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Mr. J. Theodore Fink, AICP
Greenplan
302 Pells Rd.
Rhinebeck, NY 12572

RE: SEQRA
Review of Visual Resources & Aesthetics
CPV Valley Energy Center
Town of Wawayanda
Orange County, New York

Dear Mr. Fink:

My office has conducted a review of Chapter 5 Visual Resources and Aesthetics of the PDEIS for the project known as the CPV Valley Energy Center. This review focused on issues of completeness for the purposes of commencing public review.

Summary

Chapter 5 cannot be considered complete for the purposes of commencing public review. There are items required in the Scoping Document that are missing. Further, there are serious issues regarding the methods used to produce the materials found in the PDEIS, which impact the reliability of these materials to be used as evidence that demonstrate the project's impact on visual resources. This letter concludes with other issues that deal with the text and the selection of viewpoints analyzed. The following details these findings.

Scope deficiencies

The Scoping Document requires that all photographs must be taken with a full-frame digital camera. According to the PDEIS, the camera used is a "digital SLR camera set to a 50 millimeter (mm) equivalent focal length." This suggests that the camera is not a full-frame camera, as one would not use the expression "equivalent" to describe the focal length of the lens used for a full-frame digital camera.

The Scoping Document requires night-time photographs and night-time visual simulations. The night-time simulations found in the PDEIS appear to be daytime photographs that have been darkened using image processing software like Photoshop. The night-time visuals found in the PDEIS are artists' interpretations of how the action may appear and cannot be considered photo simulations.

The Scoping Document requires that "Most photographs will be taken when there are clear atmospheric conditions during daylight hours, in 'leaf-off' condition with no snow on the ground. 'Leaf-on' condition photographs can be used to augment leaf-off photographs if such photographs more fully disclose the Project's impacts

on visual resources." Most photographs in the PDEIS were taken during leaf-on conditions and some were taken on a rainy day. It does not appear that any of the leaf-on photographs would more fully disclose a project's impact on visual resources. Further, all the leaf-off photographs have terrible resolution, as if they were prepared to be viewed over the Internet. Such quality materials cannot be considered acceptable for this document not only in terms of quality, but also because they have probably been altered from the original image produced by the camera, and because it makes quality photosimulation practically impossible.

The Scoping Document states, "To illustrate the strobe effect of the stack lighting, a short animation will be prepared from one of the viewpoints used for nighttime photographic simulation that demonstrates the intensity and strobe interval of the project's proposed lighting." In place of this, the applicant has provided videos of a night-time scene of another power plant from another area. Besides the fact that these animations do not describe the action as proposed, the setting of these videos appears to be an urban area with many vehicles and buildings, which lessen the impact of the stack lighting, as the lights seen are a part of a landscape with many lights. A short animation showing the action as proposed, in context, is what is required by the Scoping Document, and the videos provided cannot be considered an acceptable replacement.

The Scoping Document states that "The discussion of the alternatives will be at a level of detail sufficient to permit a comparative assessment of the environmental impacts of each alternative, particularly as they regard air quality, visual, traffic, sound, and fiscal." The alternatives section does not have the sufficient level of detail to make a meaningful comparative assessment regarding impacts on visual resources.

The Scoping Document states that "Day-time and night-time photographic simulations of the Project will be prepared from representative viewpoints, selected as part of the field investigation . . . and in consultation with the Lead Agency." This text was included as recognition that the Lead Agency, which is most familiar with the town and important visual resources of local concern, must play an active role in selecting viewpoints that will be analyzed. There is no evidence or documentation that the Lead Agency had any input in the viewpoints analyzed. There is evidence that they had no input, however, as all the photographs were taken before this requirement was added to the Scoping Document.

Methodological issues

Viewshed mapping
The viewshed map that appears in the PDEIS uses USGS elevation data and land cover data from National Land Cover Dataset (NLCD) of 2001, which was then edited to reflect current conditions using aerial photographs. The fact that the forested area dataset used in the viewshed mapping does not correspond to the USGS quad "forested areas" on the map creates confusion when viewing this map

because there are clearly open areas directly to the south and east of the site, for example, which are shown to not have visibility when they clearly should. But the vegetative data set used for the viewshed mapping is different than what is shown on the USGS map and these areas are probably considered forested in the viewshed mapping.

The assumptions used to create the viewshed map include one cannot see out of forested areas and that forested areas create an opaque barrier 36 feet tall. These assumptions are likely too aggressive for SEQR purposes and do not represent reasonable worst case assumptions, as the action can be seen through leaf-off trees at several viewpoints. For example, Viewpoint 9 is shown at the edge of visibility on the viewshed map, but is taken from a parking lot abutting an open field, which are areas that should not have visibility according to the viewshed map. There is nothing shown in the photographs that would block line of sight to the action from these areas in the foreground of Viewpoint 9 and the action should be visible through the trees.

As this is a map that is created for SEQR purposes and for decision-making regarding viewpoint selection, the viewshed map needs to be conservative and represent a reasonable worst case. Consequently, this map cannot be considered acceptable for completion purposes. The applicant needs to make sure that all the areas that have actual visibility to the site are shown that way, even it if means showing other areas that do not have visibility, as having visibility. The difficulty of doing this with the vegetation data sets used is acknowledged, however, and two possible ways forward are suggested:

The applicant can produce another map showing visibility to the project site just using topographic data. This map will be by definition a worst case scenario, showing visibility to the project site should all trees be removed. This map could be used in conjunction with the existing visibility map (corrected for the issue noted on Viewpoint 9) for the required decision-making purposes, showing a worst case and a possible case with existing vegetation. This is probably the simplest way forward.

Another way forward would be to define a less aggressive set of assumptions (e.g. people at the edge of a forested area can see out of the forested area, a forested area must be $100\pm$ feet deep to be considered opaque, etc.) and show the edited forested dataset used in the viewshed mapping so it can be evaluated for accuracy. Currently, all that is known about this data set is that the 2001 NLCD data set has been edited using aerial photography to reflect current conditions. It is not documented how this data set was modified, what assumptions were used in the modification of that data set, or what the end results of this modification were. The Scoping Document should allow either way forward, but if the applicant wants to do this latter method, these less aggressive assumptions should be discussed before any work is completed.

Photosimulations

The issues already identified with viewpoint selection, camera, image quality, and seasonal condition are serious enough to require that all viewpoints be reselected, photographs be retaken and all photosimulations be redone. Nevertheless, these issues which have already been defined are perhaps not the most serious problem with the photosimulations.

The photosimulations rely upon a GPS unit to record the location of the camera used to take the photo, a compass which shows the camera's direction and a survey stake, which is seen in the foreground of every photograph, the precise use of which is unclear in the documentation.

Photosimulations used for SEQR purposes rely upon what are known as references for accuracy. References are objects in a photograph that are also built into the 3D model of the action that can be used to ensure that the 3D model representing the action is correctly matched to the photograph. References can be existing objects like fences, utility poles, or buildings. They can also be introduced objects, like ladders for low references, or weather balloons for high references[1]. References are used to relate the image captured by the photograph back to the 3D model of the action. Even though the simulations use a high resolution GPS (the GeoXT unit) and a compass, without references[2] there is no way to ensure that these photosimulations accurately depict the action as it would appear. Each simulation should have at least three references (if they are geo-referenced with the GeoXT unit or other highly accurate GPS) or five if they use a consumer level GPS unit.

The reason that references are required is that matching a photograph to a 3D model of an action is complex. A photograph not only has a X,Y, and Z coordinate, but it also has a pitch, roll, and yaw combined with the lens used creates a seven dimensional problem that needs to be matched back to the 3D model of the action. References that exist in both the photograph and the 3D model of the action are the only proven way to ensure that the simulations are accurate to an acceptable degree. The simulations shown in the PDEIS *may* be accurate, but there is no way to be sure that they are. When the simulations are redone, they should be redone using references, at least one of which should be a high reference.

There is still an element of artistry in photosimulations, however. This artistry occurs when existing vegetation to remain partially blocks views to the action. The filtering of the action through existing vegetation often involves some level of professional judgment and artistry. This judgment must be made, however, using high resolution images. The low resolution images used for Viewpoints 9 through 13 are unacceptable for many reasons, including they do not provide enough

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[1] A crane is much better, but much less common option for high references.
[2] The survey rods may be used as references (it is unclear in the documentation), but there is only one of them in each photograph, and they are in the foreground, which is considered a low quality reference in any kind of long distance view.

information for an operator to filter the action through the existing trees and make a quality photosimulation.

Other comments

Rendering the action
The action is not rendered in Viewpoints 1, 2, and 9, when the action should be partially visible through trees. It should be rendered so that it can be seen.

Selection of viewpoints
The utility of Viewpoints 3, 4, 7, 8 and 11 are minimal, if, indeed, there is no visibility to the action as is claimed in the text. It is not necessary to simulate photographs which do not have visibility to the action. To better disclose the impacts of the action, other viewpoints that do have visibility should be analyzed.

Viewpoint 7 also uses two different photographs for existing conditions and proposed conditions. The photographs need to be the same.

Viewpoints 5 and 6 are taken on a rainy day with poor visibility. Such conditions are not acceptable.

There are no viewpoints taken from the area labeled as "critical environmental areas" in Figure 3.8. It is my understanding that these areas are important, in part, for their visual quality.

Issues with text
The text of Chapter 5 needs to be supported with evidence from the photosimulations and the viewshed mapping, and since these materials need to be redone, my comments on this section will be brief, as I expect this text will change to reflect the results of the new evidence. Nevertheless, limited comments regarding text are as follows:

Regarding Viewpoint 5 the statement "Views of the Facility from this location during leaf-off conditions would be similar to the leaf-on conditions" is incorrect as there will be much more visibility to the project without the corn in the field, which can expected to be harvested in leaf off conditions.

An action's visual impact on a landscape is normally evaluated using the assessment criteria of form, line, spatial dominance, color and texture. Most often, the significance of an action's impact on existing landscape character is defined in terms of how different it is from the current landscape character as described by these five criteria. The assessment of impacts found in the PDEIS does not use these criteria. Instead, the assessments of impacts focuses on visibility (e.g. how much of the action be seen) and if the action would become the focal point of a particular viewpoint. The applicant is advised that this is not how impacts on landscapes are typically evaluated. The criteria mentioned above are defined in the

Bureau of Land Management Visual Resource Assessment Manual[3], which can provide definitions and examples.

Finally the text states, "Although the viewshed map can serve as a stand alone visual impact assessment, CPV Valley used the viewshed map as a precursor to a more sophisticated visual assessment, using photosimulations." The first part of this sentence is not true. A viewshed map is not, nor has ever been, an acceptable visual impact assessment in New York State because it is not a visual impact assessment. It is *evidence* that is used as part of a visual impact assessment. Before computer simulation became widespread, it was a very important piece of evidence, but now is considered, by most, to be a much less important piece of the assessment, and more of a tool to help guide further analysis. Further, for CPV Valley, the requirements for the visual resource assessment are defined in the Scoping Document, which clearly requires photosimulations. To suggest, as this sentence does, that the photosimulations are an extra feature added by CPV Valley to more fully disclose impacts, appears to be disingenuous.

Close
Very little of Chapter 5 can be salvaged. The viewshed map needs to be redone. The viewpoints need to be reselected. All photography and photosimulations need to be redone. Since these elements are the basis for the text of this chapter, all of the text should be expected to be rewritten and should be rewritten to include discussions of impacts using landscape assessment criteria.

Should you or the Applicant have any questions please contact my office at 646-652-6498, or me directly at 917-612-7478.

Sincerely,

George M. Janes, AICP
Principal

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[3] This manual was written before computer simulations were possible. The techniques of simulation are out-of-date, but the evaluation criteria are still used. It can be found on-line here: http://www.blm.gov/nstc/VRM/8431.html .