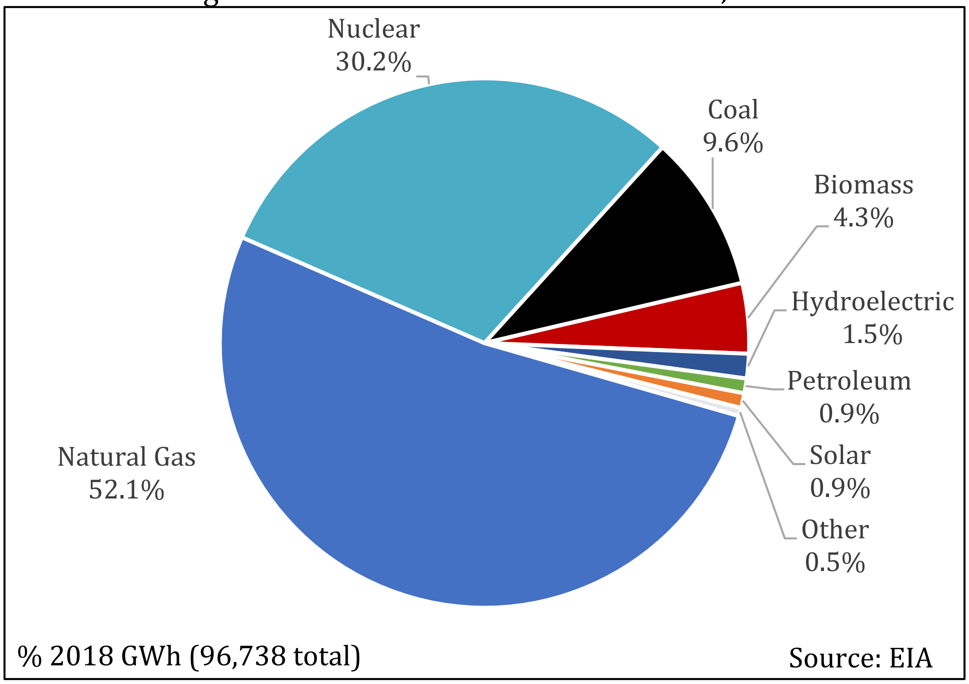
State Brief: Virginia

BACKGROUND

Most of Virginia's electricity generation is provided by natural gas and nuclear power. Natural gas-fired generation has boomed over the course of the decade, jumping from 17.6% in 2009 to 52.1% in 2018. Natural gas-fired plants out-produced nuclear for the first time in 2015 and have exceeded nuclear generation each year thereafter. The increase in natural gas has occurred concurrently with the decline in coal-fired generation, which has experienced a precipitous drop since 2009, falling from 36.5% to 9.6% in 2018. EIA projections show coal generation was cut by more than half in 2019, providing merely 3.6% of the state's power.

Virginia's Net Annual Electric Generation, 2018



Virginia has substantial offshore wind potential. Following Dominion's construction of a 12 megawatt (MW) test-turbine installation in the summer of 2019, the utility announced plans to build the largest offshore wind project in the U.S., which would be comprised of more than 220 turbines with a total capacity of 2,600 MW by 2026. As of 2020, construction of the Coastal Virginia Offshore Wind project is underway.

In 2020, Virginia replaced its voluntary renewable portfolio goal with a mandatory renewable portfolio standard of 100% carbon-free electricity generation by 2045 for Dominion Energy Virginia and 100% by 2050 for Appalachian Power Company (APCo). In the same legislation, the state also replaced its voluntary energy conservation goal with a mandatory energy efficiency standard, which requires Dominion Energy to reduce demand by at least 5% and Appalachian Power Company to reduce demand by 2% by 2025, relative to 2019 sales.

The 2020 U.S. Energy and Employment Report found that Virginia has 55,305 traditional energy workers (1.4% of total state employment) and an additional 80,181 workers employed in energy efficiency.

The Virginia State Corporation Commission (SCC) regulates thirteen electric cooperatives and three investor-owned utilities (IOUs). The SCC has three commissioners elected by the General Assembly to six-year terms. Democratic majorities control both legislative chambers, and Governor Ralph Northam is a Democrat.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[1] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

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[1] V.A. Krasko and E. Doris, *National Renewable Energy Laboratory*, 2012. Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions. http://www.nrel.gov/docs/fy13osti/56428.pdf.

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In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs in order to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

GRID MODERNIZATION

New digital technologies have enabled utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities. These technologies allow a two-way flow of information between the electric grid and grid operators and between utilities and their customers.

Emerging technologies improve system reliability and resiliency by enabling better tracking and management of resources. These technologies allow grid operators to incorporate central and distributed energy resources, energy storage technologies, electric vehicles, and assist in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

Grid modernization will require a suite of state and federal policy changes to support advancements in grid technologies, grid management, and utility regulation

In the most recent (2018) Grid Modernization Index (GMI), Virginia placed 25th amongst states for grid modernization efforts overall, marking a 6-place increase from the previous year. The Grid Transformation and Security Act of 2018 found "electric distribution grid transformation projects" to be in the public interest and required major investor-owned utilities to file Grid Transformation Plans with the SCC. Plans may include advanced metering infrastructure (AMI), distribution system modernization, energy storage, microgrids, and cybersecurity measures. The bill allows utilities to petition the SCC for approval of a rate adjustment for customer cost recovery of, amongst other things, electric distribution grid transformation projects.[2] Regulators have rejected several grid modernization proposals from Dominion due to excessive rate increases. Several parts of utilities' Grid Transformation Plans have been rejected, but in March 2020, the SCC granted approval for several components of the plans, including utility cybersecurity measures, a platform to improve access to customer information, distributed energy resource (DER) integration pilot programs, and resiliency efforts.[3] While the process of the development of utility Grid Transformation Plans was initially criticized as lacking in external stakeholder input, stakeholder engagement has improved since the Act's passage, and SB 1605 (2019) extended the stakeholder provisions of the Grid Transformation Act for energy efficiency programs until 2028.

Virginia could consider the following supportive policies to increase in-state modernization efforts:

1. The technologies associated with grid modernization generate a wealth of information about the grid itself and about customer behavior. State policy should include measures to protect this data, but can also encourage the use of this information to facilitate additional improvements in grid management and customer service. To address this, policymakers can develop legislation or rules that clarify who owns the energy data associated with consumer energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible. States could establish customer access to energy data through the Green Button Connect program, for example. Dominion and APCo have implemented Green Button for their customers.

[2] The bill also removed a Dominion and APCo rate freeze that was put into effect in 2015 in order to shield customers of those utilities from rate increases related to the Clean Power Plan. In a separate order involving APCo's application for cost recovery associated with a wind farm acquisition, the SCC noted potential constitutional issues that could arise from the bill, specifically, that it impinges upon interstate commerce by disadvantaging out-of-state renewable industries.

[3] See Virginia State Corporation Commission, Dockets PUR-2019-00154 and PUR-2018-00100. Final Order – 3/26/20

2. Utility regulation varies, to some extent, by a state's utilities commission. Most commissioners and commission staff, however, still adhere to the regulatory principles outlined when utility companies were vertically integrated, experiencing increases in load, and had the ability to capitalize on economies of scale for new generation. These "natural monopolies" warranted a state regulatory body that could balance the tradeoff between efficiency (in the form of least cost production) and equity (consumer protection).

   Today, non-traditional energy resources, including emerging, disruptive technologies (for example, customer-owned distributed generation, electric vehicles, and energy storage) are increasingly cost competitive with more traditional resources. This has not only led to shifting customer expectations but also to new market realities confronting energy providers. In light of this, many argue that the regulated utility industry needs a new set of principles that are more sophisticated, forward-planning, and incentive-based. To address this, states could implement alternative ratemaking mechanisms, adopt performance-based regulation, and/or work with utilities to develop new business models that support grid modernization.

The adoption of incentives or a requirement to integrate a certain amount of energy storage on the grid alongside enhancing renewable energy and electric vehicle policies would support modernization efforts and improve the chances of successful grid modernization.

ENERGY STORAGE

Energy storage offers a unique opportunity to manage supply and demand dynamically while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping to flatten peak demand requirements. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, storage can dispatch power to better integrate intermittent power generation resources like renewable energy to the grid. Finally, energy storage can help the commercial sector avoid costly demand charges. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as a customer cost-saving investment.

The flexibility of battery storage, combined with advanced metering infrastructure, allows customers to control how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can lead to several economic and environmental gains.

Storage provides multiple benefits to both the customer and the utility. State planning and regulatory policies can help maximize these benefits by 1) establishing a framework for easy integration of energy storage into the grid and 2) establishing a marketplace that monetizes the benefits of energy storage for cost effective investment.

The Virginia Clean Economy Act (VCEA) of 2020 established an energy storage deployment target of 3,100 MW by 2030. The SCC opened an energy storage proceeding in June 2020 to implement the VCEA by establishing mechanisms to boost energy storage deployment. Additionally, in July 2020 the SCC proposed regulations to include energy storage in state interconnection standards. SB 966 (2018) directs state regulators to work with the utilities and establish energy storage pilot programs to run through 2023. In 2017, the General Assembly changed the Virginia Solar Energy Development Authority to the Virginia Solar Energy Development and Energy Storage Authority, a 15-member independent entity charged with assisting in the expansion and deployment of energy storage technology as well as providing a hub for public-private collaboration on energy storage projects. The state has several utility-scale storage projects under construction, including 16 MW in battery storage projects in development by Dominion. Additionally, Virginia is home to one of the largest pumped hydro storage systems in the world – Dominion and FirstEnergy share ownership of the Bath County Pumped Storage Station, which has a net generation capacity of three gigawatts (GW).

There are several opportunities for developing supportive state policies:

1. Instruct utilities to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it will be cost effective, or identify the price point at which it will become cost effective.

2. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives (NWAs) to large transmission and generation investments. Alternatively, states might want to require utilities to develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

1. Finance and incentivize energy storage for customers and utilities. Incentives could enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment for storage. These incentives can also be designed to decline as the value of storage becomes more readily monetized, and/or as the cost of storage decreases. Policymakers could allow utilities that provide storage incentives to customers to also recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This should signal to customers the value of leveraging storage while better aligning customer costs with system costs. Financing energy storage installations for commercial customers could help reduce their demand charges. Policymakers might start first with a policy that provides grants to pilot projects, and/or that targets existing solar system owners. Financial incentives should be designed to ensure that the state meets other goals including emissions and peak demand reductions, and equitable access to clean energy.

MAINSTREAMING RENEWABLES

As the renewable energy industry matured, technology improved, and global production of generating equipment increased. Renewable energy is increasingly seen as the least cost, and lowest risk form of energy (excluding energy efficiency). A 2019 Bloomberg New Energy Finance report predicts that renewable resources will generate at least 60% of total global electricity and 43% of U.S. electricity by 2050. With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices. For these reasons, it is in the interest of policymakers to ensure that their states are well positioned to benefit from the transition to clean energy resources.

To reduce barriers to customer and utility participation in the renewable energy market, Virginia might consider several policy options.

Customer-Oriented Policies

1. Interconnection, Net metering, and Streamlined Permitting – In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, Virginia's policy makers could consider adopting IREC's model interconnection procedures and removing net metering system size limitations and the aggregate capacity limit. The state allows limited aggregated net metering for eligible agricultural customer generators (as defined in HB 2303). Up to 500 kilowatts (kW) of metered capacity may be aggregated for agricultural generators located on contiguous sites, and the customer must be served by a standard tariff. The VCEA raised the net metering system capacity limit for residential systems from 20 to 25 kW and raised the limit for nonresidential systems from 1 to 3 MW, with the condition that systems may be sized no larger than 100% of expected annual energy consumption for "Phase I" utilities (APCo) and 150% for "Phase II" utilities (Dominion). The VCEA also raised the aggregate capacity limit of net metered systems from one percent to six percent of utility peak demand. Additionally, the Act requires the SCC to open a new proceeding to evaluate whether the aggregate capacity limit of six percent should be expanded or ultimately removed. HB 2547 (2019) expanded net metering for electric cooperative customers by requiring co-ops to offer a standard net metering program that allows for a cumulative program capacity of up to 7% of utility peak demand. Other applications for aggregated net metering include commercial properties and public entities like state and local governments, universities, and schools. To streamline the interconnection of new renewable generators, Virginia has adopted "permit-by-rule" (PBR) regulations for solar and wind facilities with a nameplate capacity of less than 100 MW and streamlined permitting for qualifying biomass facilities. State incentives, such as tax credits, financial incentives, or loans can be tied to systems that are established within a

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designated streamlined permitting jurisdiction. Most recently, the SCC adopted amended interconnection rules in 2020 to align with updated FERC standards, which included provisions related to energy storage and review of DER projects.

2. Shared Renewables – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the generation provided by the system. Virginia directed IOUs to develop community solar pilot programs in 2017, but community solar advocates note Virginia's community solar law differs from other state programs in that the utility maintains direct ownership of generation assets, versus other programs where subscribers are able to own a portion of the solar project (see for example Colorado's community solar policy). In 2020, the state boosted efforts to increase access to shared renewable energy with the passage of HB 1634, which directs Dominion to develop community solar projects of up to 5 MW for its customers, who would receive "a bill credit for the proportional output of a shared solar facility attributable to that subscriber." The community solar program has a cap of 150 MW. To expand program participation, the state might consider adopting a virtual net metering policy. Virtual net metering allows a customer to receive credits from a shared system as if the generation were on site. Virtual net metering is different from a power purchase agreement (PPA), which pays the customer for the proportion of power they produce. Because it is treated as a credit on the customer's bill, the customer can avoid the tax implications of a PPA payment - which can adversely affect the economics of the system (and may come as a surprise to the participant).

   Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be encouraged through either a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. States that have a shared renewable program may want to coordinate this program with implementation of the federal Weatherization Assistance Program to provide recipients of assistance with participation in a shared renewable system. Virginia might consider tying direct cash assistance for utility bills with weatherization enrollment and upgrades. The VCEA allocates one percent of the six percent aggregate net metering cap specifically for low-income customers, and HB 573 requires utilities to develop community solar projects in low-income communities. The 150 MW community solar program required by HB 1634 includes a carve-out of 30% for low-income customers. Additionally, SB 1027 directs a portion of carbon emissions auction revenue to go toward low-income energy efficiency programs.

   There are several additional policy options that Virginia might consider to promote renewable energy uptake by LMI consumers. Generally, successful state policies should be tailored to these customers, be cost-effective and financially sustainable, have measurable performance indicators, and be flexible enough to allow later changes in design.

3. Corporate Procurement – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Over the last five years, over 20 gigawatts (GW) of renewable contracts have been announced by corporate entities With Virginia's substantial solar capacity and recent adoption of several utility green energy riders, the state is becoming an attractive environment for corporate procurement of renewable energy. Microsoft signed the largest solar PPA to date with renewable energy developer sPower in 2018, in which Microsoft will purchase 315 MW of capacity from the Pleinmont I and Pleinmont II projects currently under development. Virginia's policy allows companies to purchase RECs or renewable energy through green tariffs, own shares in shared renewable projects, and develop or lease onsite renewable energy facilities. Certain large customers are also provided with retail choice and the ability to enter on-site third party PPAs. The VCEA substantially expands large-scale access to renewable energy by raising Dominion's program cap for third-party PPAs from 50 MW to 500 MW for jurisdictional customers, and an additional 500 MW for "non-jurisdictional" customers, which includes governmental entities. APCo.'s program cap was raised from seven to 40 MW. The products available in Virginia meet all six of the Corporate Renewable Energy Buyers' Principles. In addition, it is prudent to incorporate corporate renewable purchase commitments into the IRPs that utilities submit to regulators to plan for resource needs over multiple decades.

By integrating these renewable purchase commitments into the IRP process, regulators can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas emissions and increase investments in clean energy resources. States might see a clean peak standard as the next step in a progression from renewable portfolio standards (RPSs). Virginia established a mandatory renewable portfolio standard with the enactment of the VCEA, with the target of 100% electricity sales generated from renewable sources by 2045 for Dominion and 2050 for APCo, with an interim target of 30% renewable energy by 2030. The RPS encourages utilities to purchase renewable energy credits (RECs) from in-state qualified renewable generators by attaching "compliance multipliers" to certain technologies.

To increase utility adoption of clean energy technologies, Virginia's policy makers might consider adopting a Clean Peak Standard. These aim to increase the share of clean energy resources used to meet peak demand and decrease energy bills over the long-term by reducing peak demand in the hours when energy costs are highest. These objectives can be met through different policy options including: planning and procurement that focuses on peak demand; a moratorium on the construction of new peaking units or a phase out of existing units; incentives – including carve-outs in states with RPSs – for clean energy resources delivered during peak times; and/or adopting a new clean peak standard that sets a target for clean energy deliveries during peak times.

PATHWAYS TO A LOW CARBON FUTURE

The international scientific community has determined that steep and rapid reductions in global greenhouse gas (GHG) emissions are needed to avoid the worst impacts of global warming and climate change. Federal and state policy interventions are necessary to transform our energy systems and rapidly reduce GHG emissions in the U.S. In general, effective policies will:

1) Establish performance standards and place enforceable limits on carbon pollution;
2) Provide financial incentives for individuals, businesses, and industry to choose clean energy and greatly improve energy efficiency;
3) Spur public and private investment in clean energy infrastructure, including investment in advanced transportation systems for the movement of people and goods; and
4) Provide funding for research, development, and demonstration of technologies that will underpin the de-carbonization of the U.S. economy.

The VCEA established carbon reduction goals for the power sector. While the law does not include nuclear under the definitions of RPS resources, there may be flexibility within the law to use nuclear to meet utilities' zero-carbon requirements. The VCEA sets several benchmarks for the retirement of carbon-emitting power plants, including the retirement of large (over 500 MW) IOU-owned oil and coal electric generation stations by 2024 and retirement of all carbon-emitting stations by 2045. Additionally, the legislature passed the Clean Energy and Community Flood Preparedness Act in the 2020 session, paving the way for the state to join the Regional Greenhouse Gas Initiative, a regional cap-and-trade system to reduce carbon dioxide emissions from power plants. The Department of Environmental Quality (DEQ) adopted final regulations to administer the program in July 2020. The Air Pollution Control Board has been directed not to offer any carbon dioxide emissions allowances starting in 2050. To compliment this, Virginia's policymakers might consider the following:

1. GHG Emissions Monitoring and Reporting – To effectively implement policies that reduce emissions, a mandatory system for monitoring, reporting, and verifying GHG emissions must be put in place. While the U.S. EPA has GHG reporting requirements, the federal reporting requirements focus on major industrial sources, leaving significant gaps in the information states need to fully understand their emissions profile. Policymakers might consider legislation similar to Colorado's SB19-096, which requires annual GHG reporting and establishes emissions baselines from which to measure progress.

2. Emissions Performance Standards – Transportation sources now emit more GHGs than any other sector, and rapid reductions from all types of vehicles, engines, and equipment is critical to achieving carbon reduction goals. The Low Carbon Fuel Standard (LCFS) implemented by both Oregon and California is another example of

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a flexible, market-based approach to regulating carbon emissions at the state level. LCFSs regulate the carbon intensity of transportation fuel in order to reduce the use of petroleum-based fuels and promote investment in low-carbon options (electrification, biofuels, hydrogen, etc.). The market mechanism LCFSs use is a crediting system where each fuel type is assigned a carbon intensity (CI) score. The allowable CI score is decreased yearly, requiring a switch to lower CI fuels. Entities who provide fuel below the regulated CI score earn credits. These credits can be sold to providers who operate at a deficit (above the mandated CI score), creating a market incentive for investment in cleaner fuels

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance estimates that 58% of all new passenger vehicle sales will be electric by 2040 and that price parity with conventional vehicles will be met for most segments in the mid-2020s. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. Another important barrier to increased adoption of EVs is their higher up-front cost as compared to similar conventionally fueled vehicles. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased range anxiety.

A few incentives for alternatively-fueled vehicles are currently available in Virginia. While the state imposes a financial disincentive on the purchase of EVs with a $64 annual registration fee, Virginia is looking to improve deployment and adoption of EVs. Local governments, recreation areas, and public education institutions are allowed to install EV charging stations. Existing incentives include a green jobs tax credit and a tax exemption for alternative fuel used by charitable non-profits and agricultural operators. The Commonwealth Energy Fund provides funding opportunities for the development of advanced transportation technologies including fuel cells and batteries. Virginia is also part of the Transportation and Climate Initiative (TCI), a regional collaborative of 12 states designed to reduce emissions from the transportation sector. Additionally, Virginia is a member of the Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure to invest in public EV charging infrastructure, promote EV sales across the Northeast and Mid-Atlantic region, and develop complementary policies and programs.

There are several policy opportunities to further encourage and prepare for increased market penetration of EVs in the state, including:

1. Financing and Financial Incentives – Providing financial incentives and innovative financing options can help increase market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing the up-front costs of EVs and EVSE. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers as receipt of the credit is typically removed in time from the purchase.[4] Some states have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EVSE under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations.

2. Charging Infrastructure Plan – Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for longer periods of time, for example when shopping, eating at a restaurant, or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. Legislation could direct a state agency to develop an infrastructure plan through a stakeholder process. States with existing registration fees for EVs could use a portion of this revenue to fund charging infrastructure development efforts, as Washington has done. In 2019, Virginia began allowing certain state agencies to operate retail charging stations, and in 2020, the state extended this authority to all state agencies with HB 511.

[4] A study by the Congressional Budget Office however suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

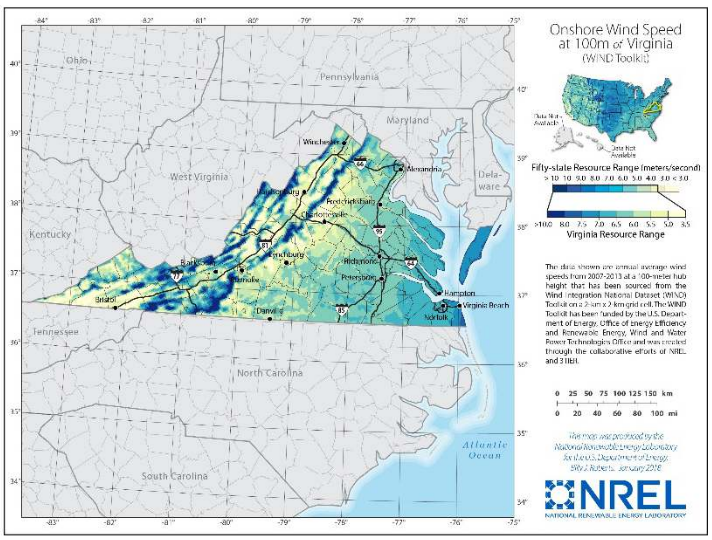
3. Parking Infrastructure Requirements – In tandem with the development of a statewide plan, legislation could set requirements for EV parking infrastructure. Some states have adopted permitting standards for parking lots. Hawaii, for instance, requires that for every 100 parking spaces, there must be at least one EV charging space. States and local governments are also updating building standards and codes to require that new buildings are EV ready, meaning that all conduit and wiring are able to accommodate EVSE. States can also implement programs to provide parking incentives for owners of EVs. Typically, these programs provide access to carpool parking, preferential spaces, reduced fees, and/or access to charging stations.

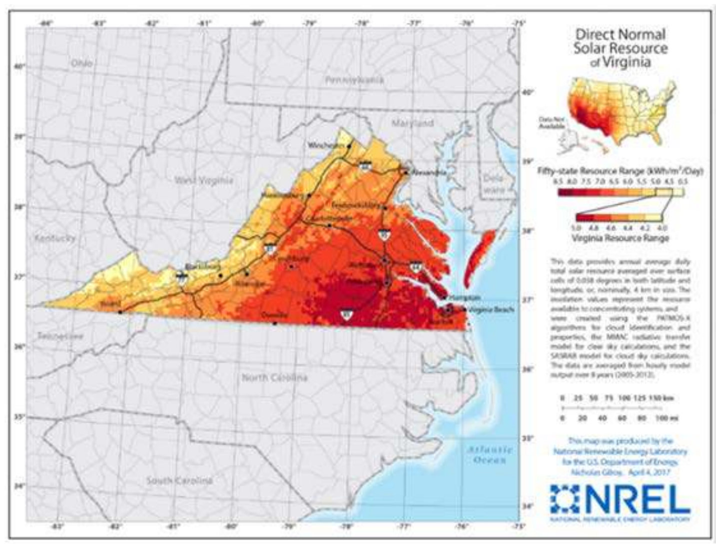
NEWS

- August 18, 2020: Virginia Takes Historic Steps to Secure a Clean Energy Future
- August 17, 2020: Dominion Energy Acquires Central Virginia Solar Project
- August 3, 2020: Dominion Shakes Up Leadership, Focuses on Renewables After Pipeline Cancellation
- June 29, 2020: Second US Offshore Wind Project Finishes Construction Off Virginia
- March 6, 2020: Virginia Mandates 100% Clean Power by 2045
- March 3, 2020: New Laws Clear Away Barriers to Small Solar Projects

VIRGINIA'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/va





OTHER RESOURCES

- Virginia Department of Mines, Minerals, and Energy: https://www.dmme.virginia.gov/
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Virginia: https://database.aceee.org/state/virginia
- The Database of State Incentives for Renewables and Efficiency, Virginia: http://programs.dsireusa.org/system/program?fromSir=0&state=VA
- U.S. Energy Information Administration, Virginia: https://www.eia.gov/state/?sid=VA
- SPOT for Clean Energy, Virginia: https://spotforcleanenergy.org/state/virginia/
- American Wind Energy Association (AWEA): https://www.awea.org/resources/fact-sheets/state-facts-sheets
- National Renewable Energy Laboratory Biomass Maps: https://www.nrel.gov/gis/biomass.html
- The Rocky Mountain Institute, From Gas to Grid – Building Charging Infrastructure to Power Electric Vehicle Demand: https://rmi.org/wp-content/uploads/2017/10/RMI-From-Gas-To-Grid.pdf
- The GridWise Alliance, EVs - Driving Adoption, Capturing Benefits: http://gridwise.org/evs-driving-adoption-capturing-benefits/
- The Regulatory Assistance Project, Performance-Based Regulation: https://www.raponline.org/event/performance-based-regulation-the-power-of-outcomes-part-1/
- The Interstate Renewable Energy Council, A Playbook for Modernizing the Distribution Grid, Volume 1: https://irecusa.org/publications/a-playbook-for-modernizing-the-distribution-grid-volume-1/

Our Resources

CNEE Homepage: https://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

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