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Memorandum

Date: October 15, 2015

To: The Vermont Solar Siting Evaluation Committee

Re: Issues and Recommendations for Solar Siting

Thank you for the opportunity to pass along some thoughts about solar siting and design. I have been evaluating aesthetic impacts since the 1970's (see my resume attached). In recent years I have served as an independent aesthetics expert for the Department of Public Service, though this letter expresses my own opinions and not those of the Department. To date, I have reviewed at least 35 solar projects for the Department most of them 2.2 MW in size. I have also studied other smaller projects for work I prepared for the Vermont Housing Conservation Board. Most of these solar projects have been well-sited, but an unfortunate few were, in my opinion, poorly sited. Given the speed at which applications are coming in, there is a significant potential for cumulative impacts without planning and reasonable guidance.

In reviewing projects, I have not felt the "Quechee Analysis" afforded me the tools to find that poorly sited projects had an "undue adverse impacts on aesthetics." The "clear written community standard" and "offensive to the average person" tests are high bars, and can be difficult to reach. Take for example, a project located on an open meadow that serves as a scenic foreground to views of distant mountains: most likely it is one of many lovely meadows in town and is not singled out in the Town Plan. "Offensiveness" is hard to measure, and regulators are reluctant to rely solely on this test. "Reasonable mitigation" measures tend to be limited to adding shrub plantings or a less industrial looking fence. State policy and guidance would be a valuable tool.

Vermont has worked hard to encourage development that respects our scenic landscape. Witness, for example the work of Terry Boyle (Office of Terrance Boyle), who developed guidelines for building power lines that have helped to keep this infrastructure's impacts at a minimum compared with other states. State guidelines for development at interstate interchanges have helped defeat some of the worst proposals. Rather than relying solely on a

piecemeal approach, a one-project-at-a-time review, we need sensible guidelines for siting solar projects that encourage developers to select less visually sensitive sites. It is wonderful to see solar power taking off. Now is the time to nudge it in a direction that balances renewable energy development with the protection of valued resources.

General Observations

Before recommending siting criteria, I'd like to mention a few other considerations and concerns:

- As noted above, landscaping too often is the only tool serving as “reasonable mitigation,” and this leads to a number of problems. Often the solution is a large number of shrubs immediately around the project fence. Plants must be limited in height so as not to block sun. One of the few smaller evergreen species, white cedar (*arborvitae*), tends to be eaten by deer leaving ungainly dead branches up to deer head height. Also, these are sites where watering is usually impossible and on-going maintenance is limited. Farmers cannot mow in the planted area so grasses grow up competing with the vigor of the newly planted shrubs. Inevitably some plants die and others struggle. If livestock grazing is permitted, the plantings themselves must be fenced off in order to prevent browsing. The effect can be far from aesthetically pleasing. Additionally, ANR recommends that large meadows open for ground nesting birds like bobolinks and killdeer, and justifiably discourages planting in these areas.
- Developers often control only a small leased area immediately just large enough for the project itself. Plantings may be more logically placed “off-site” plantings, such as along a roadside or supplementing an existing hedgerow, but these are areas “not in the developer’s control.” Appropriate approaches for landscape screening need to be identified. Developers must retain control over a sufficient area so that landscape screening can be adequately provided for. If insufficient land area is available for landscaping, the project may need to be reduced in size. Guidelines should be established for on-going maintenance and for replacement of dead and dying trees over the life of the project. Compliance with proposed landscape plans is another issue, and I would recommend a post construction assessment of compliance (1-3 years following installation) by the petitioner’s landscape architect with a report submitted to the PSB.
- I have found that the visual impacts of associated project infrastructure is too often ignored and not clearly identified on plans or described in documents. This includes the interconnections between the distribution lines and the project. Solar projects may require up to three new power poles or, alternatively, a large transformer unit. These are generally located right next to the road. Often these are poorly planned and executed with equipment slapped up on plywood and without screening. The new

poles are more massive and cluttered than typical roadside distribution poles. In some cases new distribution lines are needed to serve a project site. In addition, inverter structures are large metal boxes that are often taller than the surrounding panels. Unless specified, they are usually white, one of the most visually noticeable colors in the landscape. Better planning and guidelines are needed for this equipment, including the use of appropriate colors (dark gray) and for screening.

- Towns should be aware that the Department and the Board find comments and participation from Town officials to be highly valuable. The participation does not need to involve legal counsel, but a statement of concerns, suggested mitigation (if relevant), and recommended actions provided by a local planning commission or selectboard will be taken seriously. It may be helpful to provide towns with guidance on how to participate and what kinds of comments they can make. It would be also helpful to provide sample language that Towns can include in a Town Plan to ensure that solar projects are appropriately sited and reasonably mitigated.
- At the present time the Department of Public Service focuses primarily on larger solar projects (1MW+), due in part to limited staffing. However, numerous projects between 150 and 500kw are being proposed with little oversight. The cumulative impacts of these projects are becoming noticeable. Guidelines need to include these smaller projects.

Recommended Siting Guidelines

My recommendations are in two parts: 1) siting (location) guidelines, and 2) design guidelines.

1) Siting (Locational) Guidelines

Siting guidelines should encourage developers to select less visually sensitive site. Below is a list of site characteristics that are “desirable” and “undesirable” from the point of view of a visual sensitivity. Encouragement could be given to developers who select “desirable” sites, perhaps by fast-tracking projects. By contrast, developers selecting “undesirable” sites would need to justify the need for selecting a visually or environmentally sensitive location.¹

¹ Every site has unique attributes, and there are likely to be situations in which a project site with “undesirable” characteristics is nevertheless suitable; or the reverse. For example, although the use of open farmland should generally be discouraged, there are likely to be situations where farmland makes sense for a solar project, e.g the power will be used directly by the agricultural operation itself: the field is not of good quality and has been left fallow for a number of years; the field is well screened from view from public vantage points; or attributes of the site or surroundings reduce the scenic quality of the open field.