MAXIMIZING BENEFITS & MINIMIZING IMPACTS OF UTILITY SCALE SOLAR

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EXECUTIVE SUMMARY

Virginia's use of electricity and reliance on large-scale centralized power generation comes at a price. Even with the cleanest power generation projects, best practices should be employed to optimize energy output while minimizing environmental impacts. Utility-scale solar, by its very nature, uses many acres of land, which – if poorly developed – can unnecessarily harm primarily agricultural and forested lands. While renewable energy projects must be used to meet the Commonwealth's energy demand going forward, Virginia's executive branch, General Assembly, and regulators should strive to minimize the environmental impacts while maximizing the benefits of solar.

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CHALLENGE

A utility-scale solar facility is one that generates power and feeds it into the grid, supplying an electric utility with clean power. Recently Virginia has experienced an increase in both the number and size of utility-scale facilities and this trend is likely to continue as Virginia transitions away from fossil fuel based generation. On average, utility-scale solar requires roughly seven to ten acres per megawatt produced. This can result in significant shifts in land use. In fact, in the spring of 2019, the Spotsylvania Board of Supervisors approved the largest solar energy facility on the east coast, utilizing over 3,500 acres of forested land in Virginia and expected to produce 500 megawatts (MW) of power.

The Virginia Clean Economy Act declared 16,100 MW of solar and on-shore wind to be in the public interest. It is expected that utility-scale solar facilities will produce the majority of that new generation, and it will happen quickly.

Virginia needs greater deployment of renewable energy projects. However, all projects should take into account site-specific conditions. Decision makers must ensure proper site selection and best practices to minimize any associated negative impacts. The expected amount of solar development raises concerns with regard to conversion of farms and forests; environmental degradation; loss of habitat; and impacts on historic, cultural, and scenic resources. However, those concerns can be minimized if handled correctly.

SOLUTION

Virginia's policymakers should implement and promote best practices for utility-scale solar, including:

Avoidance of Resources and Proper Site Selection

Appropriate direction should be given to the industry by prioritizing and incentivizing post-mining land, landfills, brownfields, and other former industrial or commercial sites. Focusing the initial round of development on these sites avoids unnecessary impacts to our forests and agriculturally productive lands, whose highest and best use is to remain green, either for traditional uses or specifically to address climate change.

Distributed Generation and Co-Locating Solar Facilities

Maximize efficient use of the land by incentivizing and prioritizing solar within the built environment, e.g., rooftops, parking garages, commercial sites, government owned buildings/properties, and other energy generation sites (see *Bringing More Resilient Energy to Virginia Communities* pg 83).

Minimize Wildlife Habitat Disturbance and Protect Ecology

Minimize the impacts on habitat and the movement of wildlife. Ensure that solar developers are communicating early and often with federal and state wildlife agencies.

Best Practices

Projects should include recognized best management practices with regard to water quality and sustainable groundskeeping. Water Quality protections/standards (time of year restrictions, turbidity/TSS standards, etc.) should be incorporated into the state permitting process addressing potential in-stream impacts. The use of native pollinators can improve erosion control, pesticide avoidance, stormwater infiltration, wildlife habitat, and reduce long-term maintenance costs and emissions. Lastly, we should encourage compatible onsite agricultural uses where practical.

Minimize Anticipatory Clearing of Forested Lands

Anticipatory clearing occurs when a landowner clears the forested land in anticipation of submitting an application for a solar project.

POLICY RECOMMENDATIONS

Incentivize solar developers to use previously developed or degraded land, such as post-mining land, by funding the Virginia Brownfield and Coal Mine Renewable Energy Grant Program, offering bonus credits for brownfields projects within the Renewable Portfolio Standard and dedicating more resources to the Brownfields Program in order to better identify brownfields and assist developers with siting concerns.

Provide funding for pilot projects that explore ways solar development can complement agriculture, demonstrating design, economic feasibility, and promotion of both dual use and community solar projects.

Direct the Virginia Department of Energy, in coordination with relevant agencies and universities, to produce an annual Solar Status report tracking distributed, community, and utility-scale solar projects (applications, under construction, and in production) in order to evaluate consistency with state goals, including agricultural and forest land protection and water quality restoration targets. The report will track progress toward VCEA metrics and provide a foundation for future policy and program improvements.

A portion of the recently constructed S-Power Project in Spotsylvania County.
Image credit: Hugh Kenny, Piedmont Environmental Council