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PlanRVA Solar Suitability Web App Guide to Useful Terms

Given federal and state legislation as well as anticipated population and economic growth, the demand for solar development will impact the Richmond region in the future. PlanRVA's Solar Suitability Tool allows planners and the public to better understand where large-scale soar development may be more or less appropriate given certain geographic characteristics. The tool displays data used to analyze the suitability of land for large-scale solar development. As displayed on the map and described below, various input datasets were referenced in creating the solar suitability score. The solar suitability score is only one aspect of planning for future solar development. Local comprehensive planning and zoning processes can include these data as well as other considerations to determine the most appropriate future land uses and associated conditions for solar development.

Solar suitability: suitability of a location for large, ground mounted solar infrastructure, commonly referred to as 'solar farms,'' based on site properties such as solar irradiance, current land cover, use, and slope, distance to existing power lines, and conservation/historical status. Units: score from 1 (least) to 5 (most) suitable.

Distance from Transmission: Transmission refers to the movement of power/energy from one location to another. Power generated at a power plant is transmitted to homes via power lines within a web of infrastructure called the "grid" or "power grid". The closer a large solar site is to an existing transmission line, the easier and cheaper it can be built. This layer identifies areas within 0.5, 1, 2, and 3 miles of existing high-capacity transmission lines. Units: miles (mi).

Forest Conservation Value (FCV): a score of the relative importance of a forested area in terms of biodiversity, wildlife habitat, climate regulation, and clean air and water benefits (often referred to as 'ecosystem services'). The score was based on Forest Conservation Value data provided by the Virginia Department of Conservation and Recreation. Units: scale from 1 (least) to 5 (most) valuable.

Land cover: classification of the physical materials on the Earth's surface at a given point, such as vegetation, water, impervious surfaces including buildings, roads/bridges, etc. This data was sourced from the USGS National Land Cover Database (2021). Units: none.

Land use: Classification of how an area is utilized for specific purposes, such as residential, commercial, industrial, park, office, etc. Land use zoning determines what can be built in an area and the rules around how it is done. The source of this data is the PlanRVA regional existing land use dataset, created in 2023 using the most current data available from localities. Units: none.

Slope: The steepness of the ground. Flatter land is more desirable because hilly land reduces the amount of time sun shines directly onto solar panels. Steeper slopes are much more difficult and costly to build on. Units: degrees.

Solar irradiance: the amount of sunlight that reaches a specific area on the Earth's surface. For solar energy, it represents the incoming solar power per unit area and is a crucial factor in determining the potential for generating solar power from photovoltaic panels. Units: Kilowatt hours per square meter (KwH/m^2).