

# **Planning Commission Staff Report**

File #: P-21-5  
Applicant: Sam Clay, and his agent, Mike Wallgren, an authorized representative for Glidepath Power Solutions  
Rezoning Request: A-2, Agricultural, General to SED, Utility Scale Solar Energy District with siting agreement  
Property Location: Between Wheelers Pond Road (Route 645) and Wilkinson Road (Route 611) bounded on the north by Wilkinson Road and on the south by Wheelers Pond Road approximately 0.48 mile west of the intersection of Wheelers Pond Road and Wilkinson Road  
Property Size: Approximately 150.0 +/- acres with 57.8 +/- acres under panel and with battery storage  
Tax Map Parcel: 43-9  
Magisterial District: Rowanty District  
Planning Commission Mtg.: September 8, 2021

---

## **CASE AND PROJECT OVERVIEW**

The applicant, Sam Clay, and his agent, Mike Wallgren, an authorized representative for Glidepath Power Solutions are proposing to design, construct and operate a 10-megawatt alternating current solar photovoltaic (PV) ground mounted electric generation project located on approximately 150.0 +/- acres with approximately 57.8 +/- acres under panel with 4-megawatts of battery storage. The SED, Utility Scale Solar Energy District, zoning classification allows for solar energy projects pursuant to the Zoning Ordinance allowed density. The property is generally located between Wheelers Pond Road (Route 645) and Wilkinson Road (Route 611) bounded on the north by Wilkinson Road and on the south by Wheelers Pond Road approximately 0.48 mile west of the intersection of Wheelers Pond Road and Wilkinson Road. The property is further defined as Tax Map Parcel No. 43-9. As indicated in the Dinwiddie County Comprehensive Land Use Plan, the subject property is located within the Rural Conservation Area, which allows limited industrial, service, and utility uses for this general area.

The proposed facility will connect to the Southside Electric Cooperative power grid creating energy via solar and storing energy produced during periods of oversupply and discharging to the electrical grid during periods of high demand. The project site is located approximately 2,500 feet from the Southside Electric Cooperative Center Star electric substation. As indicated in the application the site itself is partially flat and open with areas of slopes and woods. There is existing vegetation on 85% of the property lines. The solar energy conversion panels will be single axis tracker, which will follow the sun east to west. They will be 10 to 12 feet tall and arranged in arrays as illustrated below. There would be approximately 70,000 solar panels. The panels will be mounted on a steel and aluminum racking structure and average approximately 10 to 12 feet above grade.

The racking system is installed in the ground with pilings (I-beams) that are driven directly into the ground at a depth usually between 6 feet and 8 feet depending on soil conditions. The racking system manufacturer's engineer will provide certification that the design of the foundations and panels are within accepted professional standards, given local soil and climate controls. The equipment is designed to withstand wind up to 90 miles per hour and fifty pounds per square foot of snow.

The panels will be arranged into rows. Each row of solar panels will connect to an inverter. The inverters will be connected by directionally bored underground conduit that is housed inside of housing that will be installed 2 feet below the surface. The conduit will lead to the concrete equipment pad for each inverter. The inverters transform the direct current power generated by the photovoltaic system to alternating current power, which is then connected to the existing Southside Electric Cooperative three phase power distribution line at the point of common coupling. The solar array will be contained within an area protected by a seven-foot chain link fence with barbed wire on top of it. It will not create any noise, dust, fumes, glare, or other disturbances.

The battery energy storage system (BESS) will be comprised of lithium-ion battery modules housed within approximately 8 storage containers. Containers will be approximately 53' long by 8' wide and 10' high. Depending on the BESS manufacturer(s) selected for the project, the number, size and overall configuration of the battery modules could change. Containers will be supported on slabs/spread footings or piles/piers, with the ultimate choice based on final design. Each container will have an exterior HVAC. From the BESS container, low voltage cables will connect to pad mounted switchgear, step up transformer(s) and a power distribution system. An on-site sub-station will be constructed to connect the project to the adjacent Center Star substation. Additionally, stabilized gravel access roads and perimeter fencing will be provided.

The project would be equipped with a state-of-art Battery Management System (BMS) which would monitor cell level voltage, state of health, cell temperature, and cell current in and out. If any of the monitored parameters were above or below pre-determined limits, BMS would shut down and electrically isolate the battery rack from the system, preventing any potential for overheating and risk of thermal runaway.

The detailed list of major equipment is as follows:

- Batteries (LG Chem or Samsung SDI modules assembled and connected in racks)
- Power Conversion System (PCS - i.e., Power Electronics inverters) to convert direct current into alternative current and vice versa. Each PCS is 3 Mega Volt Amp (MVA) power capacity, with noise levels < 79 A-weighted decibels (dBA) measured at 1 meter from the back of the unit.
- HVAC systems to keep battery cores at optimal operating temperature
- BMS to prevent overheating and risk of thermal runaway
- Fire suppression systems in each container (clean agent Novec 1230 in a tank connected to nozzles and designed to flood the entire container during fire event) equipped with early smoke detection, alarms and remote monitoring
- Low and medium voltage electrical switching equipment
- Computer and telecommunications equipment
- Medium-voltage transformers
- Medium-voltage switchgear
- Step-up transformer and associated equipment
- Security lighting and fencing
- Signage

## **ATTACHMENTS**

P-21-5 Application and Application Package Attachments

## **LAND USE AND ZONING ANALYSIS**

The area is generally rural and used for silviculture and agricultural purposes interspersed with rural single-family residential lots. The site includes forested land and cropland on the subject property. The properties in the immediate area surrounding the subject land parcels include agricultural and forested land, and low-density single-family residential land uses, and the project site is located approximately 2,500 feet from the Southside Electric Cooperative Center Star electric substation. The properties to the north, east, south and west are zoned A-2, Agricultural General.

A primary purpose of the SED zoning district is to outline the process and requirements for the construction, installation, and operation of solar energy projects in Dinwiddie County in a manner that promotes economic development and ensures the protection of health, safety, and welfare while also avoiding adverse impacts to agricultural lands, endangered species habitats, conservation lands, and other sensitive lands.

## **COMPREHENSIVE PLAN CITATIONS**

The subject property is located within the Rural Conservation Area as defined by the Comprehensive Land Use Plan. The subject property is located within the Rural Conservation Area as defined by the Comprehensive Land Use Plan. While the Comprehensive Plan does not specifically address renewable energy i.e. solar energy generation, it does account for future utility growth and expansion in accordance with the Comprehensive Plan.

Chapter X Future Land Use includes the following relevant special planning considerations, battlefield preservation, and planning guidelines:

B. Special Planning Considerations: includes the following relevant sections:

11. Prime Agricultural Land: (1) Identify the large parcel land areas containing the best agricultural soils, high historic yields, and high probability of continuing in agricultural use. (3) Encourage the location and continuation of agriculture related industrial and commercial uses which support the agricultural community (4) Make regulations sufficiently flexible to permit site locations, where development occurs in identified prime agricultural land areas, that minimize interference with agricultural operations, that use marginally productive land and that cause a minimal loss of productive agricultural acreage.

C. Planning Guidelines:

2. Rural Conservation Land: The Rural Conservation Area includes existing large-lot, low density, single-family subdivisions with lot sizes averaging five (5) acres or greater with limited commercial and industrial development. The above existing areas uses are compatible with the uses permitted in the A-1 and A-2 zoning classifications.

Chapter XI Policies, Goals and Objectives includes the following relevant Policy statements: (1) Preserve the rural character of Dinwiddie County which includes agriculture, open space, clean environment, low taxes, quality education, safe environs, and a strong sense of community. (2) Conserve and protect the County's natural and historic resources and environmentally sensitive areas. (3) Maintain and enhance the County's ability to coordinate a balanced land use program among various types of residential, commercial, and industrial interest by encouraging

development within areas defined as growth centers and/or growth corridors. (4) Preserve productive agricultural and timber lands from premature conversion to urban uses by discouraging urban development patterns throughout the County. (5) Provide and maintain needed community facilities and services in a cost-efficient manner. An impact analysis will be required for all major development so that public, health, safety, and welfare are protected.

In addition to the relevant Policy statements, there are additional relevant goals and objectives for each element of the Comprehensive Plan as set forth below:

Agricultural and Timber Lands: Goal: Preserve a significant portion of the County's productive agricultural and timberlands. Objectives: (b) Protect existing agricultural operations from conflicts with other land uses. (c) Establish a pattern of residential and commercial development that causes minimal conversion of agricultural land or disruption to agricultural areas. (f) Identify and designate prime agricultural land.

Public Facilities and Services: Goal: Provide County facilities and services necessary to promote a safe, healthful, and desirable community in which to live. Objectives: (a) ensure that the intensity, timing, and implementation of future development is subject to the provision of adequate and coordinated public facilities and services. (d) Recognize the need for continued planning in order to maintain adequate and efficient public facilities and services for existing and future residents.

Open Space, Recreation, and Historic Preservation: Goal 3: Preserve "open space" areas throughout the County such that these areas will become an integral part of the community as the growth corridors and centers expand. Objectives: (a) Protect and conserve natural features of the environment, i.e., wetlands, floodplains, etc., from improper development. Goal 4: Preserve and protect historic sites and buildings in Dinwiddie County. (h) Preserve and protect the County's historic sites and cultural heritage.

Environment: Goal: Protect the county's high level of environmental quality.

Objectives: (a) Protect the environment and conserve resources for future uses. (b) Assure that new development minimizes adverse impacts on the natural land and/or built environment. (c) Preserve the County's scenic, cultural, and historic resources as being essential to both the County's rural and historic character and the overall quality of life. (d) Protect and preserve the County's agricultural and timber lands and activities. (f) Maintain and enhance the agricultural and farming resources as an integral sector in the County. (g) Protect and preserve the natural and physical environment.

Land Use and Development: Goal: Ensure that sound practices are employed and guide future development in an efficient and serviceable manner, which is protective of the County's predominately-rural character and concentrates development in designated areas.

Objectives: (f) Encourage development which is compatible with anticipated rates of growth, available resources, and available or planned utilities, schools, and other community facilities and services. (g) Emphasize community planning and industrial development that is designed to economize the costs of roads, utilities, and land use. (h) Make planning and industrial development that is designed to economize the costs of roads, utilities, and land use.

## **OVERVIEW OF IMPACTS**

### *Project Operations and Construction Plan*

The applicant is currently planning to start commercial operations in 2024 and has a planned useful life of 30 years. Glidepath Power Solutions would be the system owner and operator. The system would be remotely operated by Glidepath personnel. The long-term operational workforce would entail contracted maintenance staff who would maintain the facilities and landscaping on a periodic basis over the project life. The project would require a four-person crew for maintenance visits once a month on average. The crew would normally consist of one operator, one contracted field engineer, and two mechanical or electrical technicians. The project would be primarily operated remotely by Glidepath personnel; thus, no restroom or office facilities are proposed.

Planned maintenance would typically be developed and scheduled a few months in advance. Typical maintenance intervals for major project components include:

- Fire protection system – twice a year
- HVAC – twice a year
- Battery core – once a year
- Relay protection – once in two years
- Project performance testing – once a year

The project is designed with multiple automatic and manual power-down/safety mechanisms. Electrical and fire systems are designed to open breakers automatically during fault conditions. Each container fire protection system would have a signal that would trigger container power-down during fire, electrical fault, overheating, etc. The entire project power-down would occur automatically during electrical fault conditions (e.g., high-voltage, high-frequency, ground fault etc.). In addition, the project would be equipped with breakers that could be opened manually to power-down different equipment or the project as a whole. The manual power-down could be done by local personnel or remote operator.

The project is designed to be in operation for 30 years. After completion of 30 years of operations, most of the project's electrical equipment (panels, breakers, transformers and inverters) would be removed and recycled. Project batteries would be returned to the battery manufacturer for recycling. Equipment foundations and pads would be demolished and removed.

The project would be constructed in a single phase. Once the construction of the project begins the duration would be approximately 12 months. Construction would occur Monday through Friday, between the hours of 7 AM and 7 PM. Between 17 and 52 workers would be on-site at any given time each week during construction, which would decrease to 14 or less during the last quarter of construction.

Construction activities would include foundation/concrete work, building construction, electrical/HVAC/fire protection installation, battery rack installation, battery/inverter/controls installation, and grading. Recycling, reduction, and reuse of materials would be incorporated whenever feasible. Construction equipment to be used would include a scraper, excavators, dump trucks, a drum roller, forklifts, a crane, pump trucks, concrete trucks, man lifts, and a boom truck. Low emission construction vehicles and equipment (at least Tier 3 or better) fitted

with diesel particulate filters (DPF) would be utilized. Temporary construction staging/laydown/storage areas would be contained within the project site boundary.

### Fiscal Impact

In consultation with the Commissioner of the Revenue, the tax liability for this project will be \$15,000 per acre with an estimated one-time \$16,954.96 land use rollback. The applicant is submitting a siting agreement to be negotiated with the County Board of Supervisors.

### Cultural and Environmental Impacts

The project site drains into the White Oak Creek that ultimately drains to Stony Creek. The soils in the general area are Appling and Cecil sandy loam and Mattaponi sandy loam.

The proposed facility has been designed to avoid sensitive resources. The facility has been sited within the project parcel to avoid any wetlands to the maximum extent feasible. In addition, the existing driveway would be widened and reutilized to minimize any additional impacts associated with necessary access requirements.

The proposed development would conform to the natural topography of the site to the maximum extent practicable. Battery storage containers and inverters/transformers would be placed on individual concrete equipment pads to allow for incorporation of the elevation change of the natural topography. The majority of the proposed facility would consist of permeable gravel infill. Stormwater best management practices would be implemented.

- As a preliminary review of cultural resources in the Project Area, Westwood examined the Virginia Cultural Resource Information System (V-CRIS) maintained by the Virginia Department of Historic Resources (DHR). An initial inventory of archaeological sites and historic structures was compiled. Mapping of previous surveys was also examined. Additionally, the National Register of Historic Places (NRHP) database was reviewed. The entire Project Area was examined, as well as a one-mile buffer.
- No previously recorded cultural resources are identified in the Project Area.
- No archaeological sites are located within one mile of the Project Area.
- Four inventoried historic resources are recorded within one mile of the Project Area. The closest inventoried historic resource is a house (026-0142) located approximately 0.25 mile west of the Project Area.
- Two historic districts are located within one mile of the Project Area. A property associated with the Rosenwald Schools in Virginia MPD is located approximately 0.42 miles east of the Project Area and the Petersburg National Battlefield is located approximately 0.90 miles northeast of the Project Area.
- No cultural resource surveys have occurred in the Project Area.
- No NHRP listed properties are located within 1 mile of the Project Area.

### Landscaping/Open Space

The applicant is proposing that new landscaping would be included where necessary to fill in the existing vegetation and would be designed to screen the proposed project facilities from North along Wilkinson Road and South along Wheelers Pond Road. Landscape design would be in compliance with the Zoning Code including requirements and minimum distances between trees. See the included Landscape Plan. Technicians would travel to the site approximately once per month to provide contracted maintenance services, including landscaping. The project would be in compliance with all county Design Guidelines, including landscaping and color scheme requirements, per consultation with Dinwiddie County.

The aforementioned studies are included with the application package. Development will be done in accordance with state and local regulations.

### School System, Public Safety, & Public Utilities Impacts

There are no impacts to the school system with the proposed rezoning allowing for construction of the solar energy generating facility. The potential impact on public safety with the rezoning of the subject property include the proposed solar arrays, inverter and transformers, and battery storage and generators having to address fire protections as required by the applicable National and local Fire Code and Building Code. The impact on public utilities involves the point of interconnection with the existing transmission line.

### Transportation Impacts

The width of the project access road from Wilkinson Road would total 24 feet, including a three-point hammerhead turnaround at the northern end of the facility. The 24-foot wide driveway heads south through the center of the facility and terminates with a 40-foot radius cul-de-sac at the southern end of the facility. Roadway surface materials would consist of asphalt concrete (AC)/aggregate base (AB). The project would include parking spaces for part-time staff who would perform routine maintenance activities on a periodic (monthly) basis.

To ameliorate the impacts of the increased traffic on area roads VDOT is recommending that a Construction Traffic Management Plan (CTMP) be required to account for the transportation impacts related to the development of the property. The CTMP includes (1) a plan to show proposed construction access routes to the development site from the State primary routes; (2) a pre-construction assessment of the condition of the secondary roadways to be used as a haul route to the facility with a commitment from the applicant to repair any damage caused during construction and to restore the roadways to pre-construction conditions; and (3) a plan to identify on-site areas suitable for parking for the construction workers and areas exist on-site to allow trucks to be unloaded and to turn around without having to back onto State maintained roadways.

Additionally, VDOT anticipates that low-volume commercial entrances are required to serve the proposed solar energy facility. The low volume commercial entrance has to demonstrate that stopping sight distance based on the posted speed limit is available at the proposed entrance location. All future transportation related improvements for the construction entrances and commercial entrances will have to meet VDOT design and construction requirements and standards and be permitted through VDOT.

## Decommissioning Plan

### Introduction

The Decommission Plan (the “Plan”) describes anticipated activities and process for decommissioning of the proposed facility following its useful life. The purpose of decommissioning is to restore the Property to a clean, safe and usable condition for continued use by the landowner.

Decommissioning consists of the removal of above-ground and below-ground facility components, management of excess materials and waste as well as the restoration of Project lands, as applicable. Activities are expected to take between 8-10 weeks but no longer than four-months.

Potential negative environmental effects from decommissioning of the facility will be mitigated through use of erosion and sediment control measures, limiting the use of heavy machinery (where possible), and maintaining a buffer from natural features. These control measures, as well as other mitigation measures used during construction will be re-implemented during the decommissioning phase and until the site is stabilized.

Future consultation will occur with the municipality prior to decommissioning to discuss preferences and commitments to restore the Project to its pre-construction condition or a similar state. All decommissioning and restoration activities will adhere to the requirements set forth by Occupational Health and Safety Administration (OSHA) and will be in accordance with all applicable federal, state and local permitting requirements. As with the construction phase, an onsite manager responsible for safety will be present on-site (generally the contractor’s project manager) while decommissioning activities are taking place.

The decommissioning plan is based on current procedures and experience. These procedures may be subject to revision based on new experiences and requirements over time. At the time of decommissioning, various options and procedures will be re-evaluated to ensure that decommissioning is safe and beneficial to the environment.

### Equipment Removal

A significant amount of the components of the Project will include recyclable or re-saleable components, including copper, aluminum, galvanized steel, and modules. Due to their resale monetary value, these components will be dismantled and disassembled rather than being demolished and disposed of.

Following coordination with the local utility company regarding timing and required procedures for disconnecting the Facility from the utility, all electrical connections to the system will be disconnected and all connections will be tested locally to confirm that no electric current is running through them before proceeding. All electrical connections to the panels will be cut at the panel and then removed from their framework by cutting or dismantling the connections to the supports. Inverters, transformers, and switchgear will be lifted, secured onto flat beds, and transported off-site for processing.

Modules will be detached from the racking system and stacked for removal. However, in the event of a total fracture, the interior materials are silicon-based and may not be considered hazardous. Disposal of these materials at a landfill will be permissible.

The metal piling systems used to secure the PV system in the ground will be removed entirely and if full removal is not possible, then terminated at a depth greater than four-feet from grade or at bedrock whichever is shallower. The piling materials will be collected and recycled. Additionally, all associated metal mounting structures along with the metal perimeter fencing and gates will be removed and either reused or sent for recycling.

Grade slabs will be broken, removed, and disposed of off-site or recycled. Unless requested by the landowner for the access road to remain, materials from road construction will be removed, shipped off-site for either re-use or disposal. If necessary, the former road bed will be backfilled and graded with material native to the region to blend it with the immediately adjacent and existing topography.

Aboveground utility poles owned by the Project will be completely removed and disposed of off-site in accordance with utility best practices. Overhead wires will be removed from the area of the solar modules and terminated at the point of interconnection. Underground wiring at depths of less than four-feet will be removed and recycled.

Prior to final demobilization, a final walkthrough of the Project area and the Property is completed to police for and ensure all debris is collected and removed.

#### Site Restoration

Those areas disturbed during decommissioning activities will be graded as necessary to ensure a uniform slope for proper storm water management, prevent the ponding of waters and address any rutting or other depressions caused by removal equipment. The disturbed areas will then be seeded either by hand or via hydro seeding to reestablish vegetation compatible with the Property and region. It is anticipated that a seed mix native to the area will be used by the decommissioning contractor, unless the landowner instructs that they will begin using the property for agricultural purposes and will reestablish the area with agricultural vegetation.

#### Permitting & Approvals

Prior to the initiation of decommissioning activities, local code will be reviewed for applicability with decommissioning activities. The municipality will be consulted to confirm and applications made for appropriate permits and approvals, if any. At a minimum, it is anticipated that a new storm water pollution prevention plan (SWPPP) will be required along with a building permit. It is assumed that neither a new or revised site plan nor special use permit would be necessary because decommissioning activities are associated with the originally issued approvals.

Throughout the decommissioning process, the municipality will be provided with regular updates and notice upon completing the restoration activities.

#### Form of Assurance

A Decommissioning Agreement (“Agreement”), will be established for the project entered into by the Operator/Owner of the project and the county. The Agreement will result in the Operator/Owner securing a bond as assurance. The bond will begin with and maintained for the duration term established in the Agreement. The bond will be maintained and updated according to the Agreement and remain in place through the completion of decommissioning activities at the Project. The amount and term of the bond will be established and agreed upon by both parties.

#### Use of Assurance

In the event that the Operator/Owner fails to undertake decommissioning activities within the established period of the Agreement, the county shall have the right to undertake decommissioning activities and make a claim against the decommissioning assurance. In such circumstances, the county shall have such access to the Property as may be necessary to allow its qualified contractors to conduct decommissioning activities.

### **PLANNING COMMISSION ACTION**

The Planning staff has reviewed the request to rezone the property from A-2, Agricultural General to SED, Utility Scale Solar Energy District to allow for a solar energy generating and battery storage project and with the subject request, there are impacts and the Planning Commission ultimately must weigh those impacts against the benefits of the rezoning request.

The Planning Commission should consider if the rezoning request is compatible and not a substantial detriment with the surrounding zoning pattern and surrounding property and that it conforms to the underlying uses outlined in the Rural Conservation Area in the Comprehensive Land Use Plan for this general area of the County.

### **PLANNING COMMISSION RECOMMENDATION**

Since this is a zoning matter, the standard statement regarding the Planning Commission's recommendation on this zoning matter must be read. In order to assist, staff prepared the following statement:

**BE IT RESOLVED, that in order to assure compliance with Virginia Code Section 15.2-2286(A) (7) it is stated that the public purpose for which this Resolution is initiated is to fulfill the requirements of public necessity, convenience, general welfare and good zoning practice, I move that rezoning request, P-21-5, as presented be recommended for (approval, or disapproval) to the Board of Supervisors.**