

sPower - Concern Response Expert Table 3/4/2019 with CCSC response

| Issue | Expert or Authority | sPower Response | CCSC Response |
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| Decommissioning - Salvage Value | <p>Spotsylvania SEF Ordinance (County Code Section 23.4.5.7)</p> <p>.Virginia Senate Bill 1091</p> <p>.DNV-GL*</p> <p>.Department of Energy</p> | <p>.Virginia Senate Bill 1091 - May include the net salvage value of such equipment, facilities, or devices, plus a reasonable allowance for estimated administrative costs related to a default of the owner, lessee, or developer, and an annual inflation factor.</p> <p>.In general, DNV GL finds that the Decommissioning Plan approach used in determining the estimated decommissioning cost appears to have been performed in accordance with typical industry practice, including the estimated salvage values</p> <p>.A Department of Energy study found there is a healthy resale market for PV modules that should be recognized in project level economic calculations. The salvage price is a market reflection of the reliability. Functioning modules will have a revenue value based on life/performance expectations with the additional shipping and handling costs in comparison to other alternative to electric generation costs. From 2005-2012, the winning bids ranged \$0.04 to \$1.26 / watt</p> <p>.Should the salvage value of the PV panels not be allowed for consideration, the panels are EPA approved for local and state landfill disposal and could be disposed of at standard landfill tipping fee rates</p> | <p>Agree with Planning Commission conditions.</p> <p>We estimate the bond value should be \$67M.</p> <p>Recycling credits should not be included per county consultant recommendation and market conditions. “Dewberry recommends that the County require bonding the actual cost of the decommissioning before the recycling amounts are figured in.”</p> <p>There is no recycle value for PV panels - in fact there is a cost of \$42M just to recycle the 1.8M solar panels using data from the recycling companies provided in sPower’s own decommissioning plan.</p> <p>EPRI (industry non-profit) study results calculate at least \$41.5M to decommission a facility of this size but assumed the panels would be dumped in a landfill. Actual cost would be much higher when recycling costs are included. There is no salvage value for the PV panels.</p> <p>SB1091: VACO lobbied on behalf of all VA counties to ensure that counties have the flexibility to decide whether or not to allow salvage value. This language was included in spite of heavy lobbying from the utility solar industry to remove that flexibility from counties like Spotsylvania. PC and staff’s actions are supported by SB1091.</p> <p>Maintain surety of either a cash bond or an irrevocable letter of credit to protect county. SB1091 doesn’t mandate a particular type of surety - county has complete flexibility to protect its interests.</p> <p>SUP condition A.19.b requires solar panels to be recycled.</p> <p>Add criteria addressing the shutdown of a portion of the facility. If a portion of the facility is not operated for 3 months, then decommissioning of that portion should be triggered (see A.19.t). This will ensure the facility is maintained in good working order, and portions are not abandoned.</p> |

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| | | | | <p>Add a requirement for a 15% contingency in the decommissioning cost estimate (A.19.j). sPower's proposed 2% contingency is inadequate. Currituck County requires 15% in their solar ordinance.</p> <p>Dr Fthenakis quote: Sustainability Metrics for Extending Thin Film Photovoltaics to Terawatt levels, April 2012: "Nevertheless, there could be other pathways for uncontrolled releases in extreme situations, and therefore, every effort should be made to collect the modules and recycle the contained metals at the end of their useful lifetimes."</p> |
| | Decommissioning - Surety Bond | <p>Spotsylvania SEF Ordinance (County Code Section 23.4.5.7)</p> <p>.Virginia Senate Bill 1091</p> <p>.DNV-GL</p> <p>.Department of Energy</p> | <p>.Virginia Senate Bill 1091 - "...owner, lessee, or developer provides financial assurance of such performance to the locality in the form of certified funds, cash escrow, bond, letter of credit, or parent guarantee, based upon an estimate of a professional engineer licensed in the Commonwealth..."</p> <p>.In general, DNV GL finds that the Decommissioning Plan approach used in determining the estimated decommissioning cost appears to have been performed in accordance with typical industry practice.</p> <p>.</p> | See response for Decommissioning – salvage value – above. |
| | CdTe Panel - Safety | <p>.County Consultant - Dewberry</p> <p>.Dr. Fthenakis**</p> | <p>.Cadmium telluride (CdTe) is not the same compound as cadmium. CdTe is non-hazardous, non-water soluble, and is encapsulated in the panels. CdTe panels pose no human or environmental health and safety risk. The findings were confirmed by the County's independent engineer, and further confirmed by independent industry experts such as Dr. Fthenakis.</p> <p>.</p> | <p>Agree with Planning Commission prohibiting use of CdTe panels (A.14.)</p> <p>Solar panels that are both less toxic and higher efficiency are readily available. There is no reason to use this type of solar panel.</p> |
| | Impact on Real Estate Values | <p>.Chris Kaila - Professional Appraiser from Spotsylvania</p> <p>.NTS Fawn Lake Property</p> | <p>.Chris Kaila conclusion is there are no negative impacts to surrounding property values. Extensive research and interviews with experts in this area is that there is no support for any negative influence</p> | Disagree -- There will be property value loss as indicated by multiple studies and evidence gathered from homeowners and potential home buyers. It will be highest for those homes closest to the border and could exceed \$21 million. |

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| | | Sales Report from 2018 | <p>from solar farms and neighboring property values</p> <p>.NTS Fawn Lake Property Sales Report from 2018 showed that houses in Fawn Lake stayed on the market 17% less days than 2017, average net sales price rose \$8000 compared to 2017 and the number of houses sold equaled the same as 2017 at 48.</p> | <p>There will be lost tax revenue from homes not build on the Fawn Lake lots being sold to sPower (54-191 lots) and other existing lots neighboring the 3 sites. That loss will be at least \$3.7 million and could easily exceed \$14 million.</p> <p>There will be lost local construction business revenue when these homes are not built. It will be \$17 to \$62 million.</p> <p>NTS property sales report from 2018 is not applicable since the impact of the solar facility is not reflective of prior years' sales. The report ignores testimony from purchasers and potential buyers who have stated that they would not have bought or will not buy if the solar project advances.</p> |
| | Economic Impact | <p>.Virginia State Corporation Commission</p> <p>.Mangum Economics</p> <p>.Fredericksburg Regional Alliance</p> <p>.Virginia Chamber of Commerce</p> <p>.Virginia Department of Mining, Minerals, and Energy</p> | <p>.Project will likely provide direct and indirect economic benefits to the County</p> <p>.Project could aid in attracting high-tech industries to Spotsylvania County - 78% of Dominion's renewable generation is partnerships with data centers</p> <p>.Project could give the County a marketable edge in its pursuit of attracting data centers and complementary industries to locate in the County</p> <p>.An important element to the Commonwealth's economic competitiveness is energy diversity. Put more simply: as corporate and consumer demand for solar energy increases, so must our ability to meet this demand in order to be an attractive state for future economic development and job creation</p> | <p>Disagree with this unsubstantiated wishful thinking.</p> <p>Accomack, Southampton, Mecklenburg, and Currituck (NC) counties - home to very large solar plants (80-120 MW) - have experienced no new business development and no long-term job creation as a result of utility solar plants. No connection between an SEF and additional business activity/relocations.</p> <p>Most of the construction jobs went to out of state solar installation companies.</p> <p>During the operations phase, a medium sized restaurant or small business on one acre would provide more economic impact than this facility.</p> <p>This project is a feeder to, not an attracter of, data centers. Microsoft representative admitted the need for power to sustain data center growth, not of any plan to add a data center to County, or any jobs.</p> <p>Energy diversity is better obtained with less disruption by using distributed rather than centralized renewable solar.</p> <p>The FRA report provided unsubstantiated opinions about this project. The report admitted (page 5): "It is our opinion, based on cursory (emphasis added) research of other solar farms..." sPower's attorney is on FRA's board and sPower is a major contributor to FRA. The report should be disregarded.</p> <p>VA DMME has withdrawn support of project, relegating</p> |

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| | | | | decision to County authority. |
| | Heat Island Effect | <p>.Dr. Fthenakis</p> <p>.County Consultant - Dewberry</p> | <p>.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.</p> <p>.Dewberry notes: "The panels have a low thermal mass compared to conventional building materials and soil. They lose heat very quickly and do not create a prolonged increase in temperature which suggests a micro-climate as an urban heat island would"</p> <p>.</p> | <p>Agree with Planning Commission recommendation for consistent 350 ft. setback for Sites B and C, but a dense vegetative buffer should also be provided around the entire perimeters.</p> <p>A larger setback is likely needed for Site A, but absolutely no analysis of the scale-up to 400 MW has been performed.</p> <p>Only two studies have obtained actual data on temperatures in and around a solar plant. They indicate that the increased temperatures dissipate at 100-130 ft. away from a 1 MW facility, but the distance increases to 1000-1500 ft. away at 80 MW. Neither sPower nor Dewberry addressed the likely impacts at 400 MW.</p> <p>Also, absolutely no research has been done on the impact that 50°F+ higher temperatures under the panels has on the soil or wetlands on the site.</p> |
| | Impact on Electric Ratepayers | <p>.Virginia State Corporation Commission</p> <p>.PJM</p> | <p>."...the proposed Project would be borne solely by the Joint Applicants [sPower], with no direct impact on rates paid by ratepayers in Virginia..."</p> | <p>Disagree -- The SCC is requiring sPower to pay for some unspecified grid upgrades, but they have no provisions for them to pay for ongoing costs associated with the conventional grid having to ramp up and down to accommodate their unreliable intermittent power generation. Costs for new natural gas topper plants, their operation and maintenance will be borne by the electric ratepayers.</p> <p>Regions that have a substantial amount of intermittent solar and wind, always have higher electricity rates. For example, California has about 15% solar power, and 40-60% higher electricity rates than average for the U.S.</p> <p>Implementation of renewables eventually brings higher electric rates with CA being the best example. Dominion Energy's latest Integrated Resource Plan (IRP) filed with the SCC describes the increased costs that they are anticipating with the increase in solar PV in VA (p.81 of IRP).</p> |

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| | Comprehensive Plan Compliance | .Spotsylvania Planning Commission .Planning Staff | .Planning Commission and staff found the projects are in substantial accordance with Comprehensive Plan | Recommend BOS overturn PC's finding of substantially in accord with the Comprehensive Plan. The proposal violates at least 15 provisions of the Comp Plan dealing with preservation of timber land and our agricultural, natural, historic or cultural resources which are all being threatened with this proposal. Also violates provisions requiring preservation of tree buffers, to protect environmental quality, to preserve AG/Forestal lands and to protect AG as the primary use of land in rural areas. Not complementary - it's dominating! Must overturn PC "in accord" finding or BOS would be confirming that a solar facility of any size could be built on any Ag zoned land. The BOS needs to establish limits to maintain control of future zoning decisions. Important step for the credibility of the Comp Plan and for future requests. |
| | Burning | .Spotsylvania FREM .Planning Staff | .Burning allowed using trench burners with a permit and oversight from FREM. .Burning allowed with additional setbacks from houses. | Agree with the Planning Commission recommendation of NO burning. |
| | Water Line | .Spotsylvania Utilities | . Will pay for 50% of the costs to construct an improved waterline within Fawn Lake community (improve fire flow, capacity and pressure; and eliminate need for groundwater) | Agree with Planning Commission recommendations, use only County water with restrictions. No use of well water. sPower wells to be capped. Cost Share Agreement concept is outside the purview of the SUP and unenforceable. |
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* DNV-GL is the largest technical consultancy and supervisory to the global renewable energy (particularly wind, wave, tidal and solar) and oil & gas industry.

** Dr. Fthenakis has written over 400 publications on PV technology, is founding Director of the Center for Life Cycle Analysis at the Department of Earth and Environmental Engineering of Columbia University, and Senior Scientist Emeritus at the Brookhaven National Laboratory.