We Don’t Want It: Resistance to Solar in the Region of Charlottesville, Virginia

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

Christopher Herath

Spring 2025

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

Advisor

MC Forelle, Department of Engineering and Society

Introduction

Since 2018, Culpepper, Virginia has become a hotspot for resistance to utility-scale solar projects. An organization founded and headquartered in Culpepper, Citizens for Responsible Solar, has led much of this resistance successfully blocking four projects in the county since 2018 (Citizens for Responsible Solar, n.d.). Finding success in Culpepper, and retooling strategies that have worked in opposing wind energy development, the group has developed a playbook of community organization using a set of grievances that has been used in at least 12 states as of 2023 (Green et al., 2023). Emphasizing health and environmental concerns about solar panel materials and site runoff, Citizens for Responsible Solar has energized communities to protest solar development (Green et al., 2023). These concerns are able to be mitigated through proper materials sourcing and site development plans, but the community organization is putting pressure on local officials who are wary of the political blowback if they vote in favor of solar projects (Green et al., 2023).

Increased opposition to solar energy projects from community organizations like Culpepper's Citizens for Responsible Solar is coming at a time when the US's electricity load growth, driven by data centers and manufacturing, is expected to rise at a rate not seen since the 1980s (Walton, 2024), after a period of almost flat growth since 2007 (Figure 1). An increasing amount of new electricity generation is coming from solar projects, with solar expected to be 52% of new electric-generating capacity in 2025 (U.S. Energy Information Administration (EIA), 2025). Economic viability as solar becomes cheaper (Figure 2) and climate change concerns are leading to the increased investment in solar energy nationwide. Increased renewable energy generation, which solar energy is a form of, is seen as a way by the Intergovernmental Panel on Climate Change to mitigate climate change through transitioning from conventional fossil fuel

energy generation sources that emit harmful greenhouse gasses (GHGs) to renewable energy sources, which has fueled global investment into renewable energy (Calvin et al., 2023). GHG emissions have been shown to cause climate change and infrastructure destruction, loss of property, and decreased human health and food security (Calvin et al., 2023, p. 6).

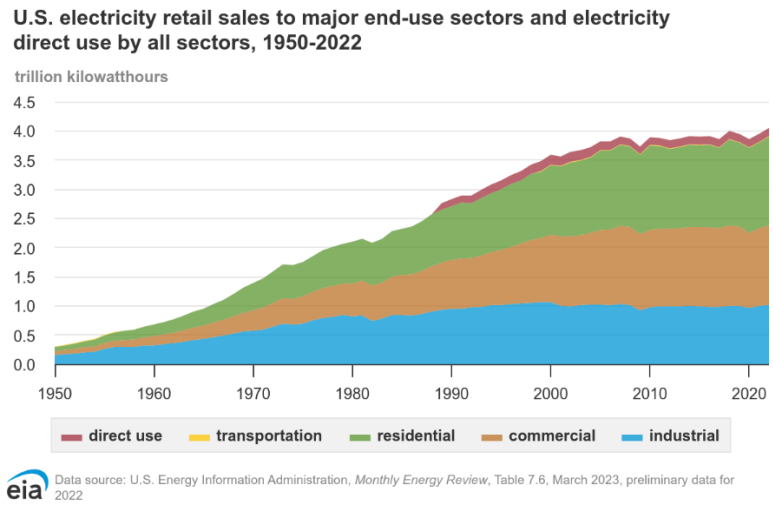

Figure 1: US electricity usage, 1950-2022 (U.S. Energy Information Administration (EIA), 2023)

To encourage the energy transition and increase energy production, efforts have focused on utility-scale (above 5 MW of generating capacity) renewable energy projects. While these projects emit less GHGs than traditional fossil fuel sources, they take up vast amounts of land, which brings them into conflict with rural communities (Capellán-Pérez et al., 2017). In the rural United States, solar projects have faced backlash from local citizens causing project delays and cancelations (Susskind et al., 2022).

Understanding and addressing these issues is critical for expanding the use of solar and thereby encouraging a vital part of the energy transition. This thesis will investigate the environment nationally and in Virginia for solar adoption, previous adoption issues in new rural technologies, and the current landscape of public acceptance of solar nationally. Then, I examine

the approval process for four solar projects including examples of denied, deferred, and approved projects. Through this analysis, I show that the agricultural character of the community and environmental concerns were the primary reasons for opposition from community members, and denied projects often did not follow local government comprehensive plans and ordinances.

The Case for Solar

Although solar energy can refer to concentrated solar power (CSP) or photovoltaic panels, in this paper only photovoltaic panels are discussed, as they are the only solar power able to be used in Virginia due to the climate and topography, with CSP often being used in deserts. The modern silicon photovoltaic solar cell, first created in 1954, has been continually developed into the efficient, cheap and utility power capable device that it is today, with strong help in the 2010s from manufacturing in China to increase production for the industry worldwide (Museum Of Solar Energy, n.d.). The price of the solar photovoltaic energy decreased 89% from 2009 to 2019 due to research and development making the panels cheaper and more efficient in addition to low operating costs and no cost for fuel inherent in solar panels (Roser, 2020). Solar photovoltaic energy is now cheaper than fossil fuel worldwide, and almost cheaper than the low end of fossil fuels in the US, as shown in Figure 2, making it a competitive option for new energy production for utilities and developers (Our World in Data, n.d.). Fossil fuels have a range of prices on these graphs due to the variable costs of fuel. Due to these factors, solar is expected to make up a majority, about 52%, of new electric-generating capacity in the US in 2025 (U.S. Energy Information Administration (EIA), 2025).

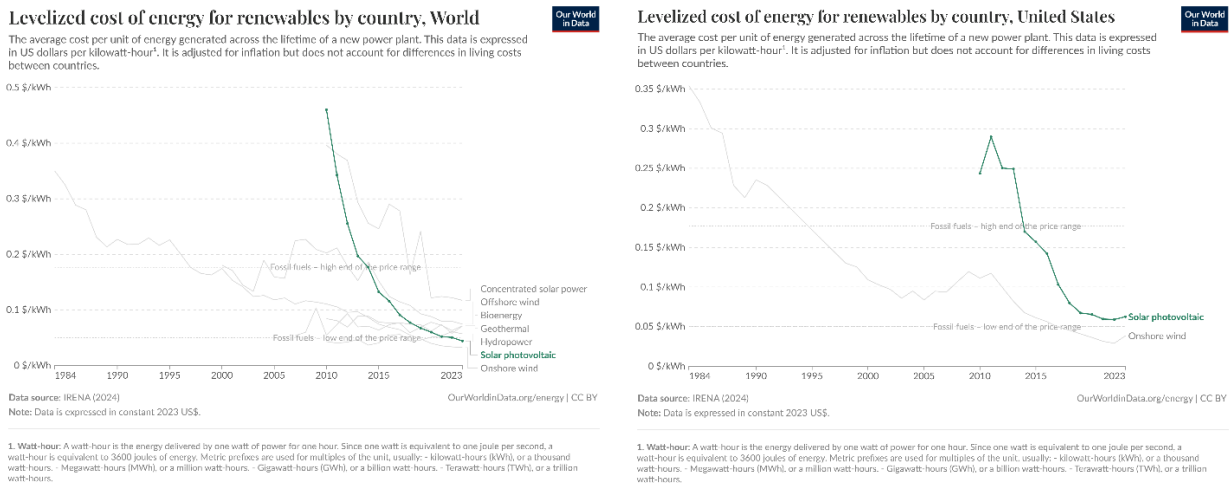

Figure 2: Levelized cost of solar photovoltaic energy in the world (left) and the US (right) (Our World in Data, n.d.)

Virginia is the 9th largest producer of solar energy of US with 13% of the power generated coming from solar projects in 2023, with more solar development expected due to forecasted load growth on the grid (Virginia Energy, n.d.). Communities throughout Virginia have been responding to increased demand for solar, while each community has different responses due to landscape and community differences (Weldon Cooper Center for Public Service, 2022). While solar ordinances have developed across the state, 65 out of 133 localities in Virginia have not developed any utility-scale solar ordinance as of 2023, which can discourage solar development (Smith, 2023). Another driver of solar investment in Virginia is the 2020 Clean Economy Act where Virginia legally committed to 100% clean electricity by 2050 (Virginia Clean Economy Act, 2020).

The growth of solar has also fueled job growth in the US. As of 2019, 249,983 jobs were created by the solar industry, with installation taking up a majority of the jobs (67%), followed by manufacturing (14%), sales and distribution (11%), and operations and maintenance (4%) (Tabassum et al., 2021). With climate targets and economic factors fueling solar growth, solar photovoltaic installers are projected to be the second fastest growing occupation in the country

between 2023 and 2033 (Bureau of Labor Statistics, 2024). While creating jobs, the solar industry does not require many long-term jobs and might only "create" jobs in a county for a short period during construction and have comparatively few operation and maintenance long term jobs.

Solar projects also, if managed well, improve the environment. They contribute to improved air quality and mitigate climate change by offsetting fossil fuel energy production and decrease the amount of water needed compared to traditional energy sources, although they use more land. Land usage issues such as erosion, habitat connectivity, and conflicts with other types of land use such as agriculture, natural habitats, and protected areas need to be mitigated in the design (Agupugo et al., 2024). With the right practices, local ecosystems can even be improved (Green et al., 2023). Utilizing brownfields or former industrial land and dual-use projects such as agrivoltaics can help alleviate some of the land use concerns (Agupugo et al., 2024). Although brownfields, properties where the reuse is complicated by a hazardous contaminant, are a promising land use for solar, current permitting causes these sites to take a long time to develop and therefore are unlikely to represent a substantial share of new solar generation in the next decade, which means that new solar projects will likely be on land that can have other uses such as rural agricultural land (American Clean Power, 2022).

Solar farms can be an economic boon to landowners and localities in rural communities. Leasing land to solar farms is more profitable in Virginia than leasing to agricultural land: general estimates of annual lease rates range from $500-$2,000/acre (Richardson, 2023), while the average cropland lease rate in Virginia is $57/acre (Born et al., 2020). Dominion Energy, a large utility in Virginia, claims that "in most cases", solar development will "significantly" increase taxes for the local government, which can be low on resources (Dominion Energy, 2025).

Rural Adoption of New Technologies

Technological and social change often includes resistance as a common aspect in the process of creating change. From 1900 to 1960, rural life in America underwent a transformation of daily life with the introduction of the telephone, automobile, radio, and electrification. Farmers resisted each technology before eventually making them a part of existing cultural patterns. Some of this resistance can still be seen with the Old Order Amish in Pennsylvania who do not own telephones and automobiles. In addition, resistance has taken the form of using the technology for a slightly different purpose than intended, such as rural America's use of early telephones to eavesdrop and play music on the line, which telephone companies wanted to limit to prevent the lines being tied up and batteries from wearing down. Electricity faced more opposition and similar challenges to today's resistance to rural solar adoption such as securing rights of way for power lines. Community organization and "not-in-my-backyard" (NIMBY) sentiments, which are also common today with solar projects, were common with electrification. In 1938 the Administrator of the Rural Electrification Administration (REA) said, "Everybody says he wants electricity, but when it comes to locating the lines and locating the poles, many people either refuse to hand out essentials, thereby denying their neighbors electricity, or make it so difficult and so costly that certain lines cannot be built at all." To get around resistance from a variety of sources, multiple responses were taken, mostly by creating new organizations and techniques. In addition, new promotional campaigns were created utilizing kitchen parties, a Farm Equipment Tour, and a promotional movie. The technology was also adapted in the combination stove to fit into rural life. Solar can learn from these examples as residents had more ownership in telephones by owning them themselves which correlated to less pushback, while multiple marketing campaigns and products were created to push the adoption of electrification in rural communities (Kline, 2003).

Public Acceptance of and Resistance to Solar

National surveys report high public support for the added solar projects, but there has been significant resistance and criticisms at the local level including concerns about the intermittency, excessive noise, and risks to wildlife, productive farmland, biodiversity, and human health caused by solar projects (Crawford et al., 2022). The projects are perceived to have a negative impact on the local environment, although with proper site planning they can be a benefit and they are meant to have a positive impact on the global environment through mitigating GHGs (Jones, 2024). A "not-in-my-backyard", or NIMBY, mentality is often adopted for these projects locally despite their widespread national support. Nationally, this has led to more solar and wind projects being blocked by local governments than approved for the first time in 2023 (Crable, 2024).

Across the United States, "local opposition to renewable energy facilities is widespread and growing" (Eisenson et al., 2024, pg. 4). Specifically, local governments are enacting laws to block or restrict renewable energy facilities and projects are being delayed or canceled by project opponents such as Citizens for Responsible Solar (Eisenson et al., 2024). This has led to 395 local restrictions (55 new), 19 state-level restrictions (2 new), and 378 contested projects (82 new or updated), with new restrictions occurring between May and December of 2023, a major increase in a short period of time (Eisenson et al., 2024). In Virginia, an increasing amount of county ordinances and restrictions are threatening solar farms' approval (Noah Sachs, 2024) leading to at least 24 renewable energy projects being contested statewide, including two small-scale dual use agrivoltaic (agriculture and solar) projects (Eisenson et al., 2024).

Communities hold the key to approving large scale solar projects needed to advance the energy transition and meet Virginia's legal obligations. Local cooperation and strong laws have been found to be vital to successful solar development (Gross, 2020). Misinformation (Padyk,

2023), aesthetics (Roddis et al., 2018), and beliefs about the environment and renewable energy (Scovell et al., 2024) have been found to impact the local community's response to large-scale renewable energy projects worldwide. In Appalachia, anti-solar local ordinances have been adopted in some communities because of opposing understandings of solar projects as a financial protector of farmland or a threat to farmland and causing farmland loss (Gamper-Rabindran & Ash, 2024). While these are potentially impactful in Virginia, each locality responds to solar projects differently as the opposition "does not typically originate from only one source" (Susskind et al., 2022, pg. 13).

For this case study, I will be utilizing place identity as a framework for the findings. Place identity involves the "emotional and evaluative significance of this membership" to a physical place (Belanche et al., 2021, pg. 242), which can strongly affect a person's viewpoint on a particular issue. I posit that this is the root issue behind a "not in my backyard" (NIMBY) philosophy and a large reason why rural and majority agricultural communities targeted for solar development do not want to see large swaths of their land change from agriculture to solar farms. I posit that the resistance to solar is due to a combination of misinformation and strongly held place identity in rural areas.

Methods

I conducted an analysis of the approval process for utility scale solar projects in Virginia utilizing local government meeting notes and news articles, specifically focusing on four of the contested renewable energy projects identified by Eisenson, Elkin, Singh and Schaffir (2024). These projects are a range of sizes, from 5 MW to 617 MW. I examined the denied projects of Bakers Pond Solar (Prince George) and Cartersville Solar (Powhatan), deferred project of White Oak Tree Solar (Fluvanna), and the built project of Spotsylvania Energy Center (Spotsylvania, 617

MW). Utility scale projects are defined as: “typically ground-mounted and are the principal land use of an area of land. They connect to the transmission network and have a rated capacity greater than 5 MW and can be upwards of a hundred megawatts or more.” (Weldon Cooper Center for Public Service, 2022). Resistance to solar is examined for common themes which will be used to provide recommendations for continuing to grow solar in Virginia to meet legal obligations.

Analysis

The minutes from the meeting for Bakers Pond Solar where the project was denied included written statements from community members submitted before the meeting with 25 against and 9 for. During the meeting community members spoke to concerns about the project violating zoning ordinances, habitat and wildlife impacts, groundwater contamination, runoff and erosion concerns, property value and tax concerns, keeping the agricultural and rural heritage of the community, noise levels, viewshed and sight line concerns, long term effects and decommissioning procedures, power not going back into the community, and the majority of the jobs creating being temporary construction jobs. Community members also spoke to positives from the project including it being a way to make money for the landowner, job growth for apprentice style training programs for construction trade groups, and climate change impacts (Prince George County, 2023).

Cartersville Solar in Powhatan was rejected due to impacts on an area of Priority Conservation Area and Protected Land as designated by the Long-Range Comprehensive Plan, where it would cut off the wetlands that are the only remaining wildlife corridor in the area for rare and endangered species (Bacon, 2019).

White Oak Tree Solar in Fluvanna was deferred due to residents at the meeting speaking against the project: 12 spoke against, one weighed the pros and cons of solar, and one spoke on

behalf of the property ownership. Staff in the county conditionally recommended the site for approval, which might have contributed to the site being deferred instead of denied. Concerns were around the design of the project as it was on timber land that would be clear cut and used as a solar project for 40 years before being transitioned back to agricultural land (Fluvanna County Planning Commission, 2023).

Spotsylvania Energy Center was approved and is operating currently as the largest solar power facility in Virginia despite opposition from neighbors during the approval process largely from one gated subdivision that is next to one edge of the 6,350-acre site. The group formed the Concerned Citizens of Spotsylvania County, and their concerns included that solar panels would harm the environment and poison the water, they would drive down property values, that a large industrial use was not compatible with residential properties in the area, and the county would be financially responsible for cleaning up the site after the 35-year term ended. Environmental groups and the developer sPower dismissed the concerns as unfounded or exaggerated. sPower disputed many of the protesters' claims in a 6,000 page white paper and, after a period of back and forth with the Planning Commission and Board of Supervisors on the specific conditions for the site, was able to get approval for the project (Vogelsong, 2019).

Discussion

Complaints in these meetings centered around zoning and planning, property, and environmental concerns. How people identify with their community shapes their protests: agricultural and rural heritage was a factor in most of the sites through either explicitly stating it, through concern about zoning and property ordinances that would maintain rural aspects instead of the "industrial" solar projects, or environmental concerns that the sites might impact the entire area and degrade the quality of the rural environment. For example, if solar developments are not

designed correctly, runoff can be a major concern as it has in Powhatan County where a lake has turned murky brown from runoff likely from construction on a Dominion Energy solar project (Holmes, 2025). In addition, Energix Renewables, a solar firm with projects across the state, has violated state environmental regulations primarily around erosion and stormwater runoff, for the third year in a row and they must pay a civil penalty of $158,000 (Busse, 2024).

There are many ways that companies and counties can and do mitigate environmental risks. Unlike what some people claimed in the meetings analyzed, solar panels themselves do not harm the environment or poison the water and solar power generation does not produce excessive noise as the noise is designed to not exceed a low threshold. Agricultural character can also be preserved by planning for minimal impact to sightlines and planting trees within sightlines. In general, the environmental concerns for a utility-scale solar project are similar to other large land uses: erosion and stormwater runoff are issues prevalent on any large land use and need to be, and in general are, accounted for in the site design. Spotsylvania Energy Center is a good example of this.

Local government is the deciding body for approval for solar projects in Virginia. Different priorities in local government- whether for economic development or keeping agricultural character of a community- directly impact the likelihood of a solar project being approved. In addition, the solar projects that were denied in this analysis all violated some part of the local government's regulations, which were put in place before the design of the solar plants were made. Therefore, it is important to pay attention to local regulations, comprehensive plans, and local government dynamics in proposing and designing a solar project. Local regulations can also be hostile in some counties, leading to less solar development there. Most of the speakers at the meetings analyzed were protesting the solar development, although generally their numbers are

comparatively small for the number of residents in the county, giving a small number of citizens a large sway over the policy for a county.

Although this report focuses on the reasons for protesting solar development, there are several organizations across the state that actively promote solar farms from different angles. The Community Climate Collaborative (C3) headquartered in Charlottesville promotes solar power through advocating for the ability of solar to fight climate change while being equitable if designed correctly following their Solar Justice Scorecard (Community Climate Collaborative, 2025). Energy Right advocates for the ability of solar to provide energy security and economic growth while being a safe land use (Energy Right, n.d.). The Virginia Solar Survey (2022) found that outreach and education for localities as they consider solar projects is important for their approval.

Conclusion:

Through an analysis of the approval process of four solar projects in the Charlottesville, VA area I found that agricultural character of a community and environmental concerns are top of mind for opponents of solar. While both can be mitigated through design, the solar projects that were denied in this analysis did not follow local ordinances and comprehensive plans directly leading to their denial. Local regulations can also be hostile to solar development, making it harder for developers to follow ordinances. In addition, local residents can be a vocal source of opposition to new projects particularly when they feel that their identity as part of a rural community is threatened. Solar projects can be seen as an industrial use and not compatible with the rural and agricultural character of a community, although it is possible to grow crops or have livestock such as goats on the same piece of land as a solar farm.

I recommend that new solar projects develop strategies to educate the local community on design choices made to preserve the agricultural character of a community and follow environmental best practices, potentially in conjunction with local advocacy groups like C3 and Energy Right. In addition, solar developers should always show how their project is in line with the comprehensive plan and local ordinances for the community.

This study is limited in the scope of the project, as only four projects were studied, although the complaints found in the projects line up with other research done nationally. In addition, this analysis relies on meeting notes and news articles, which could miss some nuance to the arguments that interviews would expose. In the future, the inclusion of more sites in the study and interviews could improve the depth of understanding of this issue. Particularly focusing on interviews with organizations that resist solar, can highlight nuances that were not able to be captured in meeting notes, websites, and news articles.

References

Agupugo, C. P., Ajayi, A. O., Salihu, O. S., & Barrie, I. (2024). Large scale utility solar installation in the USA: Environmental impact and job creation. *Global Journal of Engineering and Technology Advances*, *21*(2), 023–034. https://doi.org/10.30574/gjeta.2024.21.2.0202

American Clean Power. (2022). *Redeveloping Brownfields with Solar: Challenges and Opportunities [Fact sheet]* (pp. 507–534). https://cleanpower.org/wp-content/uploads/gateway/2022/08/ACP_FactSheet_Brownfields_220830.pdf

Bacon, J. A. (2019, March 14). Conservation Vs. Solar in Powhatan County. *Bacon's Rebellion*. https://www.baconsrebellion.com/conservation-vs-solar-in-powhatan-county/

Belanche, D., Casaló, L. V., & Rubio, M. Á. (2021). Local place identity: A comparison between residents of rural and urban communities. *Journal of Rural Studies*, *82*, 242–252. https://doi.org/10.1016/j.jrurstud.2021.01.003

Born, T., Kayser, P., & Friedel, J. (2020). *Estimated Cropland and Pastureland Use Values using the Capitalized Cash Rental Rate Method – Tax Year 2011*. https://aaec.vt.edu/content/dam/aaec_vt_edu/extension/use-value/use-value-tables/2021-use-value-tables/TY2021_Rental%20Rates.pdf

Bureau of Labor Statistics. (2024, August 29). *Fastest Growing Occupations*. https://www.bls.gov/ooh/fastest-growing.htm

Busse, M. (2024, May 21). Solar firm Energix fined again for Virginia environmental violations. *Cardinal News*. http://cardinalnews.org/2024/05/21/solar-firm-energix-fined-again-for-virginia-environmental-violations/

Calvin, K., Dasgupta, D., Krinner, G., Mukherji, A., Thorne, P. W., Trisos, C., Romero, J., Aldunce, P., Barrett, K., Blanco, G., Cheung, W. W. L., Connors, S., Denton, F., Diongue-Niang, A., Dodman, D., Garschagen, M., Geden, O., Hayward, B., Jones, C., … Péan, C. (2023). *IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland.* (First). Intergovernmental Panel on Climate Change (IPCC). https://doi.org/10.59327/IPCC/AR6-9789291691647

Capellán-Pérez, I., De Castro, C., & Arto, I. (2017). Assessing vulnerabilities and limits in the transition to renewable energies: Land requirements under 100% solar energy scenarios. *Renewable and Sustainable Energy Reviews*, *77*, 760–782. https://doi.org/10.1016/j.rser.2017.03.137

Citizens for Responsible Solar. (n.d.). *Success Stories Opposing Industrial-Scale Solar On Agricultural-Rural Land*. Retrieved April 3, 2025, from https://www.citizensforresponsiblesolar.org/success-stories

Community Climate Collaborative. (2025, April 29). *Energy*. Community Climate Collaborative. https://www.theclimatecollaborative.org/energy

Crable, J. C. & A. (2024, October 7). Solar industry electrifies pushback in rural areas of Chesapeake Bay region. *Bay Journal*. https://www.bayjournal.com/news/climate_change/solar-industry-electrifies-pushback-in-rural-areas-of-chesapeake-bay-region/article_5cfad45c-811e-11ef-a264-37d038dcdb8d.html

Crawford, J., Bessette, D., & Mills, S. B. (2022). Rallying the anti-crowd: Organized opposition, democratic deficit, and a potential social gap in large-scale solar energy. *Energy Research & Social Science*, *90*, 102597. https://doi.org/10.1016/j.erss.2022.102597

Dominion Energy. (2025). *Land To Solar | Virginia |*. https://www.dominionenergy.com/virginia/renewable-energy-programs/land-to-solar

Eisenson, M., Elkin, J., Singh, H., & Schaffir, N. (2024). Opposition to Renewable Energy Facilities in the United States: June 2024 Edition. *Sabin Center for Climate Change Law*.

Energy Right. (n.d.). *Solar 101—EnergyRightUS.orgEnergyRightUS.org*. Retrieved May 2, 2025, from https://energyrightus.org/solar-101/

Fluvanna County Planning Commission. (2023). *FLUVANNA COUNTY PLANNING COMMISSION REGULAR MEETING MINUTES November 8, 2023*. https://www.fluvannacounty.org/sites/default/files/fileattachments/planning_commission/meeting/22940/final_minutes_11-08-2023.pdf

Gamper-Rabindran, S., & Ash, J. (2024). "Farming the sun" or "coal legacy"? Social perspectives on solar energy projects in Appalachia. *Energy Research & Social Science*, *117*, 103656. https://doi.org/10.1016/j.erss.2024.103656

Green, M., Copley, M., & Kellman. (2023, February 18). An activist group is spreading misinformation to stop solar projects in rural America. *NPR*. https://www.npr.org/2023/02/18/1154867064/solar-power-misinformation-activists-rural-america

Gross, S. (2020, January). *Renewables, land use, and local opposition in the United States*. Brookings. https://www.brookings.edu/articles/renewables-land-use-and-local-opposition-in-the-united-states/

Holmes, E. (2025, March 25). Residents urge Powhatan officials to act on solar project runoff affecting Lake Shawnee. *CBS 6 News Richmond WTVR*. https://www.wtvr.com/news/local-news/powhatan-lake-shawnee-runoff-march-25-2025

Jones, J. (2024, January 6). *Sunblocked: Resistance to Solar in Farm Country*. Reveal. http://revealnews.org/podcast/sunblocked-resistance-to-solar-in-farm-country/

Kline, R. (2003). Resisting Consumer Technology in Rural America: The Telephone and Electrification. In *How users matter: The co-construction of users and technology* (pp. 51–66). The MIT Press.

Museum Of Solar Energy. (n.d.). *A Brief History of Solar Electricity of Solar Energy • Museum Of Solar Energy*. Retrieved April 3, 2025, from https://solarmuseum.org/history/

Noah Sachs, M. S. (2024, April 12). Commentary: Resistance to solar farms is holding Virginia back. In *Richmond Times-Dispatch: Web Edition Articles (VA)*. Access World News – Historical and Current. https://infoweb.newsbank.com/apps/news/openurl?ctx_ver=z39.88-2004&rft_id=info%3Asid/infoweb.newsbank.com&svc_dat=WORLDNEWS&req_dat=0D0CB581AB6F1535&rft_val_format=info%3Aofi/fmt%3Akev%3Amtx%3Actx&rft_dat=document_id%3Anews%252F1986493868D46C50

Our World in Data. (n.d.). *Levelized cost of energy for renewables by country*. Our World in Data. Retrieved April 3, 2025, from https://ourworldindata.org/grapher/levelized-cost-of-energy?focus=~Solar+photovoltaic

Padyk, S. (2023). *Connecting the dots: An analysis of how localized renewable energy resistance and industry communication strategies align in the post-truth era* [University of North Carolina]. https://doi.org/10.17615/6bhv-2168

Prince George County. (2023). *Minutes Board of Supervisors December 12, 2023*. https://go.boarddocs.com/va/princegeorge/Board.nsf/Public

Richardson, M. (2023, September 15). *Solar Land Lease Rates | How Much Do Solar Companies Pay*. US Light Energy. https://uslightenergy.com/solar-land-lease-rates-how-much-do-solar-companies-pay-to-lease-land/

Roddis, P., Carver, S., Dallimer, M., Norman, P., & Ziv, G. (2018). The role of community acceptance in planning outcomes for onshore wind and solar farms: An energy justice analysis. *Applied Energy*, *226*, 353–364. https://doi.org/10.1016/j.apenergy.2018.05.087

Roser, M. (2020). Why did renewables become so cheap so fast? *Our World in Data*. https://ourworldindata.org/cheap-renewables-growth

Scovell, M., McCrea, R., Walton, A., & Poruschi, L. (2024). Local acceptance of solar farms: The impact of energy narratives. *Renewable and Sustainable Energy Reviews*, *189*, 114029. https://doi.org/10.1016/j.rser.2023.114029

Smith, K. (2023). *Virginia Localities Solar Ordinances and Native Vegetation*. Virginia Department of Conservation and Recreation. https://www.dcr.virginia.gov/natural-heritage/document/va-solarordin-natveg.pdf

Susskind, L., Chun, J., Gant, A., Hodgkins, C., Cohen, J., & Lohmar, S. (2022). Sources of opposition to renewable energy projects in the United States. *Energy Policy*, *165*, 112922. https://doi.org/10.1016/j.enpol.2022.112922

Tabassum, S., Rahman, T., Islam, A. U., Rahman, S., Dipta, D. R., Roy, S., Mohammad, N., Nawar, N., & Hossain, E. (2021). Solar Energy in the United States: Development, Challenges and Future Prospects. *Energies*, *14*(23), Article 23. https://doi.org/10.3390/en14238142

U.S. Energy Information Administration (EIA). (2023, December 18). *Use of electricity*. https://www.eia.gov/energyexplained/electricity/use-of-electricity.php

U.S. Energy Information Administration (EIA). (2025, February 24). *Solar, battery storage to lead new U.S. generating capacity additions in 2025*. https://www.eia.gov/todayinenergy/detail.php?id=64586

Virginia Clean Economy Act, No. 1526, House Bill (2020). https://legacylis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1526

Virginia Energy. (n.d.). *Renewable Energy: Solar Energy*. Retrieved April 4, 2025, from https://www.energy.virginia.gov/renewable-energy/SolarPower.shtml

Vogelsong, S. (2019, April 10). Biggest piece of Spotsylvania solar farm approved. *Virginia Mercury*. https://virginiamercury.com/2019/04/10/biggest-piece-of-spotsylvania-solar-farm-approved/

Walton, R. (2024, December 6). *Five-year US load growth forecast surges 456%, to 128 GW: Grid Strategies*. Utility Dive. https://www.utilitydive.com/news/shocking-forecast-us-electricity-load-could-grow-128-gw-over-next-5-years-Grid-Strategies/734820/

Weldon Cooper Center for Public Service. (2022, April). *Virginia Solar Survey*. https://www.coopercenter.org/virginia-solar-survey