

GETTING STORAGE ON THE GRID

Matt Allenbaugh // Appalachian Voices // matt.allenbaugh@appvoices.org
Ashish Kapoor // Piedmont Environmental Council // akapoor@pecva.org
Kat King // Southern Environmental Law Center // kking@selc.org

WHY IT MATTERS

Energy storage is the collection of surplus energy for use later. Stored energy can be delivered quickly and reliably, decreasing the need for new energy generation and associated infrastructure and lessening impacts on natural resources. A robust energy storage build-out enhances the benefits of renewable energy and is key to meeting Virginia's energy needs with reliable, affordable, and clean power that creates jobs and economic development.

Energy storage technologies include pumped hydro, compressed air, thermal storage, and, most commonly, batteries.¹ Batteries are highly flexible “enabling technologies” that are less land-intensive than other forms of renewable energy and can be readily added to existing infrastructure. They also relieve grid constraints, which can help avoid costly upgrades.²

Battery storage provides back-up power during outages, which can help homeowners, farms, and businesses meet critical needs for food, shelter, and safety. When paired with solar generation, battery storage can also help lower utility bills and manage excess generation in a way that benefits the end user. Even better, the collective stored energy of many batteries can act as a **virtual power plant (VPP)**, potentially providing enough energy to meet the needs of all Virginians (see *Accessible & Affordable Distributed Energy Resources*, page 107) at a 40%-60% lower cost and more quickly than building new gas plants or other energy generation facilities. One study found that a 590-megawatt (MW) virtual power plant can provide as much reliable power as a 950-MW natural gas plant much sooner and for \$288 million less per year.³ Energy storage represents a no-regrets path to a zero-carbon energy sector.

CURRENT LANDSCAPE

2026 legislation requires APCo to seek to procure 780 MW of short-duration storage and 520 MW of long-duration storage by 2040 and Dominion to seek to procure 16,000 MW of short-duration storage and 4,000 MW of long-duration storage by 2045.⁴ These requirements represent a level that recent modeling shows will support a 100% carbon-free grid by 2045, even under worst-case data center demand scenarios.⁵ Recent state legislation also includes a storage model ordinance and best practices process that includes local stakeholders to facilitate better-sited and developed projects.⁶

2025 legislation directed **Dominion Energy** to propose a 450-MW VPP pilot,⁷ which the **State Corpora-**

tion Commission (SCC) is currently evaluating. 2026 legislation directed **Appalachian Power Company (APCo)** to propose a 150-MW VPP pilot by July 2027,⁸ and rural co-ops are now authorized to initiate VPP programs.⁹ In a VPP program, customers voluntarily allow an aggregator or utility to manage their batteries and other distributed energy resources in aggregate via software and receive compensation in return.

At the federal level, the “**One, Big Beautiful Bill Act**” maintained federal tax credits for utility-scale storage. However, uncertainty about numerous aspects of the **Foreign Entity of Concern (FEOC)** provisions continues.¹⁰

Investments in storage are already paying off in Virginia, where three utilities are expected to save customers \$100 million through five recently completed or under-construction storage projects.¹¹ The Roanoke school system is developing solar-plus-storage **microgrids** at two high schools, which can be utilized as off-grid emergency shelters during power outages and are expected to save the school system over \$60 million in avoided costs.¹²

OPPORTUNITIES

With strong legislation on the books in Virginia, effective implementation is key.

At the household level, energy storage affordability is driven by robust VPPs that incorporate competitive markets, opt-out provisions, and paths to consumer ownership of solar plus storage, and by upfront incentives and monthly bill credits, including innovative financing mechanisms.

At the local level, **Virginia Energy**, **Virginia Department of Environmental Quality**, and **Virginia Department of Fire Programs** are actively working to develop a storage model ordinance that will give localities resources to facilitate well-sited and developed storage projects.

At the state level, Virginia has the chance to effectively implement policies and programs that leverage batteries. Robust SCC oversight is critical for the success of both Dominion's VPP pilot (pending before the SCC) and for APCo's forthcoming VPP pilot. The SCC will also oversee implementation of the FAST Act, which allows new solar, wind, and storage projects to leverage unused grid capacity at existing power plants.¹³

Regionally, PJM reforms are needed both to speed up interconnection and to better recognize batteries' contributions to system reliability (see *PJM Reform*, page 137).¹⁴ Because batteries can be rapidly deployed, interconnection comprises a significant

GETTING STORAGE ON THE GRID

Matt Allenbaugh // Appalachian Voices // matt.allenbaugh@appvoices.org
Ashish Kapoor // Piedmont Environmental Council // akapoor@pecva.org
Kat King // Southern Environmental Law Center // kking@selc.org

portion of battery project timelines,¹⁵ so successful interconnection processes are a major factor in achieving widespread storage deployment.¹⁶ Surplus interconnection service is one recent reform that may facilitate easier addition of storage at existing facilities such as solar facilities.¹⁷

Though there is no official avenue for individual state legislators to participate in PJM processes, legislators from PJM states are increasingly uniting to advocate for shared priorities, and could lead interconnection reform and improved storage capacity accreditation. Coordination is essential to unified advocacy at PJM.

TOP TAKEAWAYS

Energy storage brings crucial capacity online quickly to meet increasing load with clean energy.

Batteries enhance renewable energy's ability to provide reliable power, are less land-intensive than other forms of energy, can tack onto existing infrastructure, and provide back-up power during outages.

Virginia's storage targets chart a path to a carbon-free grid by 2045 even under worst-case demand scenarios. Now is the time for strong storage implementation at the household, local, and state levels.

ENDNOTES

1. This paper uses the term storage and batteries interchangeably for simplicity, but VCN recognizes that the category of energy storage systems is much broader than batteries.
2. Direct Testimony of Michael Goggin. *Virginia Electric and Power Company – 2024 Integrated Resource Plan* filing pursuant to Va. Code Section 56-597 et seq. Virginia State Corporation Commission Case No. PUR-2024-00184. (2025, Feb. 28). at 3-21. scc.virginia.gov/docketsearch/DOCS/844_011.PDF
3. McDonnell, M., Roumpani, M., Burford, L., Cook, T., & Thayer, C.. (2026). *Value of Distributed Energy Resources in Virginia: An Assessment of Benefits and Cost-Effectiveness*. Current Energy Group. https://solarunitedneighbors.org/wp-content/uploads/2026/01/FINAL_VA_SUN-CEG_2026JAN15.pdf
4. An Act to Amend and Reenact §§ 56-580 and 56-585.5 of the Code of Virginia. (2026) <https://lis.virginia.gov/bill-details/2026/HB895/text/CHAP0694>
5. Rhodes, J.D., and Laws, N.D.. (2025). *Alternative Modeling Scenarios and Other Considerations for Virginia Electric and Power Company's 2024 Integrated Resource Plan*. IdeaSmiths. <https://www.selc.org/wp-content/uploads/2025/03/Final-IdeaSmiths-Report-2024-DOM-IRP.pdf>
6. An Act to Amend and Reenact §§ 56-580 and 56-585.5 of the Code of Virginia. (2026) <https://lis.virginia.gov/bill-details/2026/HB895/text/CHAP0694>
7. An Act to direct certain electric utilities to petition the State Corporation Commission for approval to conduct a virtual power plant pilot program, VA Acts of Assembly, Ch. 712. (2025) <https://lis.blob.core.windows.net/files/1079987.PDF>
8. An Act to amend the Code of Virginia by adding a section numbered 56-585.1:17, relating to electric cooperatives; virtual power plant program. VA General Assembly Reg. Sess. (2026). <https://lis.virginia.gov/bill-details/2026/SB487>
9. An Act to amend the Code of Virginia by adding a section numbered 56-585.1:17, relating to electric cooperatives; virtual power plant program. VA General Assembly Reg. Sess. (2026). <https://lis.virginia.gov/bill-details/2026/SB487>
10. Martin, K., Burton, D., Lefko, H., & Gabrielle, J.. (2026). *New FEOC Guidance: Notice 2026-15*. Norton Rose Fulbright. <https://www.projectfinance.law/publications/new-feoc-guidance-notice-2026-15>
11. Busse, M.. (2026). *3 Virginia Electric Utilities to Add Battery Storage in Bid to Increase Reliability, Cut Costs*. Cardinal News. <https://cardinalnews.org/2026/04/29/three-virginia-electric-utilities-to-add-battery-storage/>
12. *Roanoke City Public Schools Receives \$450,000 State Grant to Build Solar-powered Microgrid*. (2026, February 25). WSLs 10 News. <https://www.wsls.com/news/local/2026/02/25/roanoke-city-public-schools-receives-450000-state-grant-to-build-solar-powered-microgrid/>
13. Gibbins, S. (2026, January 15). *FAST Act Introduced to Unlock Virginia's Surplus Interconnection Potential*. Advanced Energy United. <https://advancedenergyunited.org/press-releases/fast-act-introduced-to-unlock-virginias-surplus-interconnection-potential/>
14. Farmer, M., Smaczniak, k., Peluso, N., Ela, E., & Kumar, N.. *The Storage Gap Report*. (2026, February). GridLab. P.28 <https://gridlab.org/portfolio-item/storagegap/>
15. Farmer, M., Smaczniak, k., Peluso, N., Ela, E., & Kumar, N.. *The Storage Gap Report*. (2026, February). GridLab. P.3 <https://gridlab.org/portfolio-item/storagegap/>
16. *Over 800 New Generation Projects Seek To Connect Under PJM's Reformed Process*. (2026, April 29). PJM Inside Lines. <https://insidelines.pjm.com/over-800-new-generation-projects-seek-to-connect-under-pjms-reformed-process/>
17. O'Connell, J.. (2026). *Successful Interconnection Reforms, Other PJM Initiatives Seek to Maximize Electricity Supplies*. PJM Inside Lines, <https://insidelines.pjm.com/connected/>