

MAXIMIZING BENEFITS AND MINIMIZING IMPACTS OF UTILITY-SCALE SOLAR

INTRODUCTION

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 achieve an optimal outcome and minimize 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 should be the primary means used to meet the Commonwealth's energy demand, Virginia's Executive Branch, General Assembly, and regulators should strive to minimize the environmental impacts while maximizing the benefits of solar.

BACKGROUND

A utility-scale solar facility is one that generates solar power and feeds it into the grid, supplying an electric utility with clean power. Planned and existing utility-scale solar facilities in Virginia range in size from a 100-acre project producing 17 megawatts of power to a 1,200 acre project producing 100 megawatts. There are many additional proposed projects, including one in Spotsylvania County. If built, the Spotsylvanian project would be one of the largest solar energy facilities in the country, consuming 3,500 acres of forested land and producing 500 megawatts. In contrast, distributed solar power generation has less negative environmental impact, as they consist of small scale installations (e.g. rooftop solar) primarily designed to meet the immediate demands of the property on which it is located.



WHILE RENEWABLE ENERGY PROJECTS SHOULD BE THE PRIMARY MEANS USED TO MEET THE COMMONWEALTH'S ENERGY DEMAND, VIRGINIA'S EXECUTIVE BRANCH, GENERAL ASSEMBLY, AND REGULATORS SHOULD STRIVE TO MINIMIZE THE ENVIRONMENTAL IMPACTS WHILE MAXIMIZING THE BENEFITS OF SOLAR.

Utility-scale solar will continue to develop in the future. The 2018 Grid Transformation and Security Act (SB966) declares 5,000 megawatts of utility-owned and operated solar and wind facilities to be in the public interest. It is expected that large, utility-scale solar facilities will produce the majority (some 4,000

megawatts) of that new generation.

Virginia needs greater deployment of renewable energy projects. However, all projects must consider site-specific issues that hold true for any large-scale energy project, as well as some of the impacts that are specific to utility-scale solar generation. With solar requiring roughly eight acres for each megawatt produced, decision makers must ensure proper site selection and best practices to manage development and associated impacts from these projects. This level of development raises concerns with regard to conversion of farms and forests; environmental degradation; loss of habitat; and historic, cultural, and scenic resources. But those concerns can be minimized if handled correctly.

Virginia's policymakers should implement and promote best practices for utility-scale solar. Those practices would include measures related to:

- Proper Site Selection – Prioritize and incentivize post-mining land, landfills, brownfields, former industrial, or commercial sites where future use is affected by real or perceived environmental contamination. Focusing the initial round of development on these sites can make use of otherwise fallow sites and avoid use of undeveloped parcels — such as forests and agricultural lands — whose highest and best use is to remain green, either for traditional uses or as a carbon sink for addressing climate change.
- Local Authority – Assist localities in developing siting criteria and recommendations for the public permitting process without eroding local authority.
- Co-Locating Solar Facilities – Maximize efficient use of the land by locating solar at a site that is already in use (e.g. rooftops, parking garages, pasture land, or other energy generation sites).
- Reclamation/Decommissioning – Ensure reclamation plans are in place. Solar panels have an estimated life span of at least 25 years and can readily be replaced with new panels, possibly eliminating the need for site reclamation. When solar site decommissioning does occur, reclamation plans can help ensure that it is done appropriately. Most solar developers already include these plans in their operations and maintenance budgets, but local authorities should make sure this is the case. Opponents of solar sometimes seek to scare landowners and the public with claims that solar panels will leave land contaminated — these claims are without basis.

- Minimize Wildlife Habitat Disturbance and Protect Ecology – Minimize the impacts on habitat disturbance, particularly during construction. Ensure that solar developers are communicating early and often with federal and state wildlife agencies.
- Sustainable Grounds Keeping – Maximize the benefit of the project by including agricultural best management practices. Examples include planting native grasses and wildflowers in low maintenance areas for solar facilities. This can improve erosion control, pesticide avoidance, stormwater infiltration, wildlife habitat, and reduce long-term maintenance costs and emissions. Once established, these naturalized meadows are more drought-tolerant, require little to no fertilization, and only need to be mowed once or twice a year.

CONCLUSION

Now that Virginia has set the wheels in motion for increased use of utility-scale solar, it is important that policymakers create a foundation for best practices to maximize the benefits and minimize the impacts.



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POLICY RECOMMENDATIONS

Incentivize solar developers to use previously developed or degraded land — such as post-mining land — by offering tax credits, such as a machinery tax abatement.

Break down barriers to distributed solar so that it can become a viable option in Virginia (for more information, see *Breaking Down Barriers To Small-Scale Solar* on page 36).

Direct a state agency to develop a list of state-supported best practices and incentives and work with utilities to encourage them to choose sites that employ these practices.

THE REMINGTON SOLAR POWER FACILITY IN FAUQUIER COUNTY, VIRGINIA IS THE RESULT OF A PARTNERSHIP — INCLUDING DOMINION ENERGY, MICROSOFT, AND THE COMMONWEALTH OF VIRGINIA — WHICH WILL RECEIVE ENOUGH ELECTRICITY TO POWER 5,000 HOMES.

Image credit: Will Parson, Chesapeake Bay Program

