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To: Vermont Solar Siting Task Force

Date: 9.16.15

Company:

No. of Attachments: 1

Address:

From: David Raphael, Landscape Architect and Planner

Re: Guidelines for Siting Solar Energy Projects in Vermont

reply requested

in response to your request

attachment/enclosure

review/comment

for your information

see remarks below

Comments/Remarks

Please find attached for your consideration a draft copy of a document entitled "Aesthetic and Land Use Guidelines for Siting Ground Mounted Solar Energy Projects". These guidelines have been prepared with the input and guidance of the Department of Public Service. The intent is to reflect the current process for aesthetics review under Section 248 with the added benefit of current thinking and practice in the siting of renewable energy projects.

I hope this will inform and assist the Task Force in its efforts.

Copies to:



Aesthetic and Land Use Guidelines for Siting Ground-Mounted Solar Projects

These guidelines are primarily intended to provide a framework for communities and neighbors in reviewing proposals for large-scale solar energy arrays (150 kW or greater) as well as for developers planning for these types of projects. The guidelines are applicable to smaller projects as well. The purpose of these guidelines is to better anticipate and address aesthetic and land use issues and opportunities associated with planning and constructing larger-scale solar arrays that are interconnected with the electrical grid. The guidelines also may serve as a checklist for local review and citizen input.

Project Chronology for addressing aesthetics when developing a solar project:

1. Pre-application – site feasibility, site selection and outreach
2. Site planning and project layout for 45-day Notice
3. Application for a Certificate of Public Good to include:
 - A) Quechee Analysis under Section 248
 - B) Mitigation measures proposed
 - C) Addressing Orderly Development under Section 248

1. Pre-application - site feasibility and selection - “Location, Location, Location” - The first step in developing a solar project.

Questions and considerations.

The most important step in developing a solar project relative to aesthetics and land use considerations is site selection. Reviewing the potential site(s) in the context of certain criteria, and with an understanding of local concerns and potential effects on neighboring properties helps to facilitate the project review and approval process. Some of the key considerations include:

- What does the zoning and land use plan set forth? Has the community identified this site as being one where energy generation/solar panels are desired/permitted? Or is it a site that might create off-site impacts to neighbors and/or scenic landscapes?
- Context and setting for the project – is it adjacent to compatible uses and does it fit within the proposed project area and adjacent land uses? Is there three-phase power accessible within a reasonable distance?
- What standards exist on a local basis to guide solar project siting and conditions for approval? This is a critical consideration, as a successful solar project should meet applicable local criteria to the greatest extent possible. The Addison County Regional Planning Commission has drafted “Aesthetic and Decommissioning Guidelines Regarding Commercial Solar Projects for Inclusion in Municipal Plans” (acrpc.org) which provides guidance for local municipalities as to how to address solar siting and development within their land use ordinances. Solar energy facilities, as a land use, should not be

excluded from any municipality; rather communities can and should, where desirable, exercise their right to provide recommended areas and districts for such facilities. A model for this is in the way some local ordinances have delineated locations or districts where telecommunication facilities are permitted, and where they are not.

- Are there conserved lands, open space scenic features that may be affected? This step includes the need to understand and address any relevant “Community Standards” (as part of the Quechee Analysis to be applied in a subsequent step). A community standard has been defined in case law as clear language (as distinct from more general statements) intended to protect scenic beauty or community character adopted in a town plan that specifically identifies geographic areas or physical resources that the community wished to protect. (i.e. named summits, water bodies, conserved lands or parks)
- Test against desirable/undesirable conditions
- Is the site a greenfield? Is it an actively used agricultural site with agricultural soils? Is any site restoration warranted? Identifying any potential compatible uses may be a plus for the project (i.e. is it next to or part of an industrial or commercial complex, or is there possibility of allowing grazing on the site?)
- Are there agricultural soil qualities and environmental/natural resource characteristics and constraints that must be identified or satisfied?

Discussion Points:

- Work with towns and individuals to review proposed site(s) in advance. Most Development Review Boards or Zoning Boards/Planning Commissions have provisions for pre-application meetings. These can be very helpful and constructive.
- Consider how a project fits within the existing and proposed development patterns of the project area and community to assess whether the project constitutes “Orderly Development” as defined in Section 248, Title 30V.S.A.
- Developers should consider outreach with neighbors and abutters to introduce the project and to gauge local concerns, if any. This will also allow an opportunity to make refinements or changes to the proposed development plan so as to ensure the project will be more amenable to the local stakeholders and residents; and it allows for their input at an early stage.
- Good Neighbor Policies. The notion of a “Good Neighbor Policy” has been forwarded as a consideration for vetting projects. This implies that the project site and proposed development characteristics does not create more impacts off-site than on-site. It also implies that the applicant/developer/property owner has taken into consideration off-site project visibility and physical change to ensure such visibility and physical change is acceptable and does not diminish the landscape qualities or property values that neighbors have a reasonable expectation will not be diminished.

It is also important to note that state and regional departments/agencies, organizations and aesthetic/land use experts can provide assistance in the pre-

application phase in addressing any potential conflicts or related siting and permitting issues – and to help review sites that may or may not be suitable for the project siting. Also note that these same state and regional departments/agencies, organizations and experts have/can/should provide assistance to municipalities to plan for protecting critical resources, and in establishing siting parameters, scenic resource identification, “standards” that must be observed or incorporated, and, most importantly the identification of suitable locations – perhaps beginning with a matrix that sets forth siting factors and assessment considerations.

2. The Elements or “Ingredients” of a Well- Sited Project

While each site poses both opportunities and constraints relative to the development of solar arrays, the following general characteristics provide some basic ingredients for appropriate (and permit-worthy) solar project.

Some Recommended Basic Ingredients:

- Projects are well sited when they are located at a reasonable distance for access to the grid in a cost-effective manner that does not require extensive additional transmission or collector line infrastructure.
- Projects are ideally sited on topography that is well suited for maximum insolation (solar gain) and amenable for the installation of solar panels in an orderly and/or symmetrical pattern. Such topography is typically level or gently sloping to the south, and not highly irregular in contour or comprised of several different orientations.
- Industrial, brownfield and areas already developed may be better suited to accommodate solar projects than residential or rural sites. However, residential and rural sites may also be amenable under certain circumstances that include:
 - 1) Adequate screening from neighboring properties coupled with and sufficient setbacks. (The Vermont State Legislature recently set forth in Act 56, Section 26A requirements for setbacks and screening based on specific project locations and scale.)
 - 2) A site that has natural screening and separation from adjacent land uses and properties resulting in minimal to no off-site visibility.
- The proposed site is not a high-value agricultural or natural resource area, or if so, access and use of those resources is maintained to the greatest extent possible.
- There is community and neighborhood agreement that the site is amenable.

Case study:

The Town of Shelburne developed a “Built Environment – Landscapes & Views Maps” that constitutes a “clearly written community standard” under the provisions of Quechee and is intended for use by developers – including those

developing energy generation and transmission projects. (Contact Dean Pierce at dpierce@shelburnevt.org)

3. Site Planning and Project Layout for 45-day Notice

Array Layout/Site Design:

A number of factors are to be identified at this stage and as basis for pursuing and acceptable site and project design. These factors include:

- Type of Structure to be used – fixed vs. tracker? Pole mounted or ground mounted, or is the project roof mounted –
- Height and scale of the individual panels and structures
- Extent of project footprint
- Layout pattern and what is the extent of symmetry vs. irregularity in the layout?
- Does geography/topography affect the array layout and visual qualities?
- Have sufficient or required setbacks been incorporated? Is there sufficient room for fencing and landscape or visual buffers if needed?
- An initial visibility analysis recommended at this stage.
- Location and configuration within overall site – can the project be sited in a manner that reduces visibility and aesthetic impacts to adjacent properties and sites within the project site?
- If roof mounted, how does the array affect architecture and design qualities of the host structure and its environs?

3. Preparing the Application for a Certificate of Public Good.

The process includes preparing information and analyses that supports the review by all parties to the application.

Visual Qualities and the First Step of the Quechee Analysis.

- A viewshed map is prepared help to identify potential visibility (if not already prepared in Step 2).
- The applicant should prepare and the regulatory body and parties should be able to review the applicable aesthetic assessment principles:
 - Project characteristics as per the First Step of The Quechee Analysis which asks the applicant to identify massing, color, scale, etc., as well as impacts on open space.
 - Landscape character and conditions or affected architectural elements/building structures
 - Identification of sensitive resources
 - Visibility and views from sensitive resources -contrast, dominance, visual presence and absorption
 - Based on public vantage points and primary viewer locations and view factors (i.e. distance, duration, number of potential viewers, etc.)
 - Overall visual effect/change conclusions – does the project harmonize with its surroundings or fit acceptably in the project area? If the project characteristics are such that it does result in noticeable change that affects

or changes positive aesthetic and visual conditions, then the project may be determined to have an adverse impact. The 2nd step of the analysis must then be taken to determine whether that effect, that impact, is unacceptable.

Discuss and address related project elements in this phase of the analysis

The following additional elements should be incorporated into and addressed by the analysis:

- Roads: Access, landscape impacts, efficiency of layout and location
- Undergrounding electricity as a desirable option
- Electrical infrastructure/connections and their visual effects
- Fencing/structures to be part of the project - to house inverters/maintenance, etc.
- Project signage or interpretation

Second Step of the Quechee Analysis.

The second step of the Quechee Analysis considers whether or not a project will have an *undue* adverse impact. This step needs to be addressed if the project is determined to have an adverse impact on the aesthetics of the project area...and this determination would be arrived at as a result of the findings of the first step. Three questions must be satisfactorily addressed at this stage of the review for the project to be acceptable with regard to aesthetic impacts, and they include:

1. Is the project shocking or offensive to the average person?
2. Does the project violate any “clearly written community standards”?
3. Has the applicant employed reasonable measures to mitigate the potential impacts of the project?

1. Is the project shocking or offensive to the average person?

This may be considered to be a highly subjective consideration, but if it appears as though the project is truly objectionable when viewed or experienced by individuals with no interest or stake in the project, then it might be considered shocking or offensive.

2. Does the project violate any “clearly written community standards”?

The second step asks if the Project is not consistent with any “clearly written community standard” designed to protect aesthetics, land use (conservation) and scenic values. This issue should be addressed early on in the site planning process as suggested in the site selection section of these guidelines.

3. Has the applicant employed reasonable measures to mitigate the potential impacts of the project?

Mitigation Measures.

Mitigation is an important consideration with or without having to satisfactorily address the Quechee Analysis. Reasonable mitigation measures should always be

employed to reduce environmental and visual impacts. Some mitigation considerations include:

- Buffers, screening, vegetation and landscaping
- Local benefits and educational/interpretive values
- Siting revisions/future development or decommissioning
- Multiple benefits and/or uses for the site

Case Studies: Two early large scale (1 MW or greater) solar projects, were developed along Route 7, the Ferrisburgh Solar Farm (1MW) and in South Burlington, the South Burlington Solar Farm on Dubois Circle (2.2 MW), demonstrate some of the principles of effective siting, neighborhood/local outreach, and project planning to address or mitigate any off-site impacts. *(further narrative and links here)*