

Alliance for the Shenandoah Valley Shenandoah Valley Battlefields Foundation

Utility-Scale Solar Ordinance Recommendations

March 2019

I. CONTEXT

Background:

The Shenandoah Valley is seeing a surge in applications for Utility-Scale Solar Projects (USSP). Fueled by the declining cost of solar power, state incentives and strong corporate interest in purchasing renewable energy, developers are proposing utility-scale solar projects at an increasing rate across Virginia, especially in rural areas. Also notable is the trend toward increasingly larger projects.

Localities should prepare for such proposals. There are two types of solar energy generation. Utility-scale solar, the subject of these recommendations, refers to installations that generate solar power to be sold to a utility and fed into the grid. The other type, distributed solar, is the production of energy for use on site (such as for a business, farm, home, or campus). It helps meet localized demand and does not require transmission lines. Both types of solar energy production are on the rise and deserve policy attention from localities.

These recommendations were drafted after looking at utility-scale solar projects across the state, reading local ordinances and policies and analyses, interviewing experts and local officials, and meeting with a potential developer and leasing landowners. The recommendations are intended to help localities think through potential issues and develop their local response.

Scaling up renewable energy can be a significant positive step statewide if properly implemented and can bring economic opportunities for businesses and landowners. The state, utilities, and many major employers all have targets to increase the proportion of clean energy. For example, Amazon is purchasing power from the solar facilities in Accomack and Southampton counties. In 2018, the state set a goal of adding 5000 megawatts (MW) of renewable energy, with the vast majority expected to come from utility-scale solar. That policy and existing state tax incentives add further momentum to the wave of USSP proposals facing rural counties.

What to Expect:

Developers are looking for large acreages of reasonably priced, leasable land at sites that can be efficiently connected to the power grid. Potential sites are thus geographically limited but potentially

quite large. Often multiple parcels are involved, with the area 'under panel' a subset of that total acreage. The project might be presented as separate pods.

The major players in a utility-scale solar project are

- the developer, who finds a suitable site and willing landowners and gets the installation permitted and built;
- the utility, which takes over operation and is assured a steady source of power for the term; and
- the landowners, who lease their land and are assured a steady stream of income for the term.

The three stages are

- installation (a massive construction project), followed by
- solar production (management mode for decades), and then
- decommissioning (removal of equipment and return to former condition).

The construction phase may be of a scale unlike anything a county has ever overseen. It involves preparing the site (extensive land disturbance over most of the site, grading as needed), mounting of panels, construction of interior roads, and establishment of buffers, fences, and ground cover.

The management phase may not hold many issues but it is wise to be prepared because of the sheer scale of the project. Vegetation management, buffer and fence maintenance, replacement of damaged panels, stormwater management, and updating of decommissioning plans are sample concerns.

At the end of the lease term, new equipment could be installed and leases renewed, or the site could become disused and need to be decommissioned. Technology will no doubt improve during this period and bring changes in design and materials. Decommissioning plans attempt to insure a return of the land to other productive uses and address the removal and disposal of a huge quantity of equipment.

Main Principles:

- Each proposal is a site-specific land use issue. Analyses and mitigation must be site-specific as well.
- A locality will likely have only a few potential sites that meet industry criteria (such as terrain and proximity to the power grid); however, proposed projects will probably involve quite large acreages.
- Scale and longevity of the use call for careful evaluation.
- Cooperative planning and design accommodations can potentially reduce many of the impacts to resources, adjoining landowners, and the neighborhood.
- Preparation should include a Utility-Scale Solar ordinance (see Section II. Ordinance recommendations).
- The comprehensive plan can provide guidance; updates should address energy issues.

II. ORDINANCE RECOMMENDATIONS

Adopt a Utility-Scale Solar (USS) ordinance and/or policies to include these elements:

(See references at end for examples cited.)

1. Require a Special Use Permit (SUP) for all Utility-Scale Solar Projects (USSP).
 - Define different scales, such as minimum 20 acres; be able to address very large proposals; consider maximum acreage. (ex: *Southampton*)
 - Require review by the planning commission and board of supervisors.
 - Develop a fee schedule to anticipate and cover utility-scale costs such as inspections, third-party review, and site specific impact analyses. (ex: *Spotsylvania*)
 - Require technical review, conducted by consultants selected by the county and paid by the applicant. (ex: *Southampton*)
 - Require significant future changes on site to be addressed through review and modification of the special use permit by the planning commission and governing body.
2. Develop requirements for USSP projects.
 - Follow model (ex: *DEQ model ordinance, Augusta*)
 - Develop Supplemental Conditions specific to USSPs
 - Base county-specific minimum standards on local conditions and preferences.
 - Samples: maximum project size (ex: *Southampton*), distance from transmission lines (ex: *Clarke*), distance from other sites (ex: *Mecklenburg*), additional review criteria (ex: *Clarke*)
3. Set a process to identify and evaluate potential positive and negative impacts and issues.
 - Require preliminary local meetings in community before application. (ex: *Augusta, Berkley*)
 - Encourage outreach early in the process to explain the project and pick up concerns.
 - Require pre-application meetings with staff.
 - Develop checklist of resources to consider: See Section IV. Sample review list.
 - Consider impacted area (viewshed/watershed/neighborhood), not just adjoining property.
4. Provide strong guidance for evaluating USSP applications.
 - Require an Impact Analysis for all proposals and include these elements:
 - Economic and fiscal analysis (ex: *Clarke, Southampton*)
 - Land use analysis (ex: *Berkley Mecklenburg study*)
 - Review of impacts on cultural and environmental resources (ex: *Southampton, Clarke*)
 - Require, as needed, analyses specific to the project and site.
 - Provide for additional research and analysis of site specific issues, ex: visual simulations from strategic points in viewshed
 - Consider the full range of potential impacts, including cumulative effects and degree of mitigation.
 - See Section III. Considerations & potential mitigation for more detail by topic.
5. Address construction impacts.
 - Require detailed Site Plans to understand the extent of grading, the disposition of top soil, the location of roads, and the types, sizes, and materials of vegetation and fences.
 - Require detailed Construction Plan, including Traffic Plan. (ex: *Berkley*)

- Update erosion and sediment control ordinance to provide for very-large-scale projects; set maximum amount that can be under construction at once. (*ex: Spotsylvania*)
6. Require decommissioning plan.
- Require plan to include cost estimates and surety; require five-year updates.
 - In most cases, require returning land to its original condition, especially agricultural and forest land.

III. CONSIDERATIONS AND POTENTIAL MITIGATION MEASURES

General

- Consider impacted area (viewshed/watershed/neighborhood), not just adjoining properties.
- Use information from analyses to consider mitigation needs and propose solutions.
- Require detailed site plans to understand the specific locations, activities, and designs.

Agriculture

- Consider impact, positive and negative, on proposed parcels, adjoining parcels, and nearby farming. Include the impact on the agricultural economy.
- Consider landowner plans and the potential to accommodate continued or future farming.
- In general, resist rezoning agricultural parcels to industrial or causing parcelization.
- Require that project design, construction, and operation provide for smooth transition back to agricultural use.
 - Minimize grading, compaction, and impervious areas.
 - Retain/replace top soil.
 - Maintain vegetation to minimize toxic materials and invasive species.
 - When choosing areas to put under panel, avoid sensitive areas and the most productive farmland when possible.
 - Require return of land to its previous condition.
- Consider potential to use land in ways compatible with continued agriculture.
 - *ex:* Allowing sheep to pasture in solar
 - *ex:* Planting low-growing native pollinator plants
 - *ex:* Extent of continued farming on unleased acres

Historic/Tourism

- Avoid battlefields and other designated and eligible historic sites.
- Minimize impact to historic resources and to rural character.
- Consider views from strategic vantage points.
- Tailor buffer design towards each site.

Scenic Character

- Retain aesthetic quality for agritourism, historical tourism, and recreation.
- Include potential impacts, positive and negative, to tourism/recreation in Economic Analysis.

- Coordinate with tourism, economic development, parks, and related sectors, local and regional interests.
- Consider views from strategic vantage points.
- Tailor buffer design towards each site and from public roads. Seek input from surrounding property owners.

Environmental Resources

- Require erosion and sediment control and stormwater management plans and provide for effective oversight.
- Protect soil and minimize grading and compaction.
- Avoid wetlands; maintain riparian forested buffers
- Avoid natural heritage sites and areas that could negatively affect such sites
- Discourage clearing of trees (forest cover is the most optimal land cover for delivering ecosystem services and conversion should be discouraged).
 - Consider prohibiting unnecessary removal of mature trees.
 - Consider requesting protection of equal area of forest (*ex: Northampton*).

Wildlife Habitat/Recreation

- Encourage use of native vegetation
 - ex: plant low-growing pollinator species as ground cover
- Consider potential impacts and work with developer on features to alleviate them.
 - ex: provide for corridors or trails

Utilities

- In areas that could potentially have utilities such as water, sewer, fiber optics, or natural gas line, consider including language that would allow for service to those utilities as well as upgrades and new lines.

IV. SAMPLE REVIEW LIST OF RESOURCES

(these could also be included in the Comp Plan)

Historic Resources (VDHR, SVBF, NPS, local historical society)

- Avoid on property, mitigate in viewshed
 - Sites listed on the National Register of Historic Places, Virginia Landmarks Register, and local historic districts (and sites deemed potentially eligible)
 - Archaeological sites
 - Battlefields
 - Local historic districts, historic easements

Natural Heritage Resources (VDCR)

- Avoid on site; mitigate in watershed, influence area
 - General environmental: protect soil, wetlands

Scenic Designations (NPS, USFS, Virginia Outdoors Plan, Tourism, Economic Development)

- Avoid if possible; otherwise mitigate, considering level of importance and impact
 - Virginia Scenic Byways, Blue Ridge Parkway, Skyline Drive, scenic trails and tours
 - Scenic Rivers
 - Local corridor overlays

Locality-Specific Important Resources (Planning Staff, Recreation, Utilities)

- Consider potential effects or interactions; distinguish which impacts would require avoiding a site entirely and which impacts could possibly be mitigated
 - Town and city growth areas (versus alternative uses)
 - Parks, lakes, recreation areas, tourism areas
- Describe areas that could be well suited to USSP development
 - Industrial zoned land (can be an appropriate use unless locality prefers to reserve for more active development)
 - Brownfields or other previously disturbed areas

Agriculture (Community)

- Consider impact on long-term farming viability of the property and also the farming community
 - Prime Farmland and Farmland of Statewide or Local importance
 - Agricultural and Forestal Districts, Century Farms, Century Forests
 - Conservation Easements

Resources Cited (in alphabetical order)

Augusta County (VA), "Code Chapter 25. Zoning. Division A. In General. Article VI.D. Solar Energy Systems," *co.augusta.va.us*. Utility-scale solar ordinance passed June 26, 2018,
Link: <https://www.co.augusta.va.us/home/showdocument?id=13758>.)

The Berkley Group, LLC, Coffey, Darren K., "Solar Facility Impacts Analysis: An Examination of Land Use Impacts," Mecklenburg County, Virginia, May 31, 2017. Entire study is relevant. See especially Background pages 3-6 and Recommendations pages 17-27.
Link: [ftp://members2.gcronline.com/bdf/2017/solarenergyfacilities%20dcoffey-report053117%20\(4\).pdf](ftp://members2.gcronline.com/bdf/2017/solarenergyfacilities%20dcoffey-report053117%20(4).pdf) .

Clarke County (VA), "Zoning Ordinance, Code Chapter 188 Section 3, 2018 Version, 3-C Supplementary Regulations, 3-C-2-gg Solar Power Plant, Large Photovoltaic," *clarkecounty.gov*. See especially 3-C-2-gg 9 - Additional Special Use Criteria.
Link: <http://clarkecounty.gov/government/planning-and-zoning/zoning-information.html>

Mecklenburg County (VA), Zoning Ordinance Chapter 20 Solar Facilities, adopted 11-06-2017 (online ordinance not yet updated; received Chapter 20 directly from zoning administrator.

Mecklenburg County (VA), "Recommended Mecklenburg County 2035 Comprehensive Plan Amendments, Berkley study revised 8/18/17," approved November 2017. These advisory recommendations include minimize impact on prime farmland, limit area to no more than 500 acres, and not allow location within town boundary or within two miles of another utility-scale project or within one mile of a growth area boundary. Not available online; received from zoning administrator.

Northampton County (VA), "Code Chapter 154.2.178 Solar Energy District," *library.amlegal.com*. See especially 154.2.178.2 Performance Standards item (e) ... All forested areas removed during construction or operation shall be mitigated by the creation of an equal number of acres of equivalent forest.
Link: [http://library.amlegal.com/nxt/gateway.dll/Virginia/northampton_co_va/northamptoncountyvirginia/codeofordinance?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:northamptonco_va](http://library.amlegal.com/nxt/gateway.dll/Virginia/northampton_co_va/northamptoncountyvirginia/codeofordinance?f=templates$fn=default.htm$3.0$vid=amlegal:northamptonco_va)

Southampton County (VA), "Zoning Code Article XXII. Utility Scale Solar Energy Project for Southampton County," *library.municode.com/va/southampton_county*. See especially Sec. 18.623 (b) and Sec. 18.625.
Link: https://library.municode.com/va/southampton_county/codes/code_of_ordinances?nodeId=CO_CH18ZO_ARTXXIIUTSCSOENPRSOCO

Spotsylvania County (VA), "Code Chapter 8, Erosion and Sedimentation Control Ordinance," *library.municode.com/va/spotsylvania_county/codes*. See Article I. – In General, Sec. 8-4. Definitions (adding exceptionally-large-scale land disturbance construction area defined as 400 acres or larger) and Article II. – Local Erosion and Sedimentation Control Program, Division 3. – Special Requirements,

Sec. 8-37 (adding provisions related to fees for exceptionally-large-scale land disturbance area) and Sec. 8-31(c) (adding those fees to the Fee Schedule.

Link:

https://library.municode.com/va/spotsylvania_county/codes/code_of_ordinances?nodeId=COCO_CH2A_D

Virginia Department of Environmental Quality, "Model Ordinance for Larger-Scale Solar Energy Projects in Virginia," *deq.virginia.gov*

Link: <https://www.deq.virginia.gov/Programs/RenewableEnergy/ModelOrdinances.aspx>

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This white paper was prepared by **Sara S. Hollberg, AICP** for the Alliance for the Shenandoah Valley (the Alliance) and the Shenandoah Valley Battlefields Foundation (SVBF).

Alliance for the Shenandoah Valley is a regional nonprofit, created in 2018 from a merger of four long-standing community groups. Based in New Market, the Alliance advocates, educates, and connects people to conserve the natural resources, cultural heritage, and rural character of its six-county service area in the Shenandoah Valley. www.ShenandoahAlliance.org

In 1996, Congress designated eight counties in the Shenandoah Valley of Virginia as the Shenandoah Valley Battlefields National Historic District – which preserves and interprets the region’s significant Civil War battlefields and related historic sites. The effort is led by the **Shenandoah Valley Battlefields Foundation**, which works with partners to preserve the hallowed ground of the Valley’s Civil War battlefields, to share its Civil War story with the nation, and to encourage tourism and travel to the Valley’s Civil War sites. www.ShenandoahAtWar.org