Issue: VA Renewable Energy

Renewable Energy in Virginia

Virginia still lags behind its neighboring states in the development of renewable energy, despite having made some modest progress during the past two years. Dominion Energy continues to exert a stranglehold on the Republican-controlled state legislature, thereby preventing the level of action required to meet the impending threat of climate change.

Status of Clean Power in Virginia

While sharing comparable climates and physical geography, nearby North Carolina and Maryland significantly outperform Virginia in both solar and wind energy production. Virginia ranks 17th nationally in the cumulative amount of solar electric capacity installed (up from 20th in 2018). However, only 1 percent of the state's total electricity output is from solar energy.[1]

	National ranking	MWs of solar installed	% of state's electricity = solar	Total solar investment	# of solar installations
North Carolina	2	5,260.58	5.37 %	$7.75 billion	10,287
Maryland	14	1,041.94	2.9 %	$2.99 billion	61,990
Virginia	17	730.72	1.03 %	$956 million	5,924

Currently none of Virginia's renewable energy production is from wind.[2]

	MWs of wind capacity
North Carolina	208
Maryland	191
Virginia	0

However, in 2013 Dominion Energy Virginia procured a lease from the federal government to develop a 2,000-megawatt offshore wind project in an area of the ocean 27 miles off Virginia Beach. In 2017, Dominion partnered with a Danish energy company to build a pilot project with two 12-megawatt turbines. The pilot project is scheduled to be completed in 2020. Dominion has not offered a timeline for constructing the 2,000-megawatt commercial project, although the governor's 2018 energy plan sets a "goal" of 2028 for its completion.[3]

Status of Solar Jobs in Virginia

The number of solar-related jobs in Virginia in 2018 totaled 3,890, an increase of 9 percent from 3,565 in 2017. While Virginia ranks 20th nationally in solar jobs, its standing plummets when the state's population is taken into account. Virginia ranks 34th in solar jobs per capita. Again, neighboring states are outperforming Virginia.[4]

	Number of solar jobs	Ranking based on total number of solar jobs	Ranking based on solar jobs per capita
North Carolina	6,719	9	19
Maryland	4,515	16	14
Virginia	3,890	20	34

The Solar Foundation estimates that Virginia could create 50,400 new jobs if it installed an additional 15,000 megawatts of solar energy by 2023 (which would make solar 10 percent of its total state energy portfolio).[5]

The number of jobs could also increase if barriers to rooftop and community solar installations were removed.[6] Residential and commercial solar installations account for 86 percent of solar jobs nationally, while utility-scale solar projects account for only 14 percent.[7] Solar energy installations in Virginia are overwhelmingly utility-scale.[8]

A lost opportunity for more solar jobs stems from the state legislature's refusal to join the Regional Greenhouse Gas Initiative (a carbon cap-and-trade market). The nine Atlantic Coast states that participate in RGGI have realized a gain of 44,700 job-years of employment from 2008 to 2017.[9]

Reasons for Slow Progress

Several factors contribute to Virginia's laggard performance in renewable energy development: the utility's investment in its fossil-fuel infrastructure, the lack of incentive for utilities to reduce energy consumption or accommodate rooftop and third-party solar development, the utility's influence over the state legislature, and Republican support of the fossil-fuel industry.

Resistance from Utilities

Utilities have an interest in protecting decades of investment in expensive infrastructure—what economists call "sunk costs." Natural gas consumption by Virginia's electric power generators has risen sharply since 2003, increasing more than nine-fold by 2017.[10] The current mix of Virginia's energy sources is 41.6% natural gas, 30.8% nuclear, 20.6% coal, and the remainder from hydroelectric, renewables, petroleum, and others.[11] Dominion Energy, the parent company of Dominion Energy Virginia, invested heavily in natural gas transmission, storage, and export, and Dominion Energy Virginia spent billions of dollars building new gas generating plants to burn the gas from the parent company's pipelines.[12]

The utilities also have no incentive to promote energy efficiency, customer-owned solar installations, or third-party power purchase agreements. Energy efficiency means lower energy consumption, which means loss of sales and loss of revenue to the utility. Customer-owned and third-party-owned solar energy systems take customers away from the utility and reduce their sales.[13]

Because Dominion wants to own and control the solar market in the state, it has historically imposed barriers to private development, including[14]:

- Standby charges (The utility charges for having to be ready to provide energy in the event that the private system experiences an outage.)
- A 1-percent cap on the amount of electricity that can be supplied by net metering systems (Net metering allows solar panel customers to earn credit for the solar electricity they provide to the utility's grid. A customer is billed for the difference between the electricity drawn from the grid and the solar energy fed into it. However, Virginia has capacity limits on net metering—20 kilowatts on residential properties and 100 kilowatts on non-residential

properties. Net metering is available on a first-come, first-served basis until the aggregate generating capacity owned and operated by private generators reaches 1 percent of the utility's peak-load electricity sales from the previous year.)[15]

- Limits on the capacity of a private solar installation based on the customer's usage from the previous year
- Limits on third-party power purchase agreements (private, non-utility energy companies)
- No community-owned solar arrays (Individual residents or businesses band together to own and operate a solar installation to meet their electricity needs.)
- Bans on meter aggregation (A customer with solar panels on one building cannot share power with another building.)

Utility Control Over Virginia's Legislature

Dominion Energy wields enormous clout over Virginia politics.[16] Dominion is by far the largest campaign contributor to gubernatorial and legislative candidates and incumbents in the General Assembly.[17]

From 1996 to 2018, Dominion Energy donated more than $2.57 million to Republican state-level party, caucus, leadership, and inaugural committees and about $2.15 million to the Democratic state-level committees.[18] During that same period, Dominion donated $2.64 million to Republican state House and Senate candidates, while it donated $2.2 million to Democratic candidates, thus covering all their bases. [19]

The Committee on Commerce and Labor oversees all matters pertaining to utilities. Republican Terry Kilgore is the chair of the state House Committee on Commerce and Labor.[20] From 1996 through 2006, he received relatively small campaign contributions from Dominion—a total of $16,000 over 10 years, averaging $1,600 annually.[21] Dominion's contributions to Kilgore increased dramatically when he became the committee chair. From 2007 through 2018, Dominion donated $167,391 to Kilgore, averaging $15,217 annually.[22]

Republican Frank Wagner chairs the state Senate Committee on Commerce and Labor.[23] From 2000 through 2014, he also received relatively small campaign contributions from Dominion—a total of $38,350 over 14 years, averaging $2,739 annually.[24] Those amounts also skyrocketed when he became the committee chair. From 2015 through 2018, Dominion donated $68,885 to Wagner, averaging $22,962 per year.[25]

On the Democratic side, state Senator Richard Saslaw received $350,508 from Dominion from 1996 to 2018, an average of $15,932 annually.[26]

In the 2017 election, 57 candidates running for the Virginia House of Delegates (53 of whom were Democrats) signed a pledge that they will never accept campaign contributions from the utility company's political action committees, executives, and/or lobbyists.[27] Of the current sitting House delegates, 16 have publicly committed to that pledge.[28]

The General Assembly's deference to the utility company is apparent from the fate of renewable energy legislation in 2016. That year, more than a dozen clean energy bills were filed. Nearly all were "tabled" or carried over to 2017, which essentially means they failed in committee without a recorded vote.[29] In fact, rather than legislate and take responsibility for energy policy decisions, the Republican committee chairs recommended that the solar energy stakeholders and utility representatives meet

with a professional mediator to work out agreements about solar development. Since then, representatives from the regional solar trade association, co-ops, investor-owned utilities, the environmental community, and a rate design expert have been meeting with and paying Mark Rubin, executive director of the Virginia Center for Consensus Building at Richmond's Virginia Commonwealth University.[30] However, critics observe that meaningful progress cannot be made through mediation because private solar developers and environmental advocates have no leverage over the utility. The utility simply has no incentive to compromise.[31]

State legislators also attempted to block the implementation of the federal Clean Power Plan (Environmental Protection Agency regulations to limit carbon pollution from power plants). In 2015 Republicans introduced into the Virginia General Assembly nine bills attacking the Clean Power Plan; all but one failed.[32] At the same time, the state House and Senate have repeatedly voted to extend tax credits to coal companies.[33]

The Virginia state legislature does not even mandate renewable energy production from the utility monopoly. Renewable Portfolio Standards (RPS) are regulations on utilities to produce a specific fraction of their electricity from renewable sources. In North Carolina and Maryland, the RPS is mandatory; in Virginia, the RPS levels are *voluntary* "goals"—and those goals are modest.[34] Virginia's target for renewable energy by 2025 is 15 percent—but in reality it is 7 percent, because the percentage is based on 2007 energy production levels and excludes nuclear-generated power from that baseline amount. In addition, the utility can satisfy those goals by buying Renewable Energy Certificates (RECs) from trash incinerators, wood-burning facilities, and pre-WWII hydroelectric plants, meaning that Virginia's RPS doesn't require investment in new wind and solar projects.[35]

For several years, bipartisan sponsors have introduced legislation that would have allowed Virginia to join the Regional Greenhouse Gas Initiative (RGGI), a group of nine East Coast states from Maine to Maryland that participate in a market-based cap-and-trade program to reduce carbon emissions. Member states set carbon caps (how many pollution allowances to offer for sale per year), and the states gradually lower the cap each year. The states sell the allowances (permits to emit carbon dioxide) to utilities. The states then use those revenues to invest in energy efficiency and renewable energy programs.[36] If Virginia were a formal member of RGGI, the state would reap an estimated $200 million per year.[37]

From the launch of RGGI in 2008 through the end of the third compliance period in 2017[38]:

- RGGI member states have reduced carbon emissions by 40 percent.
- Electricity prices in RGGI states have decreased by 6.4 percent, while electricity prices in non-RGGI states have increased by 6.2 percent.
- RGGI states have reduced emissions by 15 percent more than non-RGGI states while experiencing 4.3 percent more economic growth than non-RGGI states.
- Reduced levels of toxic pollutants have resulted in an estimated $5.7 billion of health benefits for the five-year period from 2009 to 2014.

The legislature has not only rejected bills allowing Virginia to join RGGI, but in both 2018 and 2019, the Republican-controlled House and Senate passed bills specifically forbidding the governor or any state agency from adopting regulations that would link the state to RGGI or allow trading carbon allowances in the RGGI market. The Democratic governor vetoed those bills.[39]

Factors Generating Change

Some modest progress has been made recently in Virginia energy policy thanks to two factors—the declining cost of clean energy technology and growing consumer demand.[40] Renewable energy is getting cheaper, and customers (particularly large technology companies) want clean power.

A recent study showed that as soon as 2026, the declining price of renewable energy and battery storage technology will make the cost of operating an existing natural gas plant more expensive than replacing it with new wind and solar facilities.[41] In 2018, citing the cost effectiveness of solar energy, Dominion Energy announced that it will no longer build combined-cycle natural-gas-fired power plants.[42] In its 2018 Integrated Resource Plan, Dominion Energy Virginia dropped plans for new combined-cycle gas plants but still proposed a series of smaller peak-serving combustion turbines.[43]

Another study announced that America has reached the "coal cost crossover," meaning that coal is now more expensive than cleaner alternatives. It says that 74 percent of U.S. coal facilities could be replaced today at an immediate savings to consumers. That number grows to 86 percent by 2025.[44] Virginia has more than 4,000 megawatts of existing coal-fired power plant capacity (basically Virginia's entire existing fleet of coal-fired power plants) substantially at-risk from an economic point of view by 2025.[45]

Consumer demand for clean power is a growing counterforce against utility resistance and legislative obstruction. Major corporations and large companies are leading the charge. In November of 2016, 18 major companies signed a letter to state legislators and the State Corporation Commission calling for more renewable energy options in the state.[46] In August 2018, a group of 12 businesses, universities, and healthcare institutions sent a letter to the state Department of Mines, Minerals and Energy urging broader access to clean power in order to keep the state competitive.[47] As of June 2018, 132 companies have made commitments to move to 100 percent renewable energy, including some of the world's biggest tech companies (Microsoft, Apple, Google, Facebook, Amazon), major banks (Citi, Goldman Sachs, HSBC), and food and retail giants (AB InBev, Nestlé, Walmart).[48]

In Virginia, corporations, such as Microsoft and Amazon, have partnered with Dominion to build and operate large solar installations.[49] In some cases, companies have bypassed the utility altogether. For instance, Ikea built its own massive on-site rooftop solar array,[50] and Microsoft entered into a wholesale power purchase agreement with a private company that is building large-scale solar projects in Virginia.[51]

However, data centers that have located in Virginia (Microsoft, Facebook, Amazon, Cloud HQ, Digital Realty, QTS) are huge energy hogs. Their 24/7 operations consume more energy than solar energy systems can provide. If Virginia does not develop wind power and battery storage projects, the data centers will create even more demand for power from Dominion's gas and coal plants.[52]

Recent Executive and Legislative Action

In 2016, then Democratic Governor Terry McAuliffe initiated Clean Energy Virginia, a state-level version of the federal Clean Power Plan. He issued executive orders for the development of regulations to reduce carbon emissions from fossil-fuel plants and for participation in a multi-state cap-and-trade program.[53] The current Democratic governor, Ralph Northam, has continued the work of McAuliffe's executive orders. Because formal membership in RGGI requires an act of the legislature, the regulations can only "link" Virginia to the RGGI cap-and-trade market. As a result, the

utilities will get their carbon pollution permits from the state for free. The utilities can then sell those permits in the RGGI market, buy back what they need, and keep any profits. The utility (not the state) will reap an estimated $75 million per year under this linking arrangement. If the legislature voted to formally join RGGI, the state could sell carbon allowances to the utilities and reap a potential $200 million *a year* for investment in renewable energy projects and energy efficiency programs.[54]

A turning point may have come last year when, in a rare bipartisan moment, the legislature passed the Grid Transformation and Security Act (SB 966). In an uncharacteristic defeat of Dominion's power, state House Delegates and Senators approved a bill that supports more energy efficiency, wind and solar power, and modernization of the electric grid.[55] Among the highlights of the bill are the following provisions (note that "allows" does not mean that the utility is "required" to do so)[56]:

- Allows 5,000 megawatts of utility-owned and utility-operated wind and solar
- Allows 500 megawatts of rooftop solar resources that are less than 1 megawatt in size
- Allows large distributed solar projects of up to 50 megawatts
- Allows $1.1 billion investment in energy efficiency programs by public utilities
- Opens up Virginia's growing solar market to non-utility businesses by requiring that 25 percent of solar energy be third-party owned
- Allows a 16-megawatt offshore wind pilot project
- Clears the way for battery storage pilot projects
- Allows cost recovery for projects that modernize the grid and support the integration of distributed energy resources (non-utility-owned renewable energy)

In October 2018, Governor Northam released The Commonwealth of Virginia's 2018 Energy Plan. The plan includes the provisions of SB 966 above and recommends more expansive goals, such as[57]:

- Building 2000 megawatts of offshore wind power by 2028
- Raising the 1-percent aggregate cap on net metering to 5 percent
- Legalizing third-party power purchase agreements statewide

Although the above advances are positive steps, environmental advocates and private businesses emphasize that they are nowhere near enough to address climate change or facilitate timely development of clean energy sources to meet consumer demand.

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