Undergraduate Thesis Prospectus

The Struggle over the Future of Data Centers in Northern Virginia

(sociotechnical research project)

by

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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.

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General research problem

How do companies and other social groups compete to influence public policy?

Lawmakers and regulators in the U.S. often claim to represent their constituents' interests; however, many other influences might also be at play by the time they reach office. From a surface-level look, interest groups play a role in changing the visibility of certain issues to affect public policy (Grossmann, 2012). Engaged citizens can contribute to some of these to make their voices heard on their top-priority issues.

On the other hand, the ways in which companies both directly and indirectly attempt to sway legislation can be covert. Groups like trade associations, professional associations, and some interest groups can sometimes be closely linked to companies and their financial interests. Beyond campaign contributions, these groups can act as public relations beacons for companies and their interests. Using a manufactured sense of authority, they work to change public sentiment on topics or even hide potential issues within industries. They act with a strategic invisibility that separates them from their corporate links. Companies legally must do right by their shareholders, while elected officials must represent the will of their people. Knowing the extent to which companies and social groups control the discourse on public policy is integral to understanding our democracy.

The Struggle over the Future of Data Centers in Northern Virginia

How do critics and defenders of the expansion of data centers in Northern Virginia compete to advance their agendas?

With the rise of AI and Big Data, Northern Virginia has become home to many of the world's data centers due to its cheap land, reliable energy, and low risk from natural disasters. With high internet connectivity and tax incentives, the regions of Loudoun and Prince William

County earned the name “Data Center Alley” which boasts routing “much of the world’s internet traffic” (LED, 2024). Data centers are physical facilities that provide computing and digital storage equipment for their customers. They are essential for modern businesses and a major component of cloud computing where businesses host their servers and data off-site. However, there are debates over where data centers should be located and its effects on local communities and the environment.

Motives like financial opportunity and technological advancement have led companies, associated trade associations, and other organized social groups to also try to influence policy. In contrast, factors like noise, energy consumption, and environmental and historical conservation have mobilized many advocacy groups to ask state and local government for limits and greater regulation on the data center industry, with some questioning the necessity of data centers overall. Either way, understanding the actions and agendas of these parties is crucial to analyzing their influence on public policy.

Related Published Research

Researchers studied social phenomena related to opposition to construction before. For example, Ghafoor et al. (2022) found that public opposition to construction and demolition waste facilities in Australia was largely driven by poor public participation and only marginally by “not-in-my-backyard” (NIMBY) attitudes. Fabra et al. (2024) found that renewable energy investments were opposed by local communities due to “land conservation, biodiversity, economic” concerns in Spain. Liu, Song, and Shi (2024) have also found that the opposition to wastewater treatment plants was linked to factors like perceived benefit, perceived risk, and perceived fairness. Despite the inherent benefits of renewable energy and waste facilities, local communities still failed to support their construction. This published research suggests the

perception of construction can be attributed to factors beyond the judgment of the structure being built including other factors like perceived fairness of the process and impact on local communities. However, the impact of organized and semi-organized social groups on both public perception and public policy about construction projects like data centers remained unanswered.

Major Participants

One participant is the Virginia Data Center Reform Coalition, a group made up of over 25 environmental, historical, and climate advocacy groups who have united to support "statewide reform of the data center industry" despite having different reasons for opposing data centers (PEC, 2023). Their concerns about data centers' impact range from "higher utility rates" for residents to "declining air quality" among many other factors. A second participant is the Prince William Conservation Alliance, an advocacy group that works to protect natural areas in Northern Virginia. They oppose data center projects citing their "insatiable demand for power, water and land" and question "if the benefits will truly outweigh the costs in the end" (Studholme & Schlossberg, 2024). They specifically have expressed concern about "intense development" next to state and national parks, labeling them "intrusions" (PWCA, 2021).

Some advocacies influence data center policy for other reasons. For example, the American Battlefield Trust, a 501(c)(3) non-profit organization, stands for the "preservation" of historical battlegrounds and "education" of the American public about their importance (ABT, 2024a). With the expansion of data centers in Northern Virginia, they have joined a lawsuit to protect the Manassas Battlefields from the construction of an adjacent data center citing concerns about "historic" and "natural" resources being "irreparably" damaged (ABT, 2024b). Through fundraising, legal action, and petitions, they aim to halt the "aggressive" construction of data centers by "the richest companies on earth" near historical sites (ABT, 2024c). They further

characterize data centers as “windowless monstrosities” arguing that the expansion in Northern Virginia could even spread to Gettysburg and other historic sites if left unchecked.

Another major participant is the Data Center Coalition, a membership coalition that “represents and advances the interests of the data center community” by advocating for tax and zoning policies that favor the data center community (DCC, 2024). Claiming to be “the voice of the industry”, they partake in “public policy advocacy” where they fight for policies around the construction, workforce, and “regulatory climate” of data centers. Notably, their board of directors comprises executives from big tech, construction, and data center companies. The Electric Power Supply Association (EPSA), a trade association that “represents competitive power suppliers,” is also a participant in the data center discussion (EPSA, 2024). Made up of over 10 national energy companies, the EPSA shares their “members’ good news with policymakers” at the state and federal levels. Their members stand to benefit financially from the rise of AI and the “rush to build large energy-intensive data centers” (Owen, 2024).

Many big tech, construction, and electric companies also have a stake in influencing data center policy. Stack Infrastructure, a data center solutions company tied to the Data Center Coalition, can be identified as an additional participant. They have a financial interest in building data centers and have already built several in Northern Virginia (Stack Infrastructure, 2020). They advertise their ability to aid innovative companies “to scale their digital infrastructure” with speed and precision (Stack Infrastructure, 2024). The Northern Virginia Electronic Cooperative or NOVEC can also be identified as a key participant. As an electric distribution system, they service electricity to “more than 175,000 homes and businesses” in Northern Virginia (NOVEC, 2024a). By providing power distribution, including the expansion of infrastructure like substations and power lines, NOVEC has a financial interest in the growth of

the data center industry in Northern Virginia. Between 2023-2024, they reported “serving 52 data center buildings on 21 campuses” across four different counties with data center customers representing “65% of NOVEC’s energy sales” (NOVEC, 2024b).

References

ABFT. (2024a). *About the American Battlefield Trust*. American Battlefield Trust. https://www.battlefields.org/about

ABFT. (2024b, January 12). American *Battlefield Trust Joins Lawsuit to Protect Manassas Battlefield from Massive Data Center Project*. American Battlefield Trust. https://www.battlefields.org/news/american-battlefield-trust-joins-lawsuit-protect-manassas-battlefield-massive-data-center

ABFT. (2024c). *Protect Virginia Battlefields from Massive Data Centers*. American Battlefield Trust. https://www.battlefields.org/preserve/speak-out/protect-virginia-battlefields-massive-data-centers?ms=navso

EPSA. (2024). *About EPSA - EPSA*. EPSA. https://epsa.org/about-epsa/

Fabra, N., Gutiérrez, E., Lacuesta, A., & Ramos, R. (2024, September). Do renewable energy investments create local jobs? *Journal of Public Economics*, *239*, 105212–105212. Web of Science.

Ghafoor, S., Salman Shooshtarian, Maqsood, T., & Wong, P. (2022, August). Assessment of Public Opposition to Construction and Demolition Waste Facilities: A Case Study in Australia. *Recycling*, *7*(5), 62–62. Web of Science.

Grossmann, M. (2012). Interest group influence on US policy change: An assessment based on policy history. *Interest Groups & Advocacy*, *1*(2), 171–192. Web of Science.

Liu, M., Song, Y., & Shi, S. (2024). Resolving the Dilemma of Wastewater Treatment Plants: An Empirical Study on Public Acceptance for Publicly Accessible WWTPs. *Journal of Cleaner Production*, *475*, 143674–143674. Web of Science.

LED. (2024, January 18). *Data Centers - Loudoun County Economic Development, VA*. Loudoun County Economic Development, VA. https://biz.loudoun.gov/key-business-sectors/data-centers/

NOVEC. (2024a). *Who We Are*. Novec.com. https://www.novec.com/About_NOVEC/index.cfm

NOVEC. (2024b). 2023-*2024 Annual Report*. https://www.novec.com/About_NOVEC/upload/NOVEC_AR-2024-nobleed-compressed.pdf

Owen, Francis (Executive Producer). (2024, August 8). How Much Power Are We Talking About? (No. 1) [Audio podcast episode]. In *Energy Rush*. EPSA. https://epsa.org/energy-rush-how-much-power-are-we-talking-about/

PEC. (2023, December 4). Data Center Reform Coalition Press Conference [YouTube Video]. In YouTube. https://www.youtube.com/watch?v=iP1tvtTIGuE&ab_channel=PiedmontEnvironmentalCouncil

Prince William Conservation Alliance. (2021). *Data Centers Don't Belong Beside National Parks.* Pwconserve.org. https://www.pwconserve.org/datacenters/bynationalparks.html

Stack Infrastructure. (2020, January 22). *STACK INFRASTRUCTURE and Peterson Companies Announce Development of 125-acre Hyperscale Data Center Campus in Prince William County, VA.* STACK INFRASTRUCTURE. https://www.stackinfra.com/about/news-events/press-releases/stack-infrastructure-and-peterson-companies-announce-development-of-125-acre-hyperscale-data-center-campus-in-prince-william-county-va/

Stack Infrastructure. (2024). *About STACK Infrastructure: Data Center Developer & Operator*. STACK INFRASTRUCTURE. https://www.stackinfra.com/about/

Studholme, A., & Schlossberg, E. (2024, April 3). *Call for data center guidelines*. Prince William Conservation Alliance Blog. https://pwconserve.blogspot.com/2024/04/call-for-data-center-guidelines.html#more