



March 6, 2019

Culpeper County Department of Development

Sam McLearen, Director

302 North Main Street

Culpeper, VA 22701

(Transmitted via email)

Re: Utility Scale Solar Application -- Cricket Solar, LLC

Dear Sam,

The Piedmont Environmental Council (PEC) respectfully submits this letter to address the Utility Scale Solar Application - Cricket Solar, LLC, submitted to the Culpeper County Department of Development on December 21, 2018.

As we expressed in past comments on prior applications for Utility-scale solar, PEC is an advocate for solar, especially distributed solar power generation - small scale solar (usually rooftop) primarily designed to meet the immediate demands of the property in which it is located. Virginia has acres and acres of flat roof space devoid of solar panels in areas of moderate to high energy demand. We also have contaminated and/or underutilized industrial sites for this purpose. It is PEC's belief that we should be looking to these developed areas as the low hanging fruit of future solar sites. The size and nature of Utility-scale solar projects create challenges for any locality to protect important resources and the public health, safety, and welfare of the community.

The evolution of Commonwealth policy, steadily declining cost of solar panels, and the rising demand for green energy has spurred interest in the development of Utility-scale solar facilities throughout Virginia. These facilities are often sited in rural areas and referred to by many as *solar farms*. They have many of the same environmental benefits as rooftop solar, including zero emissions and the ability to provide power at times of peak-demand, but they are not agriculture. Utility-scale solar projects do not provide the positive outcomes associated with agricultural production; moreover, their only correlation to farms is their tendency to be located on farmlands associated with historical/potential agricultural production. With "small" Utility-scale solar facilities consuming hundreds of acres, it is difficult at best to protect specific values associated with our agricultural lands.

Utility-scale solar facilities require a vast amount of acreage for energy production -- 7 to 10 acres per megawatt (MW) of annual production. Based on size, location, visibility, impacts to agricultural and



natural resources, and the potential for additional infrastructure, a locality needs the ability to determine the appropriateness of sites and to address impacts.

Large-scale solar facilities will play a role in the Commonwealth's energy mix. For example, Culpeper approved NextEra Energy Resources' nearly 1,000-acre Utility-scale solar project, to be located near Stevensburg, in October 2018. But they should not come at the cost of our most productive agricultural and forested areas. Nor should they impact important scenic and historic resources that we rely upon for tourism.

When looking for new sites for solar facilities, we believe developers and the County should be in general agreement on locations appropriate for these industrial uses - areas that contain marginal farm soils (at best) that are removed from important scenic and historic resources - prior to any public hearing on an individual application.

PEC applauds the County's current use of a conditional or special use permit for these facilities. This type of public process allows for site specific issues to be raised and addressed and gives the community the ability to place their concerns on the record. I have attached a brief summary of the points that PEC is raising, in regards to the Cricket application.

PEC recommends that the County rejects the Cricket application in its current form, as it is inconsistent with the Comprehensive Plan. There are six (6) specific areas for which PEC has concerns: (1) Viewsheds and Natural/Historic Resources; (2) Agricultural Land; (3) Project Screening Issues; (4) Noise Implications; (5) Environmental Issues; and (6) Kirkland Study Validity.

Thank you for taking the time to review PEC's concerns on this important matter. Please feel free to contact me with any questions or requests for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Hawk", enclosed within a circular scribble.

Christopher Hawk
Land Use Representative - The Piedmont Environmental Council
(804)337-6716

Attachments:

Recommendations/Considerations for Cricket Solar, LLC Application
Figures - (1) Natural and Historical Resources and (2) Forested Land

RECOMMENDATIONS/CONSIDERATIONS FOR CRICKET SOLAR, LLC (PROJECT) APPLICATION

1. VIEWSHEDS AND NATURAL/HISTORIC RESOURCES

The following statements, regarding viewshed and natural/historic resource implications, were associated with the proposed Project:

- “The development of the Project should not create any negative visual impacts for the area during or following construction.” (Narrative, p. 7).
- “...the Project has been located and designed to minimize impacts on natural and historic resources through purposeful siting based on extensive due diligence and analysis of the surrounding area.” (Narrative, p. 2)
- “The Site Plan demonstrates that the Project Site avoids National Park Service American Battlefield Protection Program Civil War Core Battlefield Areas.” (Narrative, p. 3)
- “...the Project will not adversely affect any National Register Sites or County designated Areas of Historic Interest (AOHI). While the Project Site is located near Raccoon Ford (which is a designated AOHI), the solar arrays will be located over 400 feet from the closest boundary of the Raccoon Ford AOHI.” (Narrative, p. 3)
- The majority of the Project area is classified by Timmons Group as “considered High Probability” areas for disturbing natural and historic resources. (Exhibit 4, p. i)
- “The Project Site is located in an area designated by the RRRC Study [Rappahannock-Rapidan Regional Commission (RRRC) *Utility Scale Solar Suitability Analysis*] as being within an ‘Optimal Area for Utility Scale Solar.’ ” (Narrative, p. 4)

Comprehensive Plan

PEC contends that the above referenced excerpts from the Project do not satisfy the Comprehensive Plan, as determined by the following goals/objectives of the Comprehensive Plan:

- “Promote tourism to Culpeper County and encourage increased visitor spending, local tax revenue, awareness of County tourism assets, and opportunities for job creation.”
- “Focus marketing on Culpeper’s primary tourism assets of History and Heritage, Nature and Outdoors, Arts and Culture, Craft Beer, Wine and Moonshine, and a Revitalized Historic Downtown in identified target markets.”
- “Promote Tourism as a major industry and a vital component of County economic development efforts.”
- “Culpeper County supports the expansion and use of renewable energy sources where appropriate Countywide.”
- “Encourage preservation of forested lands and waterways that provide long-term environmental benefits to water quality, recreation, tourism, general aesthetics, and which reduces air and noise Pollution.”
- “Prohibit new construction in flood hazard areas.”
- “Limit the extension of infrastructure improvements into agricultural and natural resource areas.”

- “The question of why to preserve historically significant features is integral to community, national and social values. The question of how to protect them are policy decisions. Two important interests of the County are: 1. The preservation of areas of historic interest and open space contributing to the County’s legacy; 2. Managing development to insure that historic resources are protected and, if possible, enhanced.”

PEC provides the information below to document the adverse impacts associated with the Project:

National Park Service American Battlefield Protection Program Civil War Core and Study Battlefield Areas (Study Areas)

The Project will be located within the Battlefield Areas for each of the following, causing direct impacts to the Core Area and associated viewsheds:

- Morton’s Ford
 - The Project will be located within 77-acres of the Core Area. The fenced-in area will be located within 0.2-acres of the Core Area. The buffer associated with the Project will directly adjoin an additional 1,200-feet of the Core Area.
 - The Project will be located within 545-acres of the Study Area. The fenced-in area will be located within 230-acres of the Study Area.
- Racoon Ford (AOHI)
 - The Project will be located within 0.2-acres of the Racoon Ford AOHI. The fenced in area will not be located within Racoon Ford; however, the Project buffer will directly adjoin 200-feet of Racoon Ford.

National Register of Historic Places (National Register)

The Project will be located within a one (1) mile radius of the following National Register sites, with the potential to cause direct impacts to their viewsheds.

- Greenville Plantation (National Register Number (NR#) 80004184) is located approximately 0.32-miles east of the Project.
- Eckington School (NR# 01000154) is located approximately 0.84-miles north of the Project.
- Lessland (NR# 99000965) is located approximately 0.75-miles southwest of the Project.

Proposed Rapidan River Clark Mountain Rural Historic District (RRCMRH)

The Project will directly impact 344 acres of the Proposed RRCMRHD, which has been found to have historic integrity and is eligible for the National Register of Historic Places (NRHP).

- The full nomination for the RRCMRHD for its inclusion in the NRHP is underway. The district extends throughout Culpeper and Orange Counties.

Additional Historic Sites

In addition to the above listed sites, the Project may impact viewsheds of historic sites of higher elevations that are located throughout the area.

Natural Resources

The following resources will be negatively impacted by the project, contrary to the Project's narrative:

- The total Project area will directly impact 404-acres of forested land, including the fenced in portion of the Project.
- The fenced in portion of the Project will directly impact forests classified by the Department of Forestry (DOF) as "Forests of Conservation Value", specifically the following conservation value classifications and associated acreage amounts:
 - Low 21.3 acres
 - Medium 54.5 acres
 - High 141.2 acres
 - Very High 30.0
 - **Total 247.0 acres**

Forested land is important to the regulation of greenhouse gases in our atmosphere. Forests are defined as "carbon sinks", due to their natural ability to absorb atmospheric carbon dioxide via "carbon sequestration".¹ The County should approve opportunities for renewable energy that do not result in the loss of resources that naturally regulate carbon emissions - forests and agricultural lands.

- The Project adjoins approximately 1.7-miles of the Rapidan River, and will directly impact viewsheds associated with boating and fishing activities. Tourism will be impacted by the location of the Project and its proximity to the Rapidan River, Historic Battlefields, and Registered Historic Sites.
- Subsequent to discussions with staff members, it is PEC's understanding that the RRRC Study was conducted to determine areas in which utility companies may find optimal for their own future solar infrastructure purposes; and that the results of the Study are NOT indicative of the RRRC's desires to locate infrastructure in these "optimal areas for utility scale solar".

Conclusion

We believe the Project will be viewed as a scenic nuisance and run counter to the County's pursuit of historic resource protection and tourism associated with historic and scenic assets. Impacts to scenic resources and historic districts/resources and gateways should be considered and addressed in any development of siting criteria. The County should consider distance requirements from known resources (battlefields, register properties, historic districts, etc.) and require a site specific analysis of viewshed impacts.

The abovementioned, impacted viewsheds (A) will devalue the historic significance; and (B) would likely deter tourists from visiting the Core and Study Areas, National Register Sites, Proposed RRCMRH, Rapidan River, and Additional Historic Sites that are in close proximity to the Property.

For example, if a Morton's Ford tour guide, while giving a tour of the upgradient Core Area, pointed to a large area of solar panels and said "the Confederate Army maintained a medical hospital in the area of

¹ <https://www.americanforests.org/blog/forests-carbon-sinks/>

those solar panels”, the value of the history associated with the viewshed would be lost in the tourists inability to view the natural landscape associated with this hypothetical medical hospital.

Additionally, PEC does not support replacing forested land, especially hardwoods and those classified by the DOF as being high in “forest conservation value”, with solar panels. Although PEC supports solar power as a viable reusable energy source, solar power does not outway the value of replacing natural resources (i.e. 247-acres of forested land) that act as “carbon sinks”.

Natural and historic resources impacted by the Project are depicted on the attached Figures.

2. AGRICULTURAL LAND

The following statements are not indicative of Culpeper County supported agriculture land implications associated with the proposed Project:

- “In addition, the Project satisfies a number of the “Environment Goals and Objectives”, including...limiting the extension of infrastructure improvement into agricultural and natural resource areas.” (Narrative, p. 11)
- “The Project also satisfies the chapter’s overarching goals of ‘protect[ing] environmentally sensitive areas from development’ and ‘maintain[ing] the rural character.’” (Narrative, p. 11)
- “Notably, residential development is also permitted by-right in these districts. Under current Ordinance requirements, each of the 21 parcels are allowed to have one residential dwelling. In addition, each of the parcels, as parent parcels, could be subdivided pursuant to the minor division process (subject to meeting the minimum 5-acre minimum lot size) resulting in each of the parcels being divided into three lots, thus increasing the total number residential lots. Every five years, the minor division process could create addition lots using the same process. Based only on the acreage of each existing parcel and the anticipated 40 year life of the Project, up to 190 lots could be created in this same time period. Such residential use, while permitted by-right, would not protect the County’s agricultural interests to the same degree as the proposed Project.” (Narrative, p. 4)
- “Once operational, the Project will be a passive use that may be returned to agricultural use at the end of the life of the Project.” (Narrative, p. 5)
- “Once the Project life has ended (after 40 years), the Project will be decommissioned and the land will be restored to farmland or another use authorized under the existing zoning at the time.” (Narrative, p. 4)

Comprehensive Plan

PEC contends that the above referenced excerpts from the Project do not satisfy the Comprehensive Plan, as determined by the following goals/objectives of the Comprehensive Plan:

- “Encourage the continued use of prime agricultural land for farm and agricultural uses.”
- “Maintain and encourage continued enrollment of land in Agricultural and Forestal Districts.”
- “Protect farming operations from encroachment of incompatible land uses.”
- “Weigh the value of land use and policy decisions on agriculture.”

- “Identify prime farmland and promote public policies designed for its preservation and general conservation.”
- “The preservation of agricultural and forestland is a major instrument to provide support to the local agricultural economy. Agricultural land uses preserve open space, enhance watershed protection, complement public recreation and ecotourism and insure other environmental benefits.”

PEC provides the information below to document the potential adverse impacts associated with the Project:

Prime Farmland Soils and Soils of Statewide Importance

- The Project is comprised of 1,335.98-acres of land associated with 21 parcels. The Project’s solar production will be located within an 807.20-acre fenced area.
- The Project will be located on 50-acres of Prime Farmland Soils and 546-acres of Soils of Statewide Importance, discussed in detail in Exhibit 4.

Soil Health

- Processes associated with the development, use, and decommissioning of the Project could limit the future agricultural land use to that of “passive” pasture land, forgoing future use as productive cropland. Pasture land is not equivalent to the productive use of cropland.
- Grading/compression of Project soils, long-term erosion, general maintenance activities, and decommissioning activities will have a negative effect on soil health; and are further discussed in **Section 5**. Mitigation measures can be taken to reduce these impacts; however, given the size and lifespan of the Project, there are limited opportunities for proper/effective mitigation.
- Soil health is also determinative of the viability of the land for carbon sequestration.

Parcelization

- The potential for future parcelization of the Project’s associated parcels is not contingent upon the Project. Although the associated parcels could be divided into 190 residential lots over the 40 year life of the Project, creation of said lots could occur subsequent to the Project.
- By-right development of the Project’s associated parcels is not a foregone conclusion. Creation of 190 residential lots does not capture market forces that would render successful acquisition and use of such lots.

Job Creation and Economics

- Based on the current agricultural land use associated with the Project, it is estimated that “[a]pproximately 14 full-time-equivalent jobs are associated with the current use of the Property.” The Project estimates that it will “generate 28 full-time-equivalent jobs for the duration of the Project lifespan.” According to the Project, “[o]nce operational, the Project will constitute an unmanned facility”.
- An unmanned facility will not provide consistent, on-site jobs to Culpeper County. How and where does Cricket plan on creating 28 consistent, full-time jobs in Culpeper County? The Project

will not have an impact on Culpeper County if these jobs are located at a monitoring station in a different state.

- PEC contends that, when including ancillary jobs, the current Property has a larger impact on local, regional, and state jobs than the proposed Project. Furthermore, the Project's creation of Culpeper jobs pales in comparison to that of the agricultural community.
 - The Project states that “while agriculture and forestry uses make up the majority of acreage in the County, these uses support only two-percent (2%) of the jobs in the County, and such employment is expected to continue to decline.”
 - This percentage does not take into account ancillary businesses associated with the agricultural industry, such as fence building, equipment acquisition/rental/maintenance, transportation, construction, financing/insurance, and professional services.
 - According to the Virginia Department of Agriculture and Consumer Services (VDACS), “[e]very job in agriculture and forestry supports 1.7 jobs elsewhere in Virginia's economy”.² Based on the VDACS calculation, the “14 full-time-equivalent jobs...associated with the current use of the Property” generate approximately 24 jobs throughout Virginia (a total of 38 full-time jobs created in association with the current Property).
- The Project will qualify for an 80% Tool and Machinery Tax Exemption, as it would be a producer of greater than 20 megawatts (MW). The County should be mindful of the Project's potential impacts when viewing the tax revenue it would generate.

Conclusion

The above mentioned impacts to agricultural lands are in conflict with the purposes of the agricultural goals/objective defined in the Comprehensive Plan. The Project will consume 50-acres of Prime Farmland Soils and 546-acres of Soils of Statewide Importance -- almost 45% of the land associated with the Project.

The Project proposes that the agricultural lands will be protected from parcelization throughout the lifetime of the Project; however, the Project's land use implications will cause, at best, equivalent consumption of agricultural soils. PEC contends that (A) the agricultural soils will likely not be viable cropland subsequent to the Project; and (B) the Project will not offset parcelization subsequent to its lifetime. Moreover, market demand will drive parcelization in other areas of the County regardless of the Project use of the associated parcels.

3. SCREENING ISSUES

The following statements are indicative of screening implications associated with the proposed Project:

- The Project proposes the retention of native timber “for the life of the Project to provide a natural visual screen”. (Conditions for Use Permit, p. 6)

² <https://www.vdacs.virginia.gov/markets-and-finance-agriculture-facts-and-figures.shtml>

- “This requirement for a double row of trees may be reduced or waived if agreed to, in writing, by the owner of the adjacent use, including homes across from a public road, and a copy of that waiver is provided to the County Administrator and/or his designee.” (Conditions for Use Permit, p. 6)
- “Evergreen plantings shall have a minimum beginning planting height range of 2.5 to 6 feet. Deciduous trees shall have a minimum caliper of two and one half (2.5) inches measured six (6) inches above final grade at the time of planting.” (Proposed Conditions, p. 5)

Comprehensive Plan

PEC contends that the above referenced excerpts from the Project do not satisfy the Comprehensive Plan, as determined by the following goals/objectives of the Comprehensive Plan:

- “Encourage the retention of existing trees and vegetation. Employ significant vegetative buffering along roadways.”

PEC provides the information below to document the adverse impacts associated with the Project:

Landowner Waiver

Permitting a landowner to waive proper screening practices indicates that said screening only affects the landowner. Lack of proper screening could cause negative, long-term viewshed implications for road travelers and future properties on, adjoining, or in proximity to the Project. PEC recommends that this language be amended and/or removed from the Culpeper County *Utility Scale Solar Facility Development Policy* to recognize impacts beyond adjacent properties. Maximum attention must be paid to buffers and screening.

Project Area Screening

Screening practices should hide the entirety of the Project’s fence line and solar panels.

- The fence should be designed to blend in with surrounding screening and natural views.
- The size, nature, and mixture of vegetative species used to screen the Project must fully mitigate its viewshed implications. Given the size of the project this may be impossible. But if the application is allowed to progress, the following specifications should be adopted to provide effective screening:
 - Buffers should consist of a mixture of native deciduous and evergreen trees and shrubs.
 - In addition to the deciduous and evergreen plantings, native shrubs should be planted.
 - Native pollinator friendly species would be of the highest recommendation, in order to “add ecological benefits with the creation of new wildlife habitat”.
 - Deciduous and evergreen trees should have a minimum vertical planting height of 6 to 8 feet, to immediately screen the Project fence (6 ft tall).
 - According to Exhibit 2, the Project’s proposed planting height specifications (2.5 to 6 ft) would take between:
 - 3-5 years to reach adequate fence screening heights, resulting in insufficient fence screening during 12.5% of the Project’s life.

- 5-10 years to reach adequate solar panel screening heights, resulting in insufficient solar panel screening during 25% of the Project's life.
- Tree species that drop their lower limbs should be avoided.

Conclusion

PEC contends that it would be difficult to find a worse location for the Project's location. The Project will directly impact on-site and adjacent natural, historic, and cultural resources. It is extremely important to provide proper screening of the Project, to mitigate the viewsheds on adjoining and nearby resources.

4. NOISE IMPLICATIONS

The following statement is indicative of noise implications associated with the proposed Project:

- “[T]he racking system would be supported, when practical, by driver piers (piles) directly embedded into the ground” (Exhibit 8, p. 5.)

County Noise Ordinance

PEC contends that the above referenced excerpt from the Project will likely not satisfy the following Culpeper County Noise Ordinances:

- “It shall be unlawful for any person or group of persons to unreasonably make, continue or cause to be made or continued any noise disturbance.” (Sec. 10A-23(h))
- Maximum Permissible Sound Pressure Levels from Stationary Sources (Agricultural, Rural Area, Residential): noise levels are prohibited to exceed 75 dBA (daytime) and 65 dBA (nighttime). (Sec. 10A-22)

PEC provides the information below to document the adverse noise impacts associated with the Project:

Construction

Noise associated with construction must be further defined. The Project does not address construction related noise impacts in Exhibit 8.

- Construction noises would likely be out of attainment (in regards to Culpeper County Noise Ordinances).
- While the Project provided a comprehensive study on the noise associated with pad-mounted inverters and field transformers, it failed to model the noise associated with construction practices (i.e. pier driving).
 - Exhibit 8 estimates that 126,126 piers would be used as structural components.
 - The installation of 126,126 piers will likely produce construction noises that are out of ordinance attainment for months on end, and will be dangerous to the health and safety of the public, including humans and animals (especially livestock).
 - For example, “the effects of noise on various production parameters of cattle may also vary depending on whether the animals are exposed to noise on continuous

or on an intermittent basis. In the latter case, animals are more severely affected as they do not have the chance to adapt to the noise.”³

- The County should request project noise levels, at all relevant property lines, associated with the construction period.

Conclusion

The Project will likely cause construction noises that are out of attainment for Culpeper County Noise Ordinances. Long-term, continuous pier-driving techniques (an estimated 126,126 piers will be installed) fall within this ordinance, and should be considered when evaluating the health and safety of Culpeper citizens and animals. Livestock welfare and production may be affected by continuous and intermittent noises associated with the construction period.

5. ENVIRONMENTAL ISSUES

The following statements, regarding environmental implications, were associated with the proposed Project:

- “To further protect the soils in the area, at the time of construction, mass grading of the site will be limited to the extent possible.” (Narrative, p. 4)
- “Solar panels are placed on the land with minimal grading, no concrete on the supporting posts, and are considered impervious surface area due to the grass that grows beneath the panels.” (Exhibit 13, p. 2)
- “Take representative soil samples from the Project Area during the first year of operation to establish a baseline of constituents important for agricultural productivity and compare the results to paired samples of those constituents from the same locations taken at the start of decommissioning.” (Conditions for Use Permit, p. 11)
- “Once operational, the Project will not cause any runoff or pollution.” (Narrative, p. 10)
- “The Applicant anticipates using silicon panels that do not contain harmful substances.” (Narrative, p. 1)
- “...this Facility must be decommissioned, with the exception of any improvements such as roads or fences which landowners approves to remain in place...” (Proposed Conditions, p. 1)
- “Unless removal of improvements listed above is required by condition of a local, state or federal permit, landowner may consent in writing to release the Project from certain or all restoration activities if landowner deems such improvements beneficial to the land and potential future uses.” (Exhibit 11, p. 4)

Comprehensive Plan

PEC contends that the above referenced excerpts from the Project do not satisfy the Comprehensive Plan, as determined by the following goals/objectives of the Comprehensive Plan:

- “Natural vegetated buffer areas are encouraged along intermittent streams and around stormwater

³ <https://www.dairyglobal.net/Health/Articles/2017/11/Effects-of-noise-on-cattle-performance-215715E/>

ponds in order to allow soils an opportunity to filter out particles before they reach the water supply. Natural filtration is a proven way to reduce pollution in the water supply.”

- “The County requires Erosion and Sediment Control Plans for land disturbing activities of greater than 5,000 sq. ft. in the WMD [Watershed Management District].”
- “Preserve and improve the quality of the County’s soil, water, air, forests and farmland.”
- “Protect environmentally sensitive areas from development.”
- “Prohibit new construction in flood hazard areas.”
- “Require development to meet the highest standards in erosion and sediment control and storm water management.”

PEC provides the information below to document the adverse environmental impacts associated with the Project:

Proper Grading

The volatility of prime farmland soils and farmland soils of statewide importance, subsequent to the Project’s lifespan, is contingent upon proper grading activities. PEC recommends the following:

- Numerical acreage estimates and disturbance levels associated with grading activities must be calculated prior to Project approval.
- All areas associated with the Project should be delineated prior to any soil disturbance or grading activities, in order to avoid destruction of soils. It is important that soil delineation takes place prior to construction activities, in order to obtain true characteristics of the soils in the Project area.
- Grading activities should be managed via grade-phasing, which would protect Project soils from stormwater/erosion impacts.
- Extreme precaution should be taken to maintain the integrity of Project soils, especially during grading activities.
 - Topsoil should be removed and stored on-site during grading activities, and replaced as topsoil prior to construction.
 - Compression mats should be utilized during construction to protect soils from compaction.

Stormwater

Runoff and pollution are unavoidable impacts associated with impervious surfaces. Impervious surfaces allow for stormwater impacts to reach surface water bodies, such as wetlands (located in Project area) and the Rapidan River (adjoins the Project to the south).

- Technically sound stormwater engineering practices/structures will be necessary to control runoff and pollution. PEC recommends that the Project submit an Erosion and Sediment Control Plans, as it will have “land disturbing activities of greater than 5,000 sq. ft.”
 - The Project is not located within the WMD; however, it should still undergo Best Management Practices.

- PEC recommends that the Project area should be studied to determine applicable runoff coefficients (soil type, cover type, slope) to determine the most efficient and protective ground coverings.
 - PEC is concerned that mass grading, coupled with removal of nearly 250 acres of forested land, will result in uncontrollable stormwater runoff and pollution.
 - How does the Project plan on managing runoff and pollution both during and subsequent to construction/grading activities and throughout the lifetime of the Project?
- PEC understands the implications of using higher ground cover species to mitigate stormwater runoff, and recommends that ground cover plantings should utilize native species that range from 1 to 3 ft in height.
- How will “drip-line erosion” associated with the solar panels be addressed/controlled?

Wetlands

The Project contains wetlands and surface water bodies, and is located with a FEMA 100 Year Floodplain. Although the Project does not depict solar arrays within these features, the construction of the solar arrays will directly adjoin the wetlands, surface water bodies, and FEMA 100 Year Floodplain.

Project Materials

The Project “anticipates using silicon panels that do not contain harmful substances”; however, anticipation does not submit authority to the use of silicon and only silcoln. This language needs to be definitive in the use of materials, such as silicon, that do not display toxicity characteristics (i.e. cadmium).

- Alternative solar panel construction materials include cadmium and GenX coatings (teflon alternatives).
 - Cadmium is a heavy metal that will pose potential impacts to soil and groundwater health, especially if damage were to occur to the solar panels via natural disaster or during decommissioning.
 - Increasing research on GenX coatings and health impacts related to *Per- and Polyfluoroalkyl Substances (PFAS)*^{4,5} raises environmental health concerns.
- The County should have a condition excluding heavy metals, toxins, and GenX materials from being used during the Project.

Decommissioning

Project decommissioning should be completed to restore the Project’s associated parcels back to their original characteristics. Project soils subsequent to decommissioning should match the pre-construction/grading delineation results.

Infrastructure associated with the Project should be removed during decommissioning, and landowners should not have the ability to waive any restoration activities; however, “if landowner deems such

⁴ <https://www.carolinajournal.com/news-article/policymakers-largely-unaware-of-genx-like-compounds-in-solar-panels/>

⁵ <https://www.epa.gov/pfas/basic-information-pfas>

improvements beneficial to the land and potential future uses”, the associated materials must be removed from the ground and staged in an approved location.

Conclusion

The Project will create large impervious areas that will likely create stormwater runoff and pollution. Without proper grading practices and permanent stormwater engineering practices/structures, the wetlands located on the Project, as well as the adjoining Rapidan River, will likely be affected by the Project’s stormwater runoff and pollution.

The Project must be definitive in the use of silicon solar panels; the main alternative to silicon solar panels are cadmium constructed panels and GenX coatings, which display toxicity characteristics that could harm the Project area, surrounding soils, wetlands, and the Rapidan River. The use of these harmful materials could render the Project area soils as non-productive, based on contamination from panel materials.

Decommissioning activities should return the Project to its former agricultural land use. All infrastructure associated with the Project should be removed from the ground, regardless of the landowner’s consent.

6. KIRKLAND STUDY VALIDITY

The following concerns with Kirkland’s Study associated with the Project are being raised to determine Kirkland’s validity:

- “External obsolescence is evaluated by appraisers based on several factors. These factors include but are not limited to: 1) Traffic. Solar Farms are not traffic generators. 2) Odor. Solar farms do not produce odor. 3) Noise. Solar farms are not significant noise generators. 4) Environmental. Solar farms do not produce toxic or hazardous waste or contain hazardous materials or substances. 5) Light. Solar farms are completely dark at night. 6) Other factors. I have observed and studied many solar farms and have never observed any characteristic about such facilities that prevents or impedes neighbor from fully using their homes or farms or businesses for the use intended.” (Exhibit 13, p.1).
- “[S]olar farms are not significant noise generators” (Exhibit 13, pp. 1-2).
- “Solar panels are placed on the land with minimal grading, no concrete on the supporting posts, and are considered impervious surface area due to the grass that grows beneath the panels.” (Exhibit 13, p. 2)

PEC provides the following information and comments in response to the above referenced statements:

Visual Impacts

Kirkland’s Study did not discuss *visual impacts* as an “external obsolescence”. PEC contends that *visual impacts* are a large contributor to “external obsolescence” associated with Utility-scale solar, and should have been specifically addressed as such.

- Viewsheds will be impacted by the Project, and land values will likely decrease as such. The following example should be considered when evaluating land value:
 - If faced with the option to buy two (2) otherwise identical parcels of land, a potential landowner (agricultural, residential, etc.) would rather buy the parcel without an adjoining Utility-scale solar facility over the parcel with an adjoining Utility-scale solar facility.

Construction Noises

Does this study take into account the construction process that will utilize noisy, continuous pile driving techniques that will be heard for months on end? Although the construction process will be temporary, homebuyers could be perturbed by construction noises while visiting a potential home.

Grading Discrepancy

“Minimal grading” is not an appropriate description of the grading activities that will take place with the Project, nor does it give any indications of soil or runoff impacts that could affect the Rapidan River. Home values may not be directly impacted by this statement; however, PEC contends that there is a discrepancy between the grading proposed in the Project and Kirkland’s Study.

Conclusion

Culpeper County has historically questioned the validity of Kirkland’s financial studies associated with Utility-scale solar applications. PEC recommends that Culpeper hires an outside economist to validate the results of Kirkland and his findings.

Cricket Solar Proposal

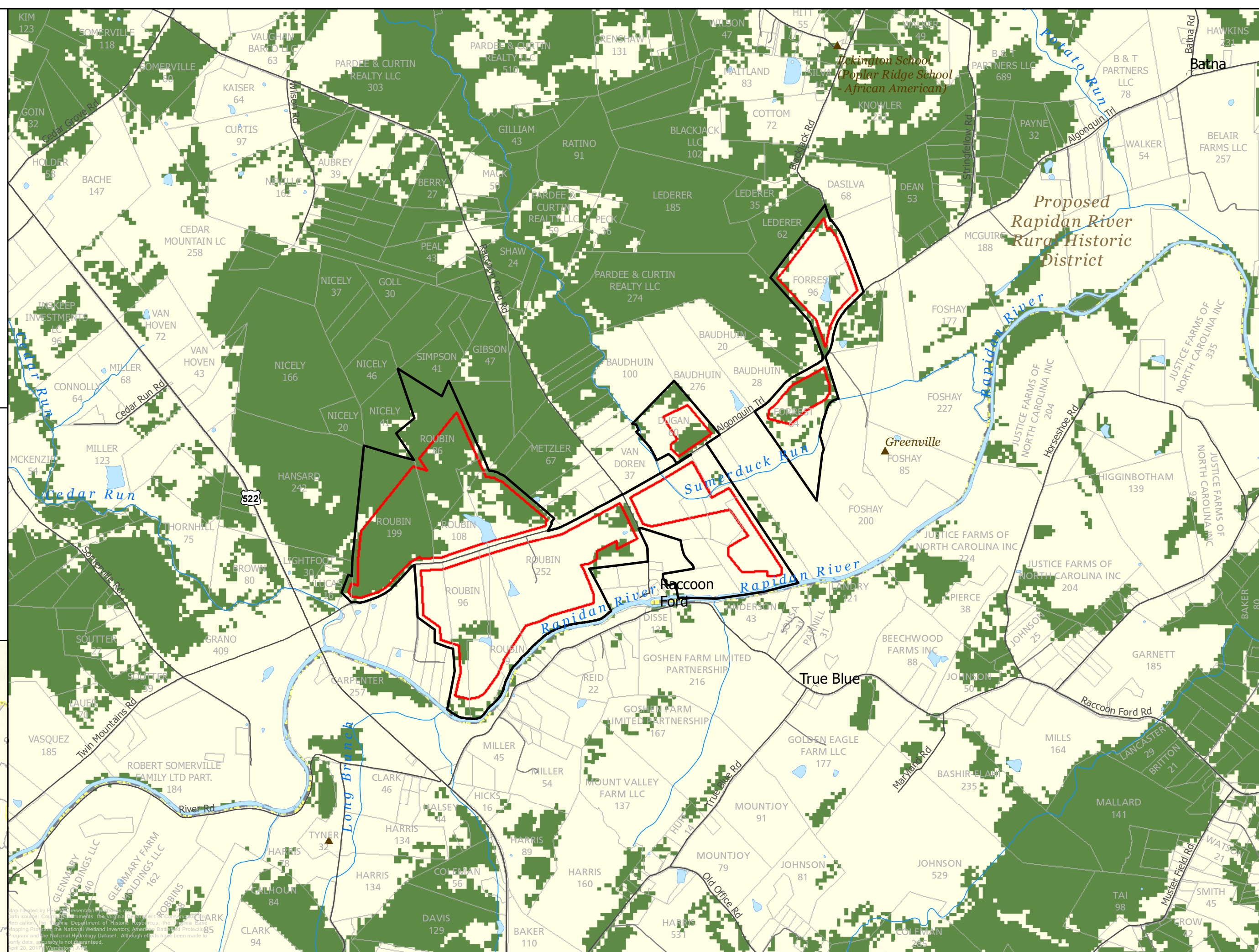
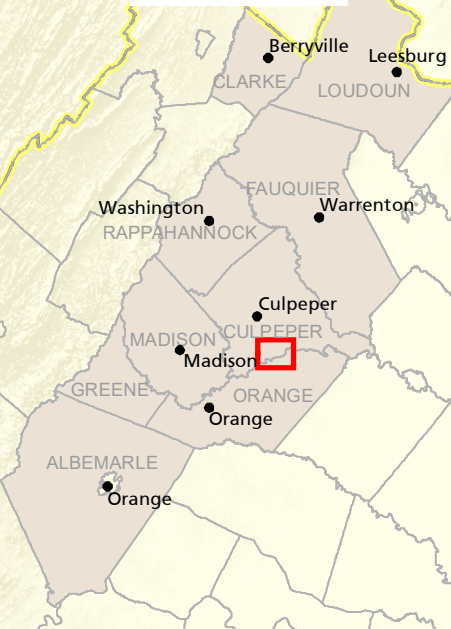


- Solar Project Area
- Cricket Parcels
- Parcels Rappahannock
- Forest Cover

0 0.25 0.5 Miles



Area of Detail



Map created by the Piedmont Environmental Council using data from the Virginia Department of Conservation and Forestry, the Virginia Department of Transportation, the Virginia Department of Historic Resources, the Virginia State Planning Board, the National Wetland Inventory, American Battlefield Protection Program, the National Hydrology Dataset. Although efforts have been made to verify data, accuracy is not guaranteed.