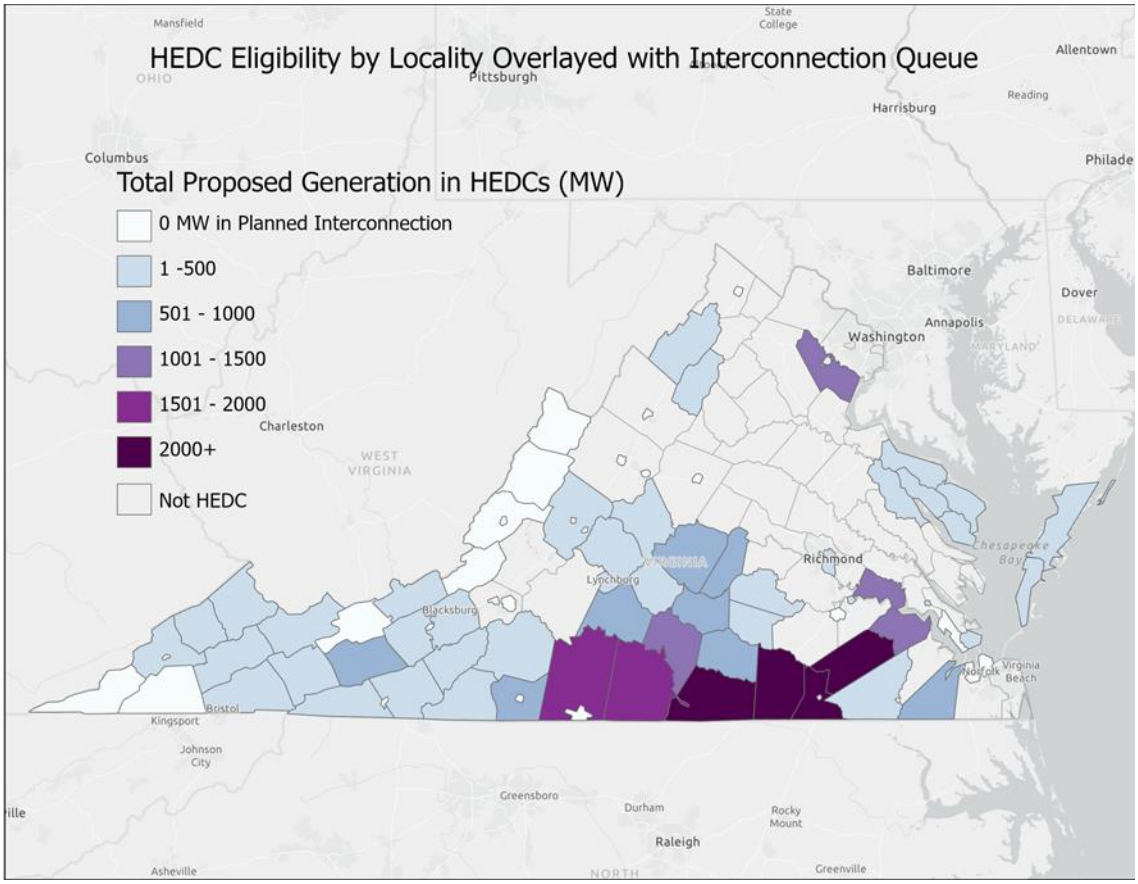

Figure 6: HEDCs Overlayed by Interconnection Queue

This map displays total proposed MW generation from PJM's interconnection queue filtered by HEDC eligibility. Analysis shows that 54.51% (32,142.90MW) of proposed generation is located within HEDCs. This percentage reflects the proposed generating capacity, not the percentage of individual projects. This interconnection queue includes solar, wind, energy storage, and natural gas projects.

Sussex County (3,016MW), Brunswick County (2,751MW), and Greensville County (2,482MW) represent the three HEDC localities with the largest amount of generation projects in the interconnection queue. Solar is the largest technology represented in the interconnection queue, followed by energy storage projects. Currently, there are two wind energy projects and zero natural gas projects in the PJM interconnection queue for HEDCs in Virginia.

HEDC localities collectively host 15,420MW of Virginia's installed generation capacity, 50.5% of total installed generation capacity (30,562MW) in Virginia. 33.7% (28) HEDCs in Virginia have no planned generation currently in the PJM interconnection queue.


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