From: Dave Hammond <davehammond@gmail.com>

Sent: Friday, January 4, 2019 1:59 PM

To: grenewpc@gmail.com; 2012sheriffsmith@gmail.com; berkeleymaddox@gmail.com; spotsysalem@gmail.com; Travis Bullock

Cc: Wanda Parrish; Patrick White; Paulette Mann; Paulette Mann; Trae Taylor

Subject: Re: Setbacks & Buffers - Additional Input on Dewberry Recommendations

This note follows up on the Planning Commission discussion on Wednesday Jan. 2 about setbacks and screening that are needed for the sPower SUP applications. I have two key points:

1) Dewberry has already factored in two major adjustments into their proposed 350 ft setback with dense vegetative screening.
2) Culpeper's Greenwood project is not the example to follow in setting appropriate setbacks and screening for this project.

<u>Dewberry's Recommendation</u>:

Dewberry's recommendation to require a minimum 350 ft setback with a dense vegetative buffer is too little based on the data. As I indicated in my analysis (trailing email), Dewberry should have set the required distance at **700 ft** based on their criteria since they should have set the distance based on the more protective measurement of 200 meters instead of 100 meters (protective conditions need to be conservative). Furthermore, the author of the scientific study referenced clearly stated that increased temperatures dissipated at 1000 ft away. Again, there was a second location 1500 ft away at the same temperature, so the more appropriate distance for a protective condition should have been **1500 ft**. Dr Fthenakis indicated that there was not any vegetative buffer around the 80 MW solar plant, so 1500 ft should be provided around an 80 MW solar power plant if no vegetative buffer is in place.

Dewberry decided to base their recommendation of 350 ft based two major adjustments:

- Adjustment 1 – they doubled the temperature margin from ambient (0.6°C vs. 0.3°C). This change reduced the limiting distance from 1500 ft to 700 ft.

- Adjustment 2 – they added a dense vegetative buffer to help dissipate the elevated temperatures.

The discussion at the Planning Commission meeting included a statement that a common practice is to cut setbacks in half if a substantial screen is provided by the applicant. However, the Dewberry recommendation of 350 ft with a dense vegetative buffer is 25% not 50% of the measured distance of 1500 ft without screening. Half of 1500 ft would result in a **750 ft setback**.

In addition, bigger setbacks should be provided for Site A based on its larger scale. Dewberry should consult a scale-up expert that can estimate the larger distance required for a 5X larger facility, and provide their new recommendation for Site A.

The precedent for siting this type of very large solar power plant thousands of feet (at least 2 miles) away from residential communities has been set by all 10 of the largest existing facilities in the U.S. (See Trae Taylor's chart in my trailing email.) Therefore, the current industry standard setback is over 2 miles when looking at existing solar facilities of this size. The county should not deviate from that precedent without proving otherwise through a scale-up analysis. The county's ordinance for standard setbacks from property lines (50 ft) has no relevance when considering a utility scale power plant of this size.

Culpeper's 150 setback is not a model to follow

The Special Use Permit for the Greenwood solar project (100 MW) was approved in October. The SUP provides a setback of 150 feet between any adjacent structure or residentially zoned property, and a 50 ft setback from all other property lines and/or public right-of-way.

Culpeper's Utility Scale Solar Facility Policy (adopted in April 2018) states that "a minimum setback of 150 ft shall be maintained from any above ground equipment to the nearest property line" (sample SUP in Exhibit A). Therefore, the Greenwood Solar project is not consistent with the setback guidance in the county's own recently adopted solar policy.

The required setback and screening was a contentious issue, with some of the Supervisors wanting a 500 ft setback with berms and screening. The project was narrowly approved by a 3-2 vote by the BoS, with two of the Supervisors not voting due to conflicts of interest. (The BoS chairman is one of the landowners that is leasing property to the solar developer.) Note that the Culpeper Planning Commission recommended denial of the SUP, citing conflicts with the county's Comprehensive Plan.

We understand that there are 10 homesites (10-15 acre parcels) that are impacted by the Greenwood Solar project. Those landowners are now suing Culpeper County for wrongfully approving the project.

Is this the type of situation that you want to occur in Spotsylvania County?

Please contact me if you have any questions,

Dave Hammond

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On Wed, Jan 2, 2019 at 5:03 AM Dave Hammond <davehammond@gmail.com> wrote:

> Planning Commissioners --
>
> I prepared some additional detailed documentation on establishing the necessary setbacks and buffers to mitigate the negative impacts of such large scale industrial solar power facilities. This builds on the presentation that I made at the Dec. 19 public hearing for sPower Site B.
>
> Hammond - Mitigation of Temperature Impacts on Nearby Properties 2Jan2019

The other presentation that is pertinent about providing very large setbacks for large scale industrial solar power facilities (top 10 in U.S.) was presented to you by Trae Taylor on Dec. 5:

Proximity to Very Large Scale Solar Power Plants - Trae Taylor 5Dec2018

Please let me know if you have any questions.

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