

MAXIMIZING THE ROLE OF DISTRIBUTED ENERGY RESOURCES

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WHY IT MATTERS

Virginia – and the rest of the nation – had been seeing relatively flat electricity demand for decades mostly thanks to improvements in energy efficiency.¹ Now, we are facing escalating demand for power from new data centers being built around the Commonwealth. While building large, expensive fossil fuel power plants was the primary tool to meet growth in the '50s - '80s, there is now a wider spectrum of tools to meet electricity demand available, including distributed energy resources (DERs).

DERs refer to a variety of technologies that produce power or moderate power usage close to where that power is being used. This includes resources like rooftop, commercial, and community or shared solar, as well as smaller battery systems and demand response programs.² Virtual power plants (VPPs) are aggregated networks of DERs able to be flexibly managed by utilities, pooled to supply larger amounts of electricity to the grid. For example, on a hot day in the summer, a utility could draw upon numerous commercial and residential rooftop solar arrays and distributed battery systems with excess output to meet a surge in overall customer demand.

DERs can play a significant role in decarbonizing Virginia's power sector while helping to meet demand. They also increase grid resilience by decreasing strain on transmission lines, freeing up production from larger power plants, and shifting supply to follow demand. At a time when many Virginia families are struggling to pay high electricity bills due to high fuel costs, these grid-wide benefits lower costs for rate-payers, particularly during periods of high demand.³

CURRENT LANDSCAPE

Virginia is committed by law to powering the Commonwealth with 100% carbon-free electricity by 2050 through the passage of the 2020 Virginia Clean Economy Act (VCEA). The VCEA requires that investor-owned utilities, Dominion and Appalachian Power, meet one percent of their annual Renewable Portfolio Standard ("RPS") requirement through DERs.

The Commonwealth's net metering law⁴ allows customers to install solar systems on their property and receive full retail credit for electricity that they generate up to their previous year's usage, so long as the total electricity provided through the program does not exceed 6% of the utility's peak load in Virginia. However, DERs can contribute more than 6% of capacity – but customers may not be compensated at the full retail rate. The State Corporation Commis-

sion (SCC) is currently re-evaluating an appropriate rate structure for net metering.⁵

While rooftop solar installations are on the rise statewide, Virginia lacks robust programs that incentivize rooftop solar, especially for low-income residents unable to afford the upfront costs of these systems. Parking lot solar projects remain largely unexplored and underfunded in the Commonwealth.⁶

In 2024, Dominion's shared solar program was expanded to 350 MW and a 50 MW program was created in Appalachian Power Company's territory, bringing shared solar to most of Southwest Virginia.⁷ Dominion's current minimum bill—\$55 per month—is among the highest in the country and has hampered participation, except for the low-income customers who are exempt from this charge.⁸

Virginia Energy will deliver a report to the General Assembly in November 2024 outlining the types and amounts of incentives that may be necessary to steer projects onto rooftops, brownfields, landfills, parking lots, and dual-use agricultural facilities.⁹ In addition, each utility will have a proceeding to determine a new minimum bill for each program as soon as their net metering proceedings conclude, with a balanced consideration of costs and benefits.¹⁰ This balanced consideration should lead to a more affordable minimum bill for all Virginians.

OPPORTUNITIES

An exciting opportunity for Virginia in the distributed generation space is Virginia Energy's recent award of \$156 million from the EPA's Solar for All program, which will fund residential and shared solar projects for low-income and disadvantaged Virginians. Virginia Energy will begin a stakeholder process to help guide the implementation of the program in September 2024, with awards expected to arrive in September 2025.

Permitting timelines for rooftop solar vary widely by locality and can often take months, adding additional unnecessary costs. Free permitting software such as SolarApp+ can speed up permitting, save county/city resources, and signal rooftop solar companies to grow business in localities with faster permitting - and have been implemented to great success in places such as Culpeper and Harrisonburg.

Parking lots provide significant opportunities for distributed generation and shared solar in the built environment.¹¹ A specific program dedicated to increasing parking lot solar in the Commonwealth would align with Virginia's land conservation values

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and clean energy goals.

Residential batteries, when paired with rooftop solar, are an increasingly important part of the clean energy transition because they provide energy independence in outages and alleviate grid pressures by storing extra energy on-site.¹² By combining the power of a network of residential batteries, utilities can use VPP software to incentivize battery owners

to discharge power to the grid during peak demand times. This VPP software can also flexibly charge, discharge, or manage EVs and their chargers, heat pumps, smart thermostats, and even industrial mechanical equipment.¹³ This process can achieve the same result as natural gas peaker plants, without the same level of infrastructure costs, ratepayer and community impacts, and greenhouse gas emissions.

TOP TAKEAWAYS

Distributed energy resources (DER) refer to a variety of technologies that produce power or moderate power usage close to where that power is being used such as rooftop, parking lot, and community solar and smaller battery systems and demand response programs.

In order to hit VA's clean energy goals and improve grid resilience, distributed generation must play a more important role in our clean energy transition. This can happen in a variety of ways: on-site solar energy, faster permitting, and innovative new programs like virtual power plants.

\$156M from the Solar for All program will be the largest single investment in low-income and disadvantaged solar in Virginia's history.



ENDNOTES

1. Eric Gimon et al., "Meeting Growing Electricity Demand Without Gas, Energy Innovation Policy & Technology LLC," (2024) at 3.
2. "Understanding the Value of Distributed Energy Resources," *Yale Environment Review*, (March 20, 2023). <https://environment-review.yale.edu/understanding-value-distributed-energy-resources>.
3. "Virtual Power Plants," US Department of Energy, (June 4 2024). <https://liftoff.energy.gov/vpp/>.
4. Va. Code § 56-594.
5. Order, In Re: *Future net energy metering proceedings of Appalachian Power Company and Virginia Electric and Power Company pursuant to Code § 56-594*, Case No. PUR-2024-00047 (May 6, 2024).
6. "SB 234 Parking Lot Solar Development Program." Virginia Legislative Information System, (February 26, 2024). <https://lis.virginia.gov/cgi-bin/legp604.exe?241+sum+SB234>.
7. 2024 Va. Acts chs. 715, 716, 763, 765.
8. Ryan Kennedy, "Virginia approves \$55 minimum bill for community solar – the highest nationwide," *PV Magazine* (July 11, 2022).
9. 2024 Va. Acts chs. 715, 716, 763 765, Enactment cl. 2.
10. 2024 Va. Acts chs. 715, 716, 763 765, Enactment cl. 3.
11. Nugent, Ciara. "The Overlooked Solar Power Potential of U.S. Parking Lots." *Time*. (December 8, 2022). <https://time.com/6239651/solar-parking-lots-france-us/>.
12. "California's Growing Solar and Wind Problem." *EcoBlock*. (December 5, 2023). <https://ecoblock.berkeley.edu/blog/californias-growing-solar-and-wind-problem/>.
13. Liza Martin and Kevin Brehm, "Clean Energy 101: Virtual Power Plants," *RMI* (Jan. 10, 2023), <https://rmi.org/clean-energy-101-virtual-power-plants/>.