

Overview of Concerns Raised Related to the sPower Project - SUP18-0001 (Site A)

Concern	sPower Proposal/Comment	Staff/Consultant Comment	Recommended Conditions
Size / Scale	Agreed to a phased approach with limitations and measures in place to minimize potential negative impacts associated with the scale.	Site A encompasses approximately 5,200 acres, of which approximately 2,800 acres would be disturbed. Site A encompasses approximately 1.96% of the County and 2.37% of the land outside the Primary Development Boundary. The Planning Commission found that Site A is substantially in accord with the Comprehensive Plan under the Code of Virginia's requirement that they conduct a review of the project's location, character, and extent (15.2-2232).	There are a number of conditions that directly or indirectly mitigate potential negative impacts of the project's size.
Habitat and Forest Loss / Environmental Impacts	Preservation areas are identified within each site. These are primarily environmentally sensitive areas and Resource Protection Areas. Agreed to create wildlife corridors. Agreed to plant pollinators and to conditions related to identified threatened and endangered species that are or may be located on site. Provided an invasive species management plan.	The project (including Sites A, B, & C) will result in the loss of approximately 2.3% of the forestland in the County and the associated benefits of managed forestry acreage. Concerns were raised about solar flux causing bird deaths. County consultant informs that solar flux occurs in a different type of facility known as concentrated solar power generation, which involves ground mounted mirrors that reflect concentrated light towards an elevated heating tower. The solar panels proposed are not light refractor or reflectors.	Conditions section B, C, and F contain a number of conditions that address environmentally sensitive areas, RPAs, wildlife corridors, the use of pollinators, threatened and endangered species, invasive species, and native plants. Note: the Certificate of Public Convenience and Necessity (CPCN) issued by the State Corporation Commission (SCC) 8/8/18 conditioned compliance with DEQs recommendations and shall obtain all environmental permits and approvals that are necessary to construct and operate the Project (Attachment A)
Use of Panels Containing Cadmium Telluride	Propose the use of panels containing Cadmium Telluride (CdTe). Provided studies supporting the use as safe, including a Limited Soil Sampling of Sierra Solar Greenworks owned by sPower that found: "Cadmium concentrations were not detected above the laboratory reporting limits of 0.23 to 0.25 mg/kg in any of the samples collected from the solar farm or from the vacant lot. Therefore, the solar farm operations do not appear to have impacted soils with cadmium on the portion of the property developed as solar farm. The reporting limit for the non-detected concentrations are at least an order of magnitude lower than any applicable screening levels for residential and commercial land use in the states/regions of California or Virginia". Additional information provided in Attachment B.	County consultant finds that "Cadmium Telluride (CdTe) is a compound that contains cadmium and tellurium. It is a black crystalline powder that is odorless, not water soluble and non-flammable. It has a melting point of above 1000 °C and the boiling point is above 1100 °C. Cadmium by itself is a highly toxic material, however, based on research cadmium telluride is much less toxic than pure cadmium. CdTe can be toxic if it is ingested, inhaled or comes in direct contact with skin." Regarding the panels: "If they are handled properly during all phases of construction and disposal, they will not emit any toxicity into the environment." Recommend conditions related to soil testing for CdTe and other heavy metals and reclamation if positive results.	Planning Commission conditions prohibit use of panels containing CdTe. Staff conditions do not, but do include soil testing and remediation conditions.

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Burning of Wood Debris	<p>The applicant indicated to the Planning Commission that they would not object to the prohibition on burning. Otherwise, propose burning of timber waste consistent with County ordinances and with a 2,000' setback to any residence. Emergency Management Plan - Construction includes other safety measures:</p> <ul style="list-style-type: none"> • All combustible materials removed within 35' of trench. • A water truck shall be on standby. • Trench burners shall be equipped with fire extinguishers. • No burning on high wind days (sustained winds more than 25 mph) or when prohibited by Spotsylvania County Fire Department. • Burning shall take into consideration sensitive receptors and prevailing wind direction at lower speeds (<25 mph). Burning shall cease 2 hours prior to end of work day. • A Fire Watch Person will be designated to monitor all trench burning activities. • The Fire Watch Person shall remain within the immediate area of the trench burning at all times and shall not be assigned any other duties. • If the burn area is still producing smoke, it must be attended. 	<p>Staff's conditions do not prohibit the burning of timber waste, but do condition the use of newer model trench burners operated per specs and set back a minimum of 3,000' from the property boundary. Allowing only mulching and hauling will result in increased truck traffic on the roads and may prolong the construction period. Additionally, mulch has its own fire hazards. The conditions limit the size of mulch piles and require monitoring, turning, and wetting.</p>	<p>Conditions section D. Burning and Fire, Rescue, and Emergency Management. Planning Commission conditions prohibit the burning of wood or other debris. Include conditions related to the size of mulch piles and required monitoring, turning, and wetting.</p>
Use of Biosolids	Do not propose to use biosolids.	N/A	Prohibit the use of biosolids.
Use of Panels Manufactured Using GenX	sPower documented that none of the panels are manufactured using GenX.	N/A	Prohibit the use of panels manufactured using GenX.
Use of - Fertilizers Containing Phosphorus / Chemical Cleaning Agents / Pesticides / Herbicides	Propose to use phosphorus fertilizer as needed. Water only cleaning of panels. Have not objected to the conditions related to these topics.	Phosphorus aids in groundcover growth. Rapid site stabilization is critical.	Phosphorus permitted, but by Certified Applicator and based on state standards. Other conditions limit pollution or impact on groundwater, streams, etc. Require soil testing and set remediation requirements.
Sufficiency of Aquifer	Provided a hydrology study. Applicant does not object to the prohibition on the use of groundwater.	N/A	Conditions section H - Prohibits the use of groundwater.

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Public Water	Separate from the Special Use, the applicant has coordinated with the Utilities Dept. on a Cost-Share Agreement concept that would aid in implementing the County's public waterline upgrade that serves Fawn Lake (531-foot pressure zone). Applicant would pay for 50% of the cost of this planned upgrade. Applicant's desired water volume is 100,000 gallons/day during construction and 350 gallons/day during operation.	The applicant can withdraw water from an existing bulk water withdrawal site and truck it to the site. This does not require any upgrade to the existing public water system.	Conditions section H - Addresses Water, giving the Utilities Dept. control over water withdrawal to prevent any negative impact on the existing distribution system. Limits bulk water withdrawal to 10 p.m. and 4 a.m. with a maximum aggregate volume usage of 69,000 gallons per day from October to April and 56,000 gallons per day from May to September. With an upgrade system, limits withdrawal to 10 p.m. and 4 a.m. with a maximum aggregate volume usage of 166,000 gallons per day from October to April and 153,000 gallons per day from May to September.
Heat Island Effect	A heat island effect would not occur at this location due to Virginia's climate, rate of heat attenuation, extensive amount of vegetation surrounding the site, and cooling temperatures at night. Heat Islands are typical in this area for open, large department store or mall parking lots, not agricultural land areas. The applicant disputes the conclusions of the County's consultant related to a temporary temperature increase and is seeking a setback of 100'. Additional information provided in Attachment B and C.	County consultant concludes there is no heat island, but that a temporary temperature increase may occur that dissipates to 0.5 degrees at 328' from the solar panels. The County consultant and the applicant's consultant agree that berms and plantings will lessen any effect from heat, but that no model exists that would scientifically support a specific reduction.	Conditions section E - Planning Commission conditions include a consistent 350' setback for panels from property line. Staff conditions are 350' from property line with residentially platted properties.
Setbacks	Propose minimum 100' setback from property line with minimum 350' setback of panels and inverters to existing homes.	Setbacks vary at approved SEFs in Virginia with setbacks measured from both existing residences and from the property line (i.e. Belcher Solar, LLC in Loudoun Co.- 300' setback from solar equipment to property line, setback reduced to 150' where house is more than 350' from the property boundary; Virginia Solar, LLC in Powhatan Co.- 50' setback from solar equipment to property line, if house exists at time of approval setback increases to 150' between the equipment and the house; Greenwood Solar I, LLC - Culpeper Co.- 150' setback between above-ground equipment and adjacent house that exists at time of approval and 150' setback from the property line of any residentially-zoned parcels, allows for reduction upon agreement by adjacent property owner; Buckingham II, LLC in Buckingham Co.- minimum 50' setback of equipment to property line, increases to 150' setback of equipment to adjacent existing houses and may be reduced upon agreement of adjacent property owner)	Conditions section E - Planning Commission conditions include a consistent 350' setback for panels from property line. Staff conditions are 350' from property line with residentially platted properties; 100' setback elsewhere, except along public roads, which is 50'.
Buffers / Viewshed / Visual Impacts	Provided new buffer plan after Planning Commission vote. Varied landscape buffers depending on use of adjacent property/proximity of existing homes. The minimum is natural regrowth within the 100' setback and the maximum is a 8-ft berm with landscaping installed within the 100' setback along with natural regrowth.	Staff notes that the applicant's proposed plantings may provide a better visual screen than proposed in the conditions because they are all evergreens.	Conditions section E - Varied landscape buffers depending on proximity of existing homes and existing tree buffers. Maximum is 8' berm with landscaping and minimum is landscaping only.

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Erosion and Run-off	Modified original grading plan to reduce the amount of grading needed. Do not object to conditions that require elevated E&S measures including monitoring and maintenance standards, but would like to disturb more than 400 acres at a time.	E&S inspections will be handled by County staff and the County's 3rd party inspectors and will be paid for by the applicant through fees adopted by the Board on 11/15/18.	Conditions section C - Limit the disturbed land area to 400 acres total within up to two watersheds at a time, require E&S measures above Code requirements, additional monitoring and inspections, and stabilization standards.
Security / Fire Hazards / Natural Disasters	Supplied Emergency Response Plans for construction and operations phases that address employee roles, training, and communication procedures; unique concerns from PV systems; fire prevention and response, storms and natural disasters; and spills. Will train FREM on PV systems. Will provide a wayfinding system within the facility to aid in FREM response. Providing two 50K gallon water tanks for FREM use. Will install a SCADA system to monitor for potential ground faults. The facility will be fenced.	Installation and grounding will be required to meet Virginia Uniform Statewide Building Code. County consultant notes that PV systems are designed and constructed in accordance with applicable National Electric Code standards. This includes systems incorporating appropriate grounding, bonding, wire sizing, and individual components being UL rated/certified.	Conditions section A & D - Condition 20' wide fire breaks between arrays and property boundary, no storage of power in batteries, 24 hour video surveillance.
Traffic / Rural Roads	Submitted Traffic Mitigation Plan. The applicant would like to be able to use all private access easements for all types of traffic.	During construction there will be increases in employee and truck traffic that will degrade levels of service on local roads. Once construction is complete, traffic volumes will return to normal and levels of service will not be negatively impacted.	Conditions section B - Conditions limit oversize loads during prime school bus traffic hours, limit use of some private access easements to light vehicles only, shuttling requirement for employees, video haul routes and implement repairs related to construction traffic, and creation of a Joint Traffic Mitigation Team to address issues that may arise.
Impact on Brock Rd & Orange Plank Rd Intersection	N/A	The intersection of Brock Road (613) & Orange Plank Road (621) is a four-way stop controlled intersection. The intersection is located within the Wilderness National Military Park. It currently operates at an overall level-of-service F during both the AM and PM peak hours. Average delay in the AM peak hour is fifty-five (55) seconds, while average delay in the PM peak hour is one-hundred and fifty-eight (158) seconds. During construction delay is likely to increase at this intersection given the location of Site A. As a result of low speeds due to the four-way stop condition the intersection has a low crash rate. The intersection has averaged one crash per year for the past six (6) years for the period 2013-2018. All involved property damage, no serious injuries were reported at this location.	Conditions section B as noted above.

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Plank Rd & Orange Plank Rd Intersection	N/A	The intersection of Plank Road (3) & Orange Plank Road is an actuated traffic signal but is not coordinated with other nearby intersections on Plank Road. The signal cycle length varies. Both peak hours operate at a cycle length of approximately 120 seconds. The intersection currently operates at an overall level-of-service C in the AM peak hour, and A in the PM peak hour. Average delay is twenty-five (25) seconds in the AM peak hour and eight (8) seconds in the PM peak hour. The impact of additional traffic from Site A construction would be negligible. Level-of-Service would not change. The intersection has averaged three crashes per year for the past six (6) years for the period 2013-2018. The majority of crashes have been angle accidents. Two were fatalities.	Conditions section B as noted above.
Lack of Fully Engineered Site Plan	Complied with requirements of SUP by providing a Generalized Development Plan (GDP) and provided a conceptual plan of the 1st phase (Zone E in Site A) for E&S review.	A fully engineered plan will be required at the site plan stage if the SUP is approved. A site plan is a fully engineered construction plan that must meet all Code requirements and SUP conditions.	N/A
Lighting / Glare	Applicant does not object to conditions.	N/A	Conditions section A - Limits all lighting to 0.5 footcandles at the property line.
Height Limitations	Applicant does not object to conditions.	N/A	Conditions section A - Inverters and panels limited to 15' above grade.
Hours / Days during Construction	Applicant does not object to conditions, but would like option to work on Sundays.	Staff's conditions allow for Sunday work in order to lessen the construction time period. Working Sundays could be the difference between a 18-24 month construction period and a 21-27 month construction period, and the resulting noise, traffic, and other impacts specific to the construction period.	Conditions section B - All clearing, grading, and construction of the Property shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and between 8:00 a.m. and 6:00 p.m. Saturday (and Sunday - Planning Commission prohibits Sunday work, except to comply with conditions). Pile driving within 500 feet of any residential property boundary shall cease no later than 5:00 p.m. daily and shall be prohibited all day on every Sunday.
Noise	Applicant submitted a noise study that concluded under a worst case scenario of multiple pile drivers operating at a time would result in noise levels of 68 to 80 dBA at the closest residential properties modeled. The modeling did not include ground attenuation or existing or proposed ground cover or berms, which could lower the results by as much as 5 dBA (70dBA = gas lawn mower at approx. 100'; 80 dBA = noisy urban environment). The pile driving impacts are expected to last no more than 4 working days in the immediate vicinity of residences. Applicant does not object to noise conditions.	County code allows for a maximum dBA in residential areas of 65 dBA during the daytime hours (6 am to 10 pm), but the Code does exempt construction noise from these limits.	Conditions section E - Inverters and generators 400' setback from property line. Limits on construction hours and pile driving hours. Planning Commission conditions no construction work on Sundays.

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Number/Trades of Workers During Construction	For Sites A, B, & C, the applicant will employ approximately 800 (local employment focus), including tradesman like electricians, site contractors, landscapers, mechanics, heavy equipment operators, engineers, haulers, construction & waste management to security guards, technicians, and others (\$45 million in immediate employment dollars).	N/A	N/A
Types of Permanent Workers	For Sites A, B, & C the applicant indicates the permanent long term jobs include 1 Office Administrator, 16-18 Operations & Maintenance Technicians (Comprised of Solar Techs I, II, and III), 5-8 Landscape Personnel (Comprised of 2 Supervisors and the remainder Land Maintenance Specialists), and 1 Safety Manager.	N/A	N/A
Fiscal Benefit	Provided fiscal and economic analysis prepared by Magnum Economics for Sites A, B, & C that concludes there will be a one-time rollback payment of approximately \$579,000 and at build out, year 1 M&T tax revenues of \$714,925 and Real Estate taxes of \$101,121. Depreciation will reduce the tax revenues over time. The study shows the depreciation leveling out at 10% value in year 24 with an annual tax revenue of \$79,436 (based on the current real property tax rate).	Confirmed validity of methodology used in the Magnum study with SCC. Confirmed rollback taxes for Site A of approximately \$471,000 (1 time payment) and current Real Estate taxes of \$82,321.	N/A
Economic Benefit / Attracting Business to the County	Provided fiscal and economic analysis prepared by Magnum Economics for Sites A, B, & C which concludes the proposed 650 MWdc (500 MWac) project would provide an estimated one-time pulse of economic activity during its construction phase of approximately 843 full-time-equivalent jobs, \$45.8 million in associated labor income, and \$110.0 million in economic output. The proposed project would provide an estimated annual economic impact during its ongoing operational phase of approximately 34 full-time-equivalent jobs, \$2.5 million in associated labor income, and \$4.7 million in economic output. Additional comments are found in sPower's Concern Response Expert Table.	No separate analysis of the economic impacts has been performed. Staff notes that economic impacts are wider ranging than just to the County. In the CPCN issued by the SCC, they "find that the proposed Project will likely generate direct and indirect economic benefits to Spotsylvania County and the Commonwealth as a result of employment and spending from construction and operation of the proposed Project".	N/A
Liability Insurance	N/A	Insurance provisions conditioned as recommended by County's insurance provider.	Conditions section A - Require liability insurance with County co-insured and requirements for bi-annual review and increases as needed.

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Potential for Increase in Consumer Electric Rates	SCC CPCN allows for only wholesale sale of electricity, not retail. sPower has long term contracts to supply electricity for specific companies. Additional comments are found in sPower's Concern Response Expert Table.	The project (including Sites A, B, & C) requires an Interconnection Service Agreement approved by PJM. PJM requires that each new service customer pay 100% of the costs of local updates and network upgrades necessary to accommodate the new service request.	N/A
Potential for Negative Impact on Electric Grid	PJM and CPCN approval processes require that there be no negative impact on the electric grid.	In the CPCN issued by the SCC found "that construction of the Project will have no adverse effect on reliability of electric service provide by regulated public utilities in Virginia. We recognise, however, that the Joint Applicants will be responsible for all project that PJM concludes are necessary to ensure reliable operation of the transmission system". The CPCN conditions conditions that the Joint Applicants pay for all network upgrade costs PJM assigned to the them in order to ensure no adverse impacts on the network. (overview of PJM - Attachment D)	N/A
Property Value Impacts	Submitted study of the impact of solar farms on neighboring properties by Christian Kaila, MAI, SRA dated 12/28/2018 that concludes "there is no consistent negative impact to adjacent property that is attributed to proximity to an adjacent solar farm". Additional comments are found in sPower's Concern Response Expert Table	The County's Commissioner of Revenue (COR) conducted research among Virginia CORs and found in Louisa County - no decrease in real property values around the Whitehouse solar site, Essex County - no appreciable change in assessed-to-sales ratios (noted it is well screened and it will likely take 3-4 years to see any real impact). For Spotsylvania, review of Fawn Lake's sales data did not show a downward trend in any categories of land sales, improved resales, or new construction sales through 1/15/19.	No specific condition, but setbacks and buffers (including landscaping and berms) will minimizing visual impacts.
Fiscal Impact if Enabled Lots in Fawn Lake are Not Platted and Built On	N/A	The Commissioner of Revenue's office has estimated that the median improved value of each lot would be \$401,200. This value is based on the assumption that the land and improved values would be comparable to other non-lake-front lots in adjacent sections of Fawn Lake. At the current tax rate, the annual real estate tax per lot would be \$3,342. Housing has a cost to County services and that is reflected in the break-even assessed value, which was last calculated in 2017 and at that time it was \$374,000. An updated value has not been calculated because the County's Fiscal and Economic Model is undergoing a recalibration and update. We will be able to re-calculate the break-even value in the next few months. The annual tax revenue associated with the break-even value is \$3,115. Separately, the County collects a \$1,000 proffer for each new home built in this section of Fawn Lake which is used to help pay down debt on the Brock Road water tower.	N/A

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sPower Accountability in the Future	Provided information on corporate structure.	Post Planning Commission, changed 'Applicant' in conditions to 'Operator' on legal advice to encompass any and all involved parties.	Conditions section A and throughout - Conditions are linked to the Applicant and Owner of the property. Decommissioning surety required to be either a cash bond or an irrevocable letter of credit, which are the strongest types of surety most protective of the County.
Impact of PG&E Bankruptcy	There will be no impact. PG&E is reorganizing in bankruptcy not terminating business operations or relinquishing assets or requesting a chapter 7 discharge. Only a small portion of sPower's power supply contracts are with PG&E and PG&E's bankruptcy is not material to sPower's on going operations, including the proposed project in Spotsylvania County. Please note that sPower's lenders and investors are well aware of the PG&E matter and have no concerns with sPower's on going viability, including the Spotsylvania County 500 MW project. The fact sPower has secured long term power supply contracts for all its energy generation, including from Microsoft and Apple, the two largest publicly traded companies in the world, provides lenders and investors great security this project will be viable for the long term.	N/A	N/A
Sufficiency of Decommissioning Plan and Cost Estimate	Decommissioning plan and estimate includes deficiencies identified by County Consultant. Includes credit for recycling value. Applicant feels condition requiring either a cash bond or an irrevocable letter of credit is onerous. Would like to provide a surety bond through a AAA rated company and personal guarantees from their parent company. Additional comments are found in sPower's Concern Response Expert Table.	The County consultant reviewed the decommissioning cost estimates and found that the costs appears to be within the broad range of estimates that they have observed; however 2-3 times below the mean and median values of the observed ranges. Identified missing items from estimate that have been incorporated into the conditions, such as related to de-compaction of soils. In staff's conditions, the minimum surety amount is presented as per disturbed acre since, if approved, conditions such as the setback, may impact the size and the facility. County consultant notes that with a required biannual review of the engineer's estimate and updating of the surety, the County may feel comfortable allowing for a credit for recycling.	Conditions section A - Extensive conditions related to decommissioning plan, execution, cost estimate, and bonding. Decommissioning estimate requirements consistent with County consultant recommendations. The surety is required to be either a cash bond or an irrevocable letter of credit, which are the surety type that are the most protective for the County. No credit is given for recycling.