Beyond the Site: *An analysis of the perceived economic impact to the Spotsylvania community*

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Abstract:

New solar farm development can bring support and opposition as evident by the planned sPower solar farm in Spotsylvania county, Virginia. Of significant concern for such development is the economic impacts to the local and county level including real estate values, tax revenue and general project feasibility. In an analysis of the economic impacts, primary and secondary research included outlining the arguments presented by the two opposing sides; the Concerned Citizens of Spotsylvania County and sPower. Research further included an analysis of the projected change in real estate values the nearby Fawn Lake residential development. The real estate analysis concluded that correlation between the planned solar farm development and nearby real estate values is inconclusive, but further research is necessary to determine if a correlation exists. Such research may include updated real estate estimates since the recent approval of the project and larger scale real estate impacts. Understanding and addressing the economic changes that will take place in Spotsylvania will encourage community engagement and foster interdisciplinary collaboration.

With future energy demands growing in the United States, a change in energy development, consumption and mindset is needed. As the most pressing issue faced today, climate change has forced us to look at alternatives like renewable energy; energy that is collected from resources that don’t deplete or are naturally replenished within a human life time. As the need to reduce climate impacts becomes more pressing, renewable energy sources are becoming more prevalent and necessary as a long term solution. One renewable energy source increasing in utility and residential viability is solar. Currently, only 1.03 percent of Virginia’s electricity comes from solar, but this number is projected to increase by 2,666 megawatts over the next 5 years as costs continue to drop; having already decreased by 47 percent over the past 5 years (SEIA, 2018). Solar development in Virginia has also gained traction with the recent approval of Special Use Permits (SUPs) for a 6,000-acre utility solar farm to be built in Spotsylvania county by the solar company sPower. Of the 6,000 acres, 3,500 will be developed, the remainder serving as buffers, resource protection areas and wildlife corridors (Virginia Mercury, 2019). This approval has not come without protest from local residents. Concerns addressed by local residents include project scale, impacts to the environment and wildlife, culture, health and safety, electricity rates, restoration costs and economics. As a major concern of the project, the economic impact has been heavily debated by both sides, becoming the focus of study in Spotsylvania county. Specific research includes the impact to the land and
community surrounding the planned site and the general impact to Spotsylvania county. To thoroughly understand the anticipated changes to the area, research will include the perceived economic impacts of sPower’s development to the area from the perspective of both sPower and Spotsylvania county residents. This will include an analysis of the anticipated impact to real estate values in the nearby Fawn Lake residential development. With this analysis, each side will understand where compromise is needed and how to best move forward with the project in a positive light.

Research throughout the project will be framed with an economic lens using the economic theory of “monetary theory of value” which looks at the value of a good or service based on the price (Wiley, 2015). This theory applied to Jonathan A. Wiley’s study The Impact of Commercial Development on Surrounding Residential Property Values, analyzed the sale prices of residential properties located near a commercial land development. In his analysis, Wiley compared housing values at various distances to a new commercial development over the course of the project construction (Wiley, 2015). Using real estate data collected from Zillow, this theory will be applied to the Spotsylvania solar farm.

In addition to Zillow, data from sPower’s third-party economic analysis and the Concerned Citizens of Spotsylvania County (CCSC) website will be included for analysis. The third-party economic impact assessment by Mangum Economics “identif[ies] the intended and, more importantly, unintended consequences of proposed legislation and other policy initiatives” (Mangum Economics, 2019). This further includes the economic and fiscal contribution of the site to the local community, the county, and an economic comparison of the planned site use to the site’s current use. With a focus on the site value itself, and larger county level impacts, this economic impact analysis does not include the non-monetized impacts or property values of nearby land areas.

The Concerned Citizens of Spotsylvania County website provides thorough arguments for denying the planned project approval. This includes addressing the project scale, impacts to culture and environment, lost tax revenue, jobs, out of county electricity generation, rising electricity rates, fire, health and safety risk, restoration costs and lack of long term
accountability. The website also includes contact information for district supervisors and county board supervisors. An informational video on the website shares images of the planned site and a number of links throughout the site connect to relevant news articles. Although thorough in research, much of the information on this website is not properly cited. To further support this analysis, additional data will be collected from news articles on fiscal projections, employment and surrounding site property values.

Methods throughout the project include data collection from various sources such as published written reports, news articles, social media postings, websites and the Spotsylvania county board meeting public records. Direct quotes are also included by those who have voiced their opinion at a Spotsylvania county board meeting or in the Concerned Citizens of Spotsylvania County Facebook group. Throughout this project various research methods are used to understand the scope of the sPower development in Spotsylvania county. By conducting both primary and secondary research, a more thorough understanding of each side of the project is gained throughout the research period. As part of this analysis, secondary research is completed to understand the foundation of each argument presented by the two opposing sides. This specifically included the economic impacts to the area around the site on both the local and county level. Sources such as the CCSC Facebook group and website provide foundational research to help understand the perspective of the local community and illustrate the anticipated economic impacts the project will bring to the immediate area. Primary research using residential property value estimations from Zillow then helps to understand the scope of the economic impact to the area surrounding the site, specifically real estate values. This data contributes directly to the real estate value calculations and provides a relevant analysis towards the controversial project.

The proposed sPower solar project in Spotsylvania county, Virginia was recently granted SUP approval by the Spotsylvania County Board of Supervisors. A significant reason for approval was the projected economic growth the site will bring to the county. Spotsylvania
county is located in the Northern Virginia and Baltimore-Washington metropolitan areas and has a current estimated population of about 130,000 residents. The median property value in the county is $252,900 and the largest share of household taxes ranges from $800 to $1500 (Datausa, 2017). sPower, the project developers, is an AES\textsuperscript{1} and AIMCo company and the largest private owner of operating solar assets in the United States (sPower, 2019). As a solar developer, sPower’s mission includes providing economically and environmentally responsible energy. The proposed 500 megawatt site in Spotsylvania county is their most recent undertaking and will be the largest solar installation this side of the Mississippi River (sPower, 2019). Built over a two-year period, the site will generate over $20 million in new tax revenue for Spotsylvania county and “bring hundreds of new jobs and new tech investment to the area” (sPower, 2019). Even with anticipated benefits the site will bring to the county, the most pressing economic issues brought to light include nearby real estate values, employment, labor income and tax revenue from the site and nearby properties. Despite citizen opposition, the board of supervisors voted to approve the site SUPs. Greg Benton, Spotsylvania County Board of Supervisor for the Livingston district, confirmed his support of the project based on “benefits to Spotsylvania county and look[s] forward to seeing the sPower project come to fruition and become a success”. Despite the vote going through, Spotsylvania citizens have continued to oppose the project and present their own economic analysis of the solar site.

For many Spotsylvania citizens, opposition to sPower’s solar site remains high despite the recent SUP approval by the Spotsylvania county Board of Supervisors. A lot of opposition comes from the anticipated economic impact including, lost property values, decreased tax revenue and general uncertainty as to the project feasibility. The potential decrease in property values due to the site is of significant concern for nearby residents in the Fawn lake residential development. According to the CCSC opposition group, the county will lose an estimated $88 million in property values and lost residential construction over the 35 year project. The impact

\textsuperscript{1} AES is a worldwide energy company and the Alberta Investment Management Corporation is a Canadian diversified institutional investment fund.
to property values is also evident to those working in the real estate market. Lynn Smith, a local resident and real estate attorney believes solar panels have no place near residential developments and [solar panels] will decrease property values. Similarly, Kathleen Hayden, a relator in the Livingston District, has seen the projected housing value impact firsthand with her clients. “So far I have 15 recent home buyers saying they had no knowledge of the solar project before buying, 12 saying they would not have bought had they known…and 6 homeowners saying they are seriously thinking of selling if there is a yes vote” (Kathleen Hayden). Hayden further suggests that at least 74 Fawn Lake property lots will not be developed with project approval. This loss will total approximately $330,000 per year or almost $10 million in tax revenue lost over the life of the project from the Fawn Lake development. In addition, 200 plus acres of the Fawn Lake development are being sold to sPower, land that could have been developed for housing and brought tax revenue to the county on more than 191 homes and construction earnings (CCSC, 2018). Further, on a project site costing $550 million, sPower will generate $8 billion in revenue over the life of the project. Of this $8 billion in revenue generated, Spotsylvania county will receive only $10 to $11 million over the life of the project (CCSC, 2018), approximately 0.1375 percent.

With a decrease in county tax revenue, many Spotsylvania citizens are anticipating the economic burden and question the feasibility of the project for the county. One CCSC member, Lester Gabriel addressed this concern and the amount that developers and investors are being subsidized for renewables, “It would be good to know the dollar amount of these transfers, as that should be a factor for voters/taxpayers and for Supervisors who are supposed to represent them [to] take into consideration when deciding on whether this project makes economic sense”. Feeling exploited by the profit driven sPower, coupled with the zero energy or direct economic benefits for the local economy, Spotsylvania citizens simply believe the project is not a good fit for the county. A number of residents’ concerns look to the future, for they “don’t want this county to be a guinea pig for other states to learn by” (Regional Web TV, 2019), worried this project could become an economic burden and challenge for the county.
Even with the number of concerns Spotsylvania citizens have addressed with the development of the solar farm, sPower has also discussed a number of economic benefits the project will bring to the county and the state of Virginia. sPower’s third-party economic analysis was conducted by Mangum Economics; a licensed firm specializing in economic impact assessments (Mangum Economics, 2019). Mangum Economics’ analysis included a number of ways the solar farm will benefit Spotsylvania county such as, employment, county tax revenue and economic output. Measuring the fiscal impact was done using an economic multiplier, which measures the ripple effects of an expenditure. The first round impact includes employment, wages and the purchase of goods and services, while the second round impact includes indirect and induced impacts; in terms of business to business, and employee to business transactions.

The largest economic benefits will occur during the initial construction phase and include 843 full-time jobs, $45.8 million in associated labor income and $110 million in economic output (Mangum Economics, 2019). Throughout the life of the project, the site will annually employ 20 full-time employees, produce $1.9 million in associated labor income and $2.8 million in economic output for the county (Mangum Economics, 2019). When including the ripple effects of the project, production will estimate at 34 full-time jobs, $2.5 million in associated labor income and $4.7 million in economic output (Mangum Economics, 2019). Jobs will include electricians, site contractors, landscapers, mechanics, heavy equipment operators, engineers, waste management and security guards (Mangum Economics, 2019). During the initial development phase, $3.5 million in state and local tax revenue will be generated. After the first year of operational county revenue totaling $1.4 million, revenue is projected to decline over the life of the project to $600,000 due to depreciable assets (Mangum Economics, 2019). Cumulative county revenue will total approximately $17.6 million over the life of the project. This is much more significant than the $754,993 in revenue that would be generated from the site’s agricultural production (Mangum Economics, 2019). For analysis, all construction expenditures are assumed to take place during a single year. Of the $215,475,000 in construction, architecture and engineering costs, 34 percent will be spent with businesses located in Spotsylvania county, not including capital equipment.
The solar farm will also benefit many high-tech corporations located in nearby Prince William county. Companies such as Microsoft and Google are looking to replace much of their data center energy with cost-saving renewable energy sources. Additional stakeholders receiving energy include Apple and the University of Richmond. This project is a huge opportunity for Spotsylvania County to generate new revenue, lead in the renewable energy space, and bring a good corporate partner to the area,” (Clean Energy Conservatives, 2019) furthering the incentive for other high-tech companies to come to the area. In addition, the site will “not have a big impact” on Fawn Lake real estate values according to local Coldwell Banker agent Brandon Anderson. sPower also plans to give back to the county through their “commitment to investing another $25 million over the life of the project in county priorities such as STEM education and workforce training” (Mangum Economics, 2019). The many benefits sPower will bring to the county will work to offset the significant concerns local Spotsylvania citizens have with regard to property values and tax revenues, a study of which is addressed next.

Figure 1 identifies 12 real estate properties located within 0.5 miles of the sPower Solar site in the Spotsylvania Fawn Lake development.
Graph 1 displays the percent change in real estate values of the properties identified in Figure 1 over the two-year time period of January 2018 to January 2020.

Figure 2 identifies 12 real estate properties located within 0.5 miles of the protected Chancellorsville Battlefield in the Spotsylvania Sawhill Boulevard development.
Graph 2 displays the percent change in real estate values of the properties identified in Figure 2 over the two-year time period of January 2018 to January 2020.

A significant economic concern of the planned solar development in Spotsylvania county is the impact to property values. To further understand the anticipated change in value of properties located within proximity of the site, an analysis of local properties was conducted. This included the nearby Fawn Lake development, an “immaculate, gated community featuring an 18-hole… golf course...a nearly 300-acre lake... [and amenities such as swimming], tennis, pickleball, soccer, baseball...[and] 11 miles of trails (Nest Realty, 2019), and the Sawhill Boulevard development, also located in Spotsylvania county. Forecasted and current real estate values were collected from Zillow, an online real estate database. Zillow forecasts the change in home values over a 12 month period with the Zillow Home Value Index (ZHVI), “tracking the monthly median home value in a particular geographical region” (Zillow Research, 2014). This index developed from “Estimated sale prices (Zestimates) are computed based on proprietary statistical and machine learning models”, also accounts for estimation error which is generally minimal (Zillow Research, 2019). Initial zestimates are based on public county records but can also be updated by agents and homeowners. At the time of analysis, Zestimates had not been
updated to include the recent approval of the solar site.

The Fawn Lake development, identified in figure 1, is located adjacent to the planned sPower site directly north of site A (Figure 1). In this analysis, current and projected real estate values of 12 properties located in the development, all within 0.5 miles of the site, were collected from Zillow. All real estate data included current listings or recently sold properties. Each numbered point in figure 1 identifies the location of the 12 houses which coordinate to the points on graph 1. The average 2018 home value of the selected 12 houses was $588,208.33 and the average 2020 projected home value is $596,075, a 1.34 percent increase. This percent change in real estate value was calculated over the two-year period of January 2018 to January 2020. As depicted in figure 1 and graph 1, properties with a projected increase in value are assigned green and those with a decrease in value assigned a red. The results from the graph indicate that 5 houses have a projected percent increase in value between the two years while 7 houses have a projected loss in value over the time period. With the exception of one outlier, all the houses have a percent change within 10 percent of the original 2018 value and 7 of those values are within a 5 percent change.

To understand how the projected Fawn Lake real estate values compare to similar residential developments, the Sawhill Boulevard neighborhood was analyzed as well. Despite not having the amenities that are available in the Fawn Lake development, the Sawhill Boulevard neighborhood located just outside of Fredericksburg has similar real estate comps (comparables) to many properties in Fawn Lake. In this development, 12 properties were also analyzed, all located within 0.5 miles of the neighboring site, the protected Chancellorville Battlefield as seen in figure 2. The average 2018 property value of the 12 selected houses on this street was $632,133.33 and the average 2020 projected real estate value is $620,675. This change in real estate value indicates a slight decrease in average home value on the street of about 1.8 percent. The results from graph 2 also indicate similar results to that of the Fawn Lake data in graph 1. Of the 12 analyzed properties, 7 have a projected increase in value and 5 have a projected decrease in value over the two-year time period. In addition, housing values primarily fluctuate around 10 percent of the January 2018 value. While the Fawn Lake development is located next to the
planned solar farm and the Sawhill Boulevard development runs along a protected battlefield, the neighborhoods share similar changes in residential property values over the two-year period. In addition, when compared to the change in real estate values for the county, an increase in 0.9 percent over the last year and a predicted rise of 1.4 percent within the next year (Zillow Research, 2019), the projected change in value for Fawn Lake and Sawhill Boulevard are similar.

Understanding the economic impact of sPower’s planned solar farm on the local community and Spotsylvania county requires an interdisciplinary analysis of different perspectives. While sPower suggests economic benefits of the project include, an increase in county tax revenue, employment and non-monetary benefits, many concerned citizens are anticipating a number of implications instead. Such concerns include decreased real estate values, tax revenue and general feasibility of the project for the Spotsylvania economy. While both sides have brought to light strong points, investigation into the anticipated real estate value changes was necessary. Upon analysis of Zillow’s projected real estate values, research is inconclusive as to whether a correlation exists between the solar development and a change in property values. While many variables were unaccounted for, it is not possible to say that the site development has directly impact real estate values in the Fawn Lake development. Looking ahead, as Zillow updates its real estate values to account for the recent project approval, data analysis may indicate otherwise and whether real estate values in Fawn Lake are impacted by the site. Further analysis may also include the site impact to the larger real estate market of Spotsylvania county. Until the project does begin construction, it is still important for the community to take an active role in working with sPower. If community engagement can foster a positive relationship with sPower, then despite the opposition, the project may become an opportunity for advancement and admiration by the state of Virginia and the country.
References:


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