July 6, 2018

Hon. Kathleen H. Burgess
Secretary to the Commission
New York State Public Service Commission
Agency Building 3
Albany, NY 12223-1350
secretary@dps.ny.gov

Gabriel Wapner
Hecate Energy, LLC
Attention: Mohawk Solar
621 Randolph St.
Chicago, Illinois 60661
contact@greenecountysolaninfo

Re: Case Number 17-F-0619 – Application of Hecate Energy Greene 1 LLC, Hecate Energy Greene 2 LLC, and Hecate Energy Greene 3 LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 of the Public Service Law for Construction of a Solar Generating Facility located in the Town of Coxsackie, Greene County

Subj: Comments to Hecate Energy Preliminary Scoping Statement

Dear Hon. Burgess and Mr. Wapner:

Attached please find PSS comments from Saving Greene.

Respectfully,

Kim Rose

Saving Greene: Citizens for Sensible Solar

Cc: Kim Garrision
Grant & Lyons

Preliminary Scoping Statement for the Greene County Solar Facility: Comments by Saving Greene

The following document lists comments from Saving Greene members on the Preliminary Scoping Statement for the Greene County Solar Facility proposed for Greene County, New York, Case Number: 17-F-0619. Comments are organized by document section, with some section overlap incorporated.

Saving Greene: Citizens for Sensible Solar is a Coxsackie-based advocacy group promoting the responsible siting of large-scale solar facilities. We actively support and encourage the building of solar facility on land with few or no other primary uses, such as capped landfills, decommissioned power plants, and contaminated waste sites. While we recognize that the cost of building these projects may initially be higher than building on active farmland, we believe that the long-term results of such siting will benefit the state as a whole by preserving agricultural and scenic land for other purposes. To provide context, this document also includes a brief description of Coxsackie.

Background

The applicants have described the Town of Coxsackie in terms of land use and some of the recreational activities enjoyed by residents and visitors. To provide a fuller context for our remarks about the town's historic character, appearance, and natural resources, a brief background of Coxsackie is provided here.

Coxsackie was settled by the Mohican people, an Algonquin tribe inhabiting the upper Hudson River Valley. It was primarily the Mohicans who mined high-quality flint from hundreds of pits and several mines in the Coxsackie area. Artifacts are scattered throughout the area, particularly in the vicinity of Flint Mine Hill. The word "Coxsackie" derives from an Algonquian term to which several means have been attributed, the most common being "place of owls" and "owl's hoot." Pre-contact areas of the town were known even then for their open flats where owls hunted and migrating geese landed (Greene County Historical Society).

The first European settlers of what is now the Town of Coxsackie arrived over 350 years ago. Pieter Bronck purchased land from the Katskill Indians and built a farmstead in what is now West Coxsackie; the original farmstead house remains one of the oldest houses in

upstate New York. The farmstead is now a museum and is included on a tour of U.S. National Historic Landmark structures (Ibid).

Coxsackie formed a town government in 1772 and formally became a town in 1788. The town includes the following historic sites listed on the National Register of Historic Places:

- Bronck Farm 13-Sided Barn
- Pieter Bronck House
- Bronk-Silvester House
- Flint Mine Hill Archeological District
- Peter Houghtaling Farm and Lime Kiln
- Reed Street Historic District

Coxsackie gradually developed from a farming community into a thriving town featuring these and other tourist destinations; in recent years it has become a popular wedding venue. Today agriculture remains an essential component of community life both due to the excellent soil found in flat areas of the town, and the beautiful farmland views are enjoyed by tourists and locals alike.

Owls remain an important part of the town: the Village of Coxsackie's symbol is the owl, and during the summer owl statues painted by local artists are displayed throughout the town before being auctioned for charity in the fall (hootoftheowl.org). Coxsackie remains a place of owls, from the diminutive Eastern screech owl (Megascops asio) inhabiting local woodlands and the magnificent snowy owl (Bubo scaniacus), which has been seen increasingly often during winter migrations, to the short-eared owl (Asio flammeus), which winters in the open grasslands and fields of eastern Greene County (sources include Cornell Lab of Ornithology, *Where to Find Birds in New York State: The Top 500 Sites,* Susan Drennan, pages 322-326).

This historical context is important in understanding the nature of Coxsackie and the many ways in which adding eight large-scale solar facilities affects the character of this community. The two largest of these facilities are the 1,800-acre, 100 megawatt Flint Mine Solar project and Hecate Greene's 933-acre, 50 megawatt Greene County Solar Facility, both being sited under Article 10. At least 175 megawatts of solar production is proposed for the Town of Coxsackie alone. To the best of our knowledge, this is the highest density of solar development in a residential upstate New York community to date. We are understandably concerned with the effects of such vast development on our existing landscape and quality of life, as well as residential and business property values and the net worth of residents.

Hecate Greene proposes to build its major electric generating facility on some of Greene County's most productive farmland (USDA Web Soil Survey), amid concentrated habitat areas of the endangered short-eared owl and threatened Northern Harrier hawk (New York State Department of Environmental Conservation [NYSDEC]). Many members of the community feel that such extensive solar development seriously degrades the town's historic and agricultural identity and changes the very nature of the Coxsackie area for the foreseeable future; thus far over 1,000 people have signed a petition opposing siting of the Greene County Solar Facility. Our local and regional elected officials have unanimously stated their objection to building the plant here, in districts zoned rural residential and residential/agricultural. The applicant has made no attempt to adapt or conform its project to address the concerns of local officials or meet the zoning requirements of industrial facilities.

The PSS persists in referring to the land use surrounding the Facility Area and in the town as "industrial" and "institutional." While Coxsackie does include industrial, commercial, and institutional land use, it also includes historic, scenic, and recreational sites that should be mentioned in the context of nearby land use (e.g., 3.1 Land Use). Page 138 et al. lists 71 aesthetic resources within the five-mile visual study area that are considered Scenic Areas of Statewide Significance. Thirty-one of these are located within the two-mile Study Area. More comments on this subject are included under 3.1 Land Use.

The facility was introduced in the Public Involvement Plan (PIP); according to Hecate Greene's project manager Gabe Wapner:

> "It was a very preliminary design because we wanted feedback before we started to refine the design," Wapner said. "We wanted to show everyone that may be impacted, 'Hey, there may be a panel on this piece of the property, what do you think about that?'" (hudsonvalley360.com online news service)

Mr. Wapner's statement would appear inconsistent with the nature of the facility. In fact the project is expected to include roughly 180,000 such panels on three (possibly two) parcels located in a 933-acre Facility Area. This is not an innocuous "solar farm." The State of New York classifies it as a "major electric generating facility." Addressing the issue that the facility would be built in a residential area, Wapner stated:

> "To call something residential when you have 900 open acres, I don't see that as residential." (Ibid.)

Public Need

Because the concept of public need is central to the Article 10 siting process, it is reasonable to assume this "public need" applies to the residents of New York State and not

to the residents of other states. According to Governor Cuomo, Article 10 provides a "simplified regulatory process to site new power plants" and assists in meeting "the energy and reliability needs of the state's energy consumers." (Governor Andrew Cuomo's Program Bill # 21 on the Power New York Act of 2011)

Yet Hecate Greene has stated on several occasions (most recently in its letter to the community dated 27 June 2018) that 20 megawatts of the total 50 megawatts of solar energy or energy credits to be produced by the Greene County Facility will be sold to two utility companies in New England: Eversource, which describes itself as "New England's largest energy provider, proudly serving more than 3.6 million electric and natural gas customers in CT, MA and NH" and the United Illuminating Company, which serves 17 towns in Connecticut.

It is unclear how selling 40 percent of energy and/or energy credits from an Article 10 solar plant to out-of-state utility companies meets the "public need" requirements of New York State residents. The applicants have attempted to rationalize the out-of-state sales arrangement by asserting that energy produced by the plant will probably be distributed to the local grid, and thus the contract with these two out-of-state buyers is irrelevant.

However, the simple fact is the Article 10 process, intended to be used in limited circumstances, in lieu of the local zoning process and to meet the "public need" of residents of New York State would, under this proposal, facilitate the sale of electricity to out-of-state utilities for use by out-of-state residents.

Thus, contrary to addressing the public need of New York State residents and achieving Governor Cuomo's goals for increasing the use of renewable energy in New York State, building this project under the auspices of the streamlined Article 10 process necessitates the development of yet more solar energy in New York, resulting in yet more probable consumption of farmland and environmentally sensitive land.

Article 10 should not be used for the purpose of supplying other states with valuable solar energy. Doing so is in no way consistent with the intentions of New York State's Clean Energy Standard. The applicant's proposed plans to consume highly productive farmland and the habitat of endangered and threatened species, as well as jeopardize the town's economic future is not justified by supplying power to out-of-state utilities and out-of-state residents.

PSS Comments by Section

1.0 Introduction

While we understand the preliminary nature of the PSS, we found that the lack of specificity made it difficult to evaluate the nature and extent of studies required for the Application. Specific information is vital to the coordination of studies to be undertaken.

The siting locations, for example, are addressed by different local laws in terms of setbacks and land-use restrictions. Although we realize that the applicants may find many of our laws "unreasonably burdensome," (page 3) we hope they will consider the purpose and intent of these laws, which are intended to preserve the nature, appearance, and public safety of our community. These include setbacks, lighting design, and industrial district siting requirements. The fact that the siting process is taking place under Article 10 should not automatically preempt any effort to take into account the requirements to which other commercial and industrial projects are expected to adhere. Our land-use code was thoughtfully developed and has been successful in keeping our community thriving economically and able to promote tourism. Recent manufacturing and industrial commercial storage facilities have been successfully incorporated into the town's overall appearance by implementing generous setbacks that keep these facilities from dominating the landscape.

- Much of the language in this document is couched in terms such as "applicable," "as appropriate," "to the extent practicable" but gives few details of the parameters that would apply to these qualifiers.
- The term "local" needs to be defined clearly where it is used: when does it apply only to Coxsackie? To areas of eastern Greene County? To all of Greene County? To the Upper Hudson region?

The facility array layout has changed multiple times since February, with the most recent modification being the potential removal of arrays from Greene County #2. Note however that this land, with its separate financial structure, has not been definitively removed from possible reincorporation into the overall facility.

- Both the Hecate Energy and the local Hecate Greene Web site show Greene County#2 as an active project as of 7/1/18, and Greene County #2 remains active in the NYISO interconnection queue.
- Alternatively, it is possible that Hecate Greene may try to develop the Greene County #2 site at a later date outside the framework of Article 10. With these

factors in mind, we request that the two-mile Study Area radius and overall Facility Area remain unchanged at this time.

- The applicant is requested to clarify the status of Greene County #2 with regard to how it may be used in the future.

Final facility locations will also affect what local laws may be considered during the project review process. Even a decision on underground or aerial transmission lines would alter the focus of studies being performed (e.g., visual impact, archeological significance, obstruction of bird habitat, and so on).

The applicants should provide more details of the actual equipment and materials to be used so they can be evaluated for issues such as noise, potential risks to first responders, and specific impact on environmental conditions. Of particular concern is the applicants' unwillingness to commit to panel details, including their quality. As many types and grades of panels are available; the deployment of approximately 180,000 panels makes their effect on relevant studies self-evident. In addition, the applicants should identify the approximate size and location of storage buildings, substations, security lighting, and access roads. These will also play a key role in modeling the studies to be undertaken.

Please note also that the structure of the applicants' PSS is not well designed for navigation and information retrieval. As we assume the document is based on a template, we request that the general outline be reviewed by the appropriate agency for its overall effectiveness and information retrieval characteristics for use with future projects.

Key assumptions of the solar generation capabilities and site design have not been addressed. Because of the far-reaching implications of inadequate siting, we request data that includes line-of-sight angles, weather patterns, terrain grade, tree obstruction, and other factors to provide of the facility's 50-megawatt capacity.

1.2.2 Summary of Public Involvement Activities

Saving Greene concurs our elected officials' views of the inappropriate use of Article 10 to site a facility that is completely inappropriate for this or any other residential area.

The applicants' Web sites states various "benefits" from the facility that seem dubious and fail to address community concerns. The applicants appear to have confused their own benefits and those of the general U.S. population with those of the local community. For instance, the site states:

> "Locally produced, clean energy from solar power contributes to enhanced air and water quality for the community."

In what specific ways does the Greene County Solar Facility improve Coxsackie's air and water quality? It seems that this declaration is a generic statement about the potential benefits of renewable energy, which Saving Greene in no way disputes. The use of this as an actual argument for siting the facility in its current location is meaningless and risks insulting the intelligence of our local community. While the desire for higher profits is unquestionably an issue for the builders of large solar projects, it does very little to endear these projects to the community. It seems particularly unreasonable to state that the plant supports New York's Clean Energy Standard when 40 percent of the power from this facility will be sold to another state. The long-term economic costs and benefits of utility-scale projects must be carefully weighed and balanced. What is a reasonable method of quantifying the loss of excellent agricultural land against the need for renewable energy?

Concerns have been raised about the applicants' indifference to community members' concerns that they did not receive information about the proposed plant in the form of notifications about the February 2018 open house. Please be aware: **These concerns have been documented in PIP comments and expressed both by members and non-members of Saving Greene. Saving Greene is simply reporting a widespread problem.** An extremely limited number of adjacent landowners were aware of the PIP comment process, yet several took the initiative to find the DPS Web site and leave comments. It shouldn't be difficult to reason that for each person who commented, many more were unaware of the comment process, did not have ready access to a computer, or did not have broadband service. The apparent indifference of the applicants to these concerns, including the claim that all of these stakeholders received such notifications, seriously undermines the trust that would be a necessary component of a cooperative, positive relationship with the community.

Based on information received from community members, there were obviously widespread problems in notifying the general public of the initial open house. The applicants are not necessarily responsible for the problems, but they do owe it to the Coxsackie community to address them fully. On 27 June 2018, Hecate Greene distributed a letter in which they essentially accused community members of spreading misinformation on the subject of its February open house. Several PIP comments had been made by adjoining landowners that they had not received notifications of the open house. These stakeholders still continue to assert that they were not notified of the open house. It would foster trust between the developers and the community if the applicants were to assume that residents were being truthful about open-house notifications, attempt to investigate the problems encountered, and engage in a constructive dialogue about how to avoid such issues in the future. The applicants have previously stated that they seek a collaborative relationship with the community. However the specific actions and communications of the applicants with respect to the PIP have been inconsistent with their stated objective of

collaboration, as has their dismissal of the good-faith concerns of stakeholders who have questioned the adequacy of community outreach.

In this and subsequent documents, the applicants stated that over 6,000 notices of the February open house were mailed to landowners in the two-mile Study Area. As previously stated, multiple landowners close to the facility have consistently asserted that they did not received notices. By way of contrast, we are not aware of *any* landowners in the Study Area who failed to receive the PSS announcement, even though it was mailed in a plain envelope with a Tetra Tech (rather than Hecate Greene) return address, and few, if any, understood the nature of the document. It should be evident that a problem occurred with the applicants' distribution of the February open-house notification, in contrast to the insinuation of a local conspiracy designed to disrupt the applicants' efforts to inform the community of the event. It is also noteworthy that no such problems seem to have occurred with the Flint Mine project open-house notifications. The Flint Mine open-house appears to have been well attended.

Several open-house attendees remarked on the poor turnout, and in fact only 70 attendees out of more than 6,000 households attended the event, a surprisingly low number given the importance of the topic to stakeholders. The average size of a household in Coxsackie is 2.9 individuals (U.S. Census Bureau 2012-2016). Assuming an average of 2.4 residents over the age of 18 per household (Ibid.), this would mean that over 14,000 adult residents were notified of an open house that only 70 (one in 200) attended.

We are puzzled why the applicants have challenged these comments, stating that this is misleading and/or erroneous information.

- The applicants should have provided the postal receipts and/or verification of delivery for the open house supplied by the Post Office.
- If the correct information was provided to them, the Post Office should be made aware of the problem with the delivery in order to ensure that it doesn't happen again. Blaming residents for not receiving the information seems particularly unhelpful. If the applicants wishes to engage positively with the community, they should be prepared to take seriously the concerns of stakeholders. It seems evident that these distribution issues were resolved with the release of the PSS announcement.
- What is the specific reason why the applicants will not hold a second open house prior to the Application submission? Wouldn't a second open house give the applicants an opportunity to better explain their activities and intentions and avoid any further spreading of incorrect information? If these projects will indeed benefit the community as fully as the applicants have attested, a second open house will

give Hecate Greene representatives a chance to better promote these benefits. The applicants indicated in their 27 June letter a considerable degree of unhappiness with information being shared within the Coxsackie community. We respectfully suggest that information is being shared within the community because the applicants apparently did not fully engage in public outreach at the time of the February open house.

The PSS notes that the issue of the facility's Web site design was raised during the PIP review. The applicants state in a letter to the community that they have verified that open house information was listed on the Web site over a week prior to the event. If this were in fact true, the design or execution of the site may have contributed to the problems experienced by users. Relevant questions include:

- Were all the links functioning correctly on the day of the open house?
- Was the design tested by volunteers from the community to make sure information was reasonably easy to find? Faulting stakeholders who attempted to access this information on an early and somewhat primitive version of the site again seems counterproductive.

2.0 Project Description

2.2 Proposed Facility

Throughout the PSS, the applicants refer to the Facility Area as including agricultural and rural residential land designations, with industrial areas to the north and industrial areas to the south. These statements should make clear the fact that there are no designated industrial or institutional-use areas on any of the facility sites.

The facility layout has changed several times since February, with the 22 June 2018 change leading to the potential removal of arrays from Greene County #2. Note however that this land, with its separate financial structure, has not been definitively removed from possible use. As of 1 July 2018, the applicants' 10-megawatt request remained in the NYISO interconnection queue, and the project was still listed on Hecate Energy's Web site. The applicants could still conceivably reincorporate it into the facility layout, or try develop it at a later date outside the framework of Article 10. The two-mile Study Areas and five-mile visual impact area should not be reduced, and previously proposed studies for Greene County #2 should continue as planned.

As outlined below, the size and placement of the PV panels are key variables in assessing the impact the proposed facility on the community, environment, and viewshed. Unfortunately the applicants' description of their deployment of PV panels has been a moving target, making it impossible to address the proposal in a definitive and rigorous manner. Thus the applicants should supply a clear statement regarding the panels they intend to use in the Application.

Through most of the document, the PV panels are described as low-profile, allowing partial concealment through landscaping. On page 6, the applicants state:

> "The PV panels for the proposed Facility will be groundmounted on a low-profile racking system that will have a small post footprint, typically consisting of small I-beam posts driven into the ground."

On page 129, however, the applicants state:

> "The tallest structures among the Facility array are expected to be approximately 8 to 10 feet tall. Hecate Greene may also evaluate the use of taller structures, up to approximately 15 feet, to optimize the Facility layout."

It is unclear from this statement

- Why these structures are not mentioned more prominently in the document, as they have far-reaching implications for efforts to harmonize the facility with current elements of the surrounding landscape and community.
- Under what specific conditions these taller structures would be deployed.
- What stabilization the taller structures would require (e.g., concrete footings).
- In what way and in what timeframe the applicants would notify the community of this change.
- What impact this change would have on viewsheds, both from ground level and from elevated areas.
- Where these panels might be placed.
- Whether changes in the type or height of fencing would occur.
- What additional steps, if any, would be taken to provide vegetative screening for these taller structures, and whether the goals of such screening would be to conceal the panels entirely from view.
- What changes would be made to facility setbacks and the possible use of berms to minimize the prominent nature of these panels.
- How many additional residences and other sites would have a view of the taller structures.

It seems logical to conclude that taller structures might need to be employed as a result of the recently revised facility layout in order to maximize the space available on Greene County #1 and #3. If these taller structures may be used on any part of the facility, further visual impact studies should take these into account in all parts of the facility, since no specific location or number is given, including on Greene County #2. If these structures require stabilization in the form of poured footings, further environmental studies should incorporate this information, and any references to the possibility of using the land for agricultural purposes in the future should be removed. Runoff studies should take into account the greater surface area of panels and the increase in compaction that may occur.

Throughout the document, the applicants refer to the relatively inconspicuous nature of the panels. Fifteen-foot structures are not inconspicuous. When an inquiry was made regarding the potential use of taller structures, a Hecate Greene project manager responded on 21 May 2018:

> "We have not yet determined a final design for the project but the description of the project in the PIP remains the most accurate at this time." (E-mail communication)

Note the PSS was released 29 May and would had have been prepared before 21 May. This careful wording falls short of being directly misleading, but it does not inspire confidence in the applicants' willingness to be transparent and collaborative. The applicants should supply a clear statement regarding the panels they intend to use in the Application.

On page 7 the PSS states:

> "...the proposed facility will have a positive impact on socioeconomics in the area through local employment and service opportunities, specifically by generating temporary construction employment... to be drawn from Greene County and the regional labor market."

- What constitutes the regional labor market? Does it include the Capital District and Mid-Hudson regions, or will it extend beyond those areas?
- What are the sociological factors that will be impacted, and how are positive impacts defined and specified?
- On what do the applicants base their assumption of a positive impact on economic conditions in a very limited local labor market with few sources of construction materials? There are indirect negative impacts from this "benefit" as well, as described in 4.27.
- Are the applicants implying in this section that there will be no negative socioeconomic impact from the facility? On what do they base this assumption? Please provide data from solar (not wind) facilities on a comparable scale located in residential areas to support this assertion.
- Note that in the letter of 22 June 2018 accompanying the updated Preliminary Layout states on page 3 that "As panels are no longer proposed within the Village of Coxsackie, socioeconomic effects to this municipality are anticipated to be less." Presumably the same hiring of local employees and the same sourcing will apply to the village as before this change. What factors are anticipated to be less? Are the applicants acknowledging that there may be adverse socioeconomic effects from the facility as well as benefits? If so, please describe them and how they will be avoided or mitigated.
- On what basis does the developer assume that a temporary increase in regional employment and possible regional sourcing will outweigh the noise, disturbance, and increased traffic of construction activities? Since a number of properties

adjoining the facility are either listed with realtors or expected to be within the next year, and development and construction activities are likely to discourage and/or distract potential buyers to a significant degree, what accommodations can be made with regard to showing these properties without undue disturbance from construction activities

- With regard to adjoining properties being listed, will the applicants provide drawings or modified photographs showing the surrounding views after the facility is constructed?
- On page 8, the applicants again emphasize the "minimal, ground-level visual impacts on the community and natural setting of the area." The applicants also acknowledge the possibility of plant views from elevated points that also comprise aspects of this "natural setting." This "natural setting" consists of farmland and rural residences, with a moderately high ridge between the facility and the Hudson River. The Route 385 Scenic Byway follows this ridge; its viewshed includes includes the solar facility in the foreground of sweeping mountain vistas toward the west. Is it possible to minimize visual elements of the facility without compromising the remainder of the viewshed?

This document asserts that over 200 construction workers will be employed during peak construction, and once in operation, the facility will employ "several" workers plus unspecified additional support from local service providers to maintain the Facility Area and associated systems. It is also states that the Facility will also result in increased revenue to Greene County and the Town of Coxsackie, adding that PILOT (payment in lieu of taxes) negotiations will begin shortly, and that purchases of local supplies, goods, etc. will benefit the local community. Additional concerns regarding employment and local procurement are described in comments on Section 4.27.

The applicants state on page 8 that:

> "Facility operation and maintenance activities will generate several hundred thousand dollars of annual fees, some of which will be local part-time employment and contracting service opportunities...."

This assertion lacks any form of specificity. Please clarify this statement and provide a detailed description of the "several hundred thousand dollars of annual fees" to be generated. What is meant by "annual fees"? A list of operations and activities needs to be developed and dollar amounts assigned to these, based on the applicants' experience with operating other plants of this size in residential areas.

- In what way do lease revenues to the land development company that owns these properties benefit the community at large?
- With respect to the PILOT, is Hecate willing to pay a PILOT equivalent to the full property tax that would ordinarily be assessed according to a re-appraised property value based on its current use as a utility, and not based on the valuation as currently zoned?

3.0 Environmental Setting

Once again we find the comparison between wind projects and utility-scale solar power plants to be misguided and irrelevant. Apart from producing renewable energy, these plants share very little in common. No mention is made of the scale of plants being compared. It is unclear why the industry continues to argue that certain theoretical commonalities justify a direct aesthetic and property value comparison. Wind projects feature tall structures but relatively small footprints; utility-scale solar plants have footprints that cover hundreds of acres with ubiquitous panels that are readily seen from multiple vantage points, particularly from elevated ground.

In addition, while some parts of the PSS document refer to low-profile panel systems, the possibility of using 15-foot structures is included, which would be far more difficult to conceal through the use of vegetative screen, setbacks, or other measures. The document acknowledges that some vantage points will have unobstructed views of the facility, even if the low-profile panels are used.

- In describing the visual impact of utility-scale solar plants, please base comparisons on other solar facilities of the same scale in similar locations. If no comparable data is available, the applicant should acknowledge this rather than attempt to construct artificial similarities between unrelated power generation technologies. It is of concern to us in particular that Hecate Greene personnel have used this rather pointless comparison to argue that the Greene County Solar Facility will have little or no effect on property values.
- Utility-scale solar facilities have been found to produce a photovoltaic heat island effect, increasing local temperatures. Given the proposed size of this facility, this effect should be studied carefully. Barron-Gafford, G. A. *et al*. The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures. *Sci. Rep*. 6, 35070; doi: 10.1038/srep35070 (2016)

On page 9 the applicant states that "Each section of the Facility arrays and equipment will be surrounded by fencing."

- What constitutes a "section"? Would fencing be placed around each array, or around some subset within each arrays? What areas would be available to accessible to large mammals within and around the facility? How far would the fencing be located from the components it surrounds.
- What would be the purpose of this fencing? To prevent vandalism and other damage to panels? To ensure public safety? To constrain wildlife? (See 3.4 Wildlife for more on this issue).
- What specific attempts will made to screen fencing from the view of adjacent properties and area roadways?
- How will the fencing be constructed and installed? What will it look like? Section 4.24 refers to the probability that it will be eight-foot chainlink fencing. Will it require footings? Please provide photographs or drawings, preferably in context. What will determine the height of the fencing? Will this change in relation to panel structure height? In a public meeting a representative of Hecate Greene stated that the fencing would be topped with barbed wire. Will this be deer-safe wire? (See 3.4 Wildlife for more on this).

Other concerns include the following:

- What prevents runoff from compacting the soil between rows of panels during the construction period, when vegetation is absent, and potentially during the operation phase despite attempts at vegetative runoff control? What keeps runoff from gathering sediment during the construction phase and eventually entering Sleepy Hollow Lake, where the removal of sediment has proved costly in the past? (Sleepy Hollow Lake Association of Property Owners) Studies of runoff effects are planned; these should include both construction and operation phases, along with specific measures proposed to minimize both short-term and long-term compaction and troughing, both of which would seriously hinder agricultural use in the future and potentially limit the ability of vegetation to establish itself between the panels. If such vegetation is not successfully established, runoff conditions will likely exacerbate the same sediment collection problems that Sleepy Hollow Lake is currently experiencing.
- What vegetative cover will be used under and between the panels? How will invasive plant species and other undesirable plants be eliminated? The applicants have all but ruled out the use herbicides. How have they controlled vegetation in the past? Please provide illustrative photographs. If the use of herbicides does become

necessary at some point, what specific formulations, schedule, and application rates will be used? Do these pose any hazards for nearby wetlands or wildlife?

3.1 Land Use

On page 9, the applicants state:

> "The Town and Village of Coxsackie and the surrounding area include a mixture of agricultural, rural residential, and institutional land, with scattered industrial development and *sparsely forested* areas." [emphasis ours]

The visual analysis covered later in the PSS is based on forested land. If the land is "sparsely forested," the visual analysis should reflect this.

It should be clarified that he Town and Village of Coxsackie also include nearby commercial districts, recreational facilities, and relatively high-density residential districts both within the village—especially historic downtown Coxsackie—and in the Sleepy Hollow Lake development. These areas are far from "rural" in nature. Note that the Facility Area does not incorporate any institutional or industrial lands. The latter is currently limited by local laws to the Route 9W industrial corridor and limited smaller area of the town.

- The PSS states that minimal forest clearing will be done. What is minimal, and how will it be managed?
- Will more extensive cutting be required if it is determined that facility is unable to reach full production capacity?

3.2 Cultural Resources

Local residents and visiting archeologists stress the prevalence of artifacts throughout the area surrounding Flint Mine Hill. The cultural importance of these sites warrants the inclusion of a cultural resource manager in the archeological team. Of particular concern is the fact that soil may be disturbed at depths deeper than conventional farming (e.g., for burying cables as well as driving and drilling panel supports in archeologically sensitive soils). Any archeological examination should include extensive exploration of those depths at which digging and driving may occur.

3.4 Wildlife

Raptors

On page 12 the applicants state:

> "Potential impacts to grassland birds will be avoided, minimized or mitigated to the maximum extent practicable. Potential changes in bird community composition with some species, particularly raptors, possibly avoiding of [sic] areas within, or close to Facility components will be discussed in the Application."

- How would the applicants describe "maximum extent?" What criteria must be met to make a decision about eliminating the raptors' habitat to the point where these birds will no longer be able to hunt or breed there? In what specific context is it reasonable to accept the loss of these birds?
- Both the short-eared owl and Northern Harrier hawk are common winter sights enjoyed by local residents, as are juvenile as well and adult bald eagles, which nest within the Study Area. Bald eagles have been observed by local residents on the Greene County #3 site, and bald eagles are known to nest in the Study Area. Any changes to raptor habitat should include the potential impact on bald eagle populations.
- Given the location of arrays moved from Greene County #2, isn't this "potential" avoidance a near-certainty? The small mammals on which these birds prey typically feed on crop remnants, are unlikely to be present on the site. In addition, the arrays themselves can be expected to hinder and confuse the birds.
- Even the acrobatic endangered short-eared owl and threatened Northern Harrier hawk will obviously be unable to hunt among the arrays, assuming adequate food sources remain. Fencing—especially any use of barbed wire—further risks injuring the birds, as shown in Figure 1.

Figure 1. Short-eared owl encounter with barbed wire fence (source: Birds of North America, photo by Gerrit Vyn, Macaulay Library MS 29973591)

- Any impact to threatened and endangered raptor populations must take into account the cumulative loss of habitat resulting from extensive solar plant development in the town, much of which will take place on the grassland and agricultural bird habitat, as open fields in Coxsackie undergo solar plant development. With approximately 2,700 acres of solar development already planned for Coxsackie, largely on open land suitable for these raptors' hunting and breeding activities, the full effects of this habitat loss must be examined. Any bird population studies should take into account solar development within a minimum of the Study Area's two-mile radius, and preferably within a five-mile radius, given the endangered and threatened status of these birds and the lack of proposed bird mitigation.

3.4 Mammals

On page 12, the document states:

> "As most of the Facility Area consists of open, agricultural fields, the use of the Facility Area by large mammals... is generally precluded, with the exception of white-tailed deer (Odocoileus virginianus)."

In addition to white-tailed deer, a number of other large mammals are observed regularly within the Facility Area, including:

- Eastern coyote (Canis latrans var.)
- Black bear (Ursus americanus)
- Bobcat (Lynx rufus) (tracks)
- Gray fox (Urocyon cinereoargenteus)
- Red fox (Vulpes vulpes)

Several of these mammals are territorial; their displacement is likely to result in 1) conflicts with other members of the same or competing species, 2) migration to unoccupied territories (often distant), or 3) more problematically, migration to residential areas within the Study Area, with the potential to result in conflicts with humans or their pets and livestock. Details are included below for the primary species involved.

White-tailed deer

Of concern to many local landowners is the white-tailed deer, which already causes extensive damage to landscaping in rural residential settings as well as numerous deer-vehicle accidents. If these animals move into more densely populated areas such as the village (where they are already seen occasionally), yet more damage is likely to occur, and the current population controls—coyote predation on fawns and the taking of adult deer by hunters—will no longer be viable. It is thus possible that the deer population will continue to increase in populated areas of the town. In New York State approximately 65,000 reported deer-vehicle collisions occur (New York State Department of Transportation). Our uncertainty about deer behavior include:

- If the considerable deer population on the facility sites is temporarily or permanently displaced, are they likely to move into more residential neighborhoods such as the village or Sleepy Hollow Lake development?
- If these deer are disturbed by construction activities, are they more likely to be found on area roadways?

- If deer migrate into higher-density residential settings, what control measures can be taken, given the lack of hunting or predators?
- Will hunting be permitted adjacent to facility sites? If not, under what grounds and laws will it be restricted? Several residents have expressed concern over this issue, which has yet to be addressed by the applicants.

The height and construction of Facility Area fencing should be considered carefully in light of the considerable deer population on the facility sites. According to the USDA:

> "A motivated deer can jump up to 12 feet vertically.... They can crawl through holes as small as 7.5 inches in diameter. (Reducing Deer Browse Damage Job Sheet Planning Guidelines, 2009)"

Thus a six to eight-foot fence would generally pose no challenge to a deer, except when the animal was panicked or unable to see the fence clearly. Agricultural barbed wire seems to be especially problematic. Local residents have reported finding deer caught on barbed wire; Figure 2 shows one result of a deer apparently miscalculating the height of a barbed wire-topped fence:

Figure 2. Deer encounter with barbed wire fence © Larry Thorngren

Eastern coyote

In more densely populated as well as rural residential areas the already-troubling presence of Eastern coyotes poses threats to pets and livestock and potentially to small children. Again, the hunting of coyotes to control their numbers will not be possible if they migrate into populated areas. Coyotes are adaptable to urban and suburban environments, where their presence can be problematic:

> "While most coyotes avoid interacting with people, some coyotes in suburbia become emboldened and appear to have lost their fear of people. This can result in a dangerous situation. A coyote that does not flee from people should be considered dangerous. Coyotes in residential areas can be attracted to garbage, pet food, and other human-created sources of food. Coyotes can associate people with these food attractants. In addition, in some cases human behavior has changed to be non-threatening to coyotes.... In short, people may unintentionally attract coyotes with food and people may behave like prey. Add to the mix people intentionally feeding coyotes and the potential for a coyote attack becomes very real.
>
> "Children are at greatest risk of being injured by coyotes. If a coyote has been observed repeatedly near an area where children frequent, be watchful for coyotes and do not let a coyote approach anyone. Follow the steps outlined above." (NYSDEC)

Coyotes pose a threat to many types of pets in residential areas, and human injury may occur when owners attempt to separate coyotes from pets. Both cats and small to medium-sized dogs are at risk (Ibid.). Additionally the presence of rabies among coyotes is also concerning. In March 2018, a rabid coyote in the downstate NY area bit eight people, including a police officer, along with a dog and multiple sheep (NBC News, 3 March 2018).

Black bear

Black bears have been sighted regularly in several parts of the Facility Area and surrounding neighborhoods, and it is unclear whether solar development will result in a loss of habitat for them. Bears have occasionally entered the village as well.

According to the NYSDEC, black bears are now well established in the Hudson Valley, and the Department proposes reducing the bear population from its current level in this area, primarily through hunting. As previously noted, hunting activities within the Facility Area is likely to be precluded. Across New York State, human-bear conflicts have increased both

in frequency and severity in recent years. Increasing numbers of black bears appear to be show little fear and/or aggressive behavior toward humans.

Since the effects of converting land to solar development on bear populations and behaviors are unknown, we believe that this issue should be studied to determine whether bears are likely to migrate into more densely settled areas surrounding the plant. Since hunting will presumably no longer be an option for controlling the bear population within the Facility Area, it appears unlikely that their numbers will decrease.

Additional investigation requested

It seems naïve simply to assume that all of the large mammals who inhabit the Facility Area will peaceably find suitable habitats in unpopulated areas during or after construction. Studies should be performed to determine what effect habitat loss and other effects of solar development will have on large mammal populations and behaviors, and the potential impact on residents. Again, any such study needs to take into account the full extent of solar development in the Town of Coxsackie.

3.6 Agricultural Resources

As noted previously, Greene County's farming history spans a period of 350 years. Today Greene County agriculture generates $22,392,000 annually and produces a higher economic multiplier than any other sector (USDA). Crops such as vegetables and sweet corn account for approximately 43% of Greene County's agricultural products sales. Despite its small average farm size of 157 acres and modest areas of productive soil, Greene County ranked 18th among the 62 state counties in the production of sweet corn and 19th for vegetables/melons/potatoes/sweet potatoes (USDA Census of Agriculture, 2012).

In general the soils of Greene County have relatively low productivity ratings, according to the USDA's Web Soil Survey. An exception is Eastern Greene County, where flat areas tend to consist of Farmland of Statewide Importance or Prime Farmland/Prime Farmland if Drained. County-wide, approximately seven percent of farmland falls into the latter category. Farmland of Statewide Importance comprises 14.5 percent of farmland across the county. The remaining 78.5 percent of this land is classified as Not Prime Farmland. On page 25 of the PSS, the applicants describe the farmland classifications associated with the soils sampled within the Facility Area. A comparison between the classifications present in the Facility Area and the whole of Greene is shown as follows:

Farmland Classification (color on map)	Facility Area	Greene County
Prime Farmland/Prime Farmland if drained (greens)	25%	7%
Farmland of Statewide Importance (turquoise)	70%	14.5%
Not Prime Farmland (red)	5%	78.5%

Table 1. Farmland Classifications for Facility Site and Greene County (comparison)

Farmland of Statewide Importance is land that is important for the production of food, feed, fiber, forage and oil seed crops. Generally this is land that economically produces high yields of crops when treated and managed according to acceptable farming methods (USDA). Note that Prime Farmland if Drained is only so designated if it can in fact be drained.

The nonirrigated capability class of Facility Area land, especially where panels are expected to be placed, are generally rated 1, 2, or 3.

The PSS also states that it is the understanding of the applicants that the land developers who currently own the entire contents of the Facility Area will use revenue to purchase more productive farmland elsewhere. It seems exceptionally unlikely that they will find such farmland in Greene County. Figure 3 shows a USDA map of farmland classifications for an approximate representation of Greene County #1. Note that almost every part of this site consists of Farmland of Statewide Importance:

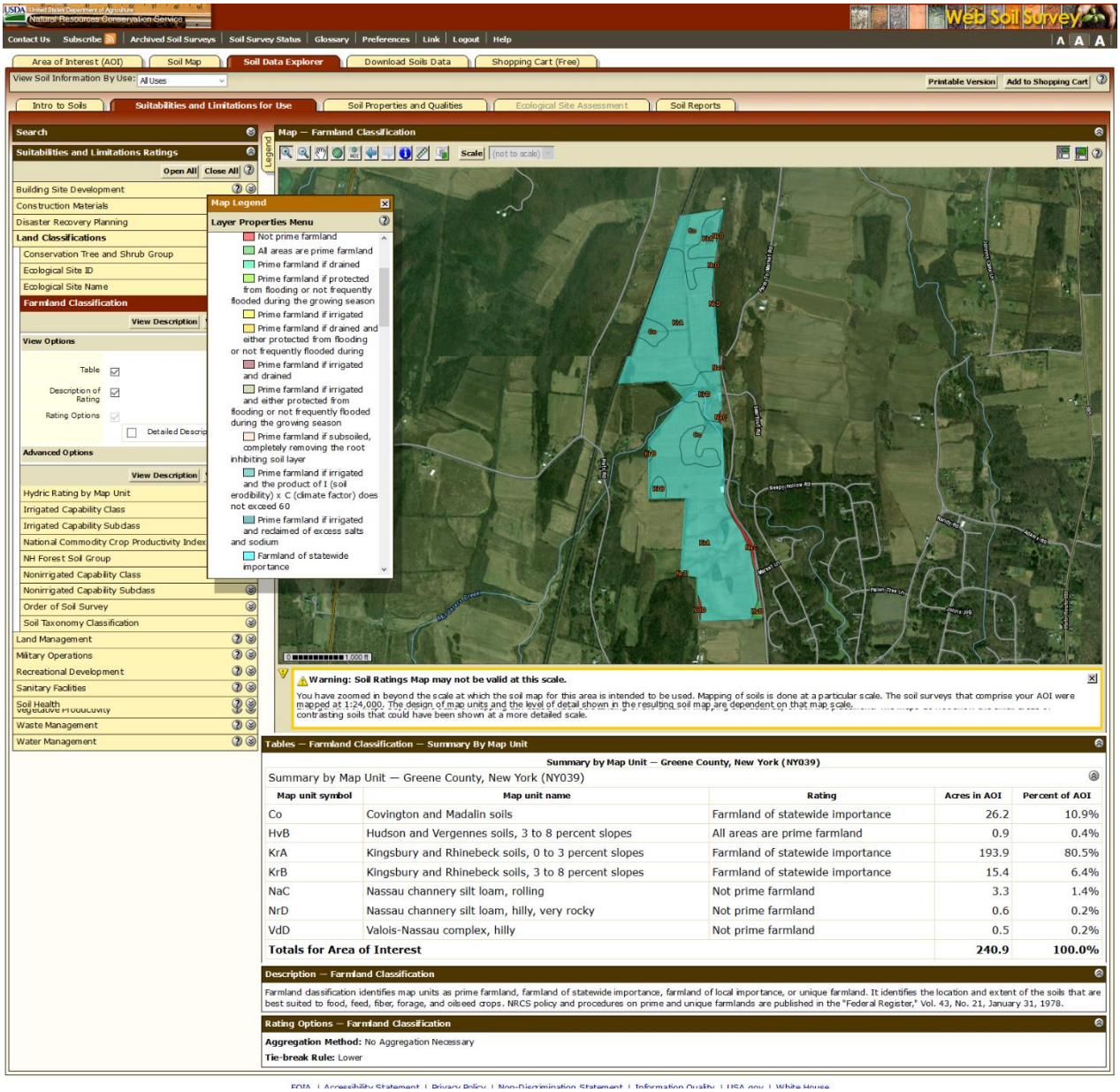

Figure 3. USDA Map of Farmland Classifications on Greene County #1

In Figure 4, approximate mapping for Greene County #3 shows similar results, including Prime Farmland (green). Note that most of the Not Prime Farmland areas (indicated in red) are not generally where panels will be placed:

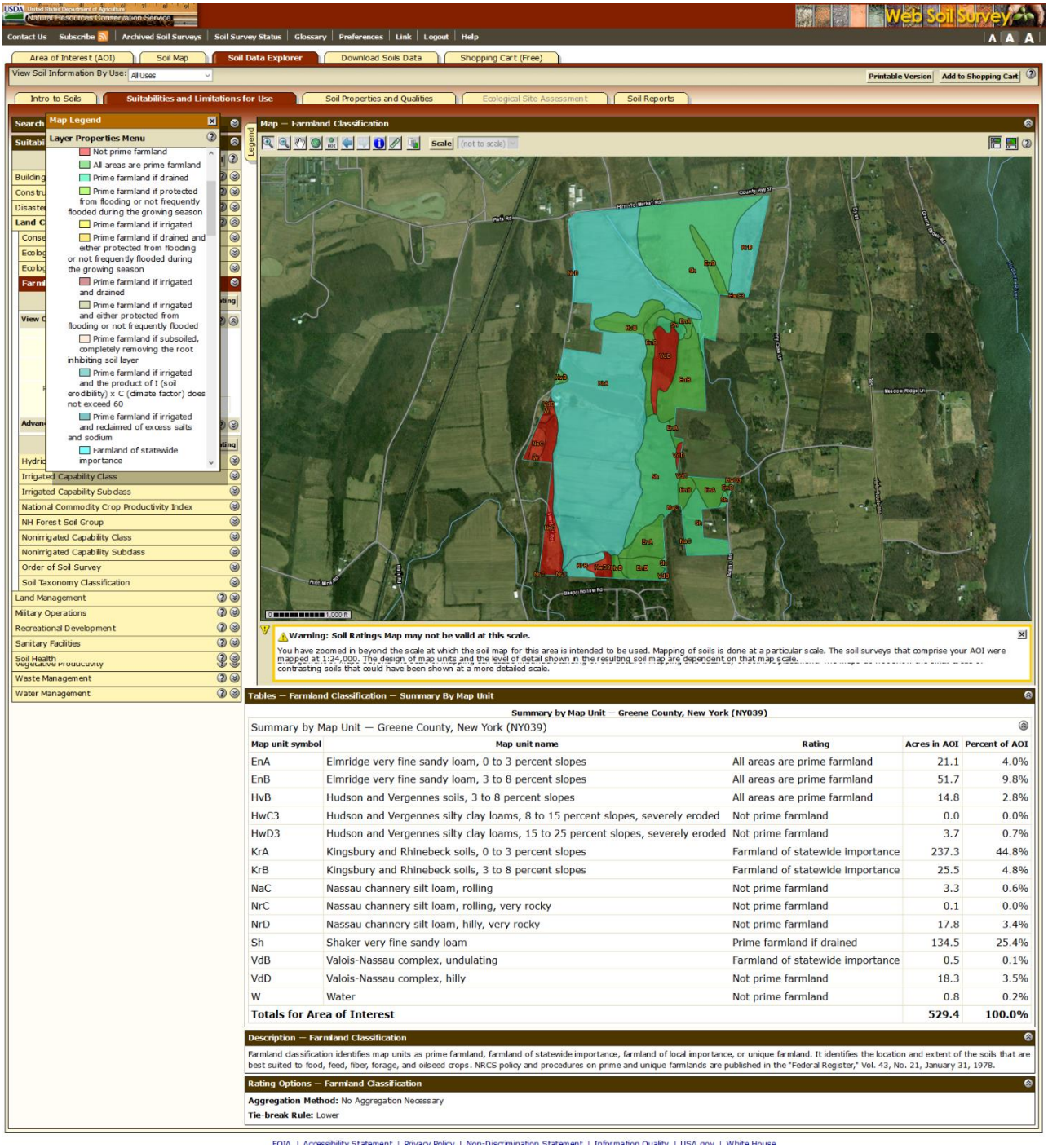

Figure 4. USDA Map of Farmland Classifications on Greene County #3

In the context of Greene County, the soil and corresponding farmland classifications are nothing short of outstanding, as evidenced previously in Table 1. Note that the map results differ only slightly from the PSS information due to approximations in the map preparation process.

This is highly productive land that Greene County cannot afford to lose to solar development. While the applicants state on their Web site that the land can easily and immediately be returned to agricultural use after 25 years, the effects of panel shading on soil are uncertain; because shading inhibits photosynthesis, it seems likely that the soil microbiology will change over time. No studies to date have been performed to determine the effects of solar development on farmland over the course of 25 years. In the highly unlikely event that the land developers should wish to return this land to agricultural use, it is uncertain what the results would be. Any soil compaction and potentially shading would result in stunted root growth and unhealthy vegetation that is less able to resist pests and diseases. According to a report produced by a soil scientist with Best Environmental Technologies, soil under solar panels may face serious degradation and carbon loss:

> "When the level of photosynthetic activity is reduced the amount of Carbon Dioxide that the plants take in from the atmosphere and turn into Carbon is reduced. The Carbon that the plants pump into the soil via their root system is critical to feed the soil microbiology. When this process is slowed or stopped due to the plants being shaded, the microbiology has to strip Carbon from the aggregates in the soil to survive. When Carbon is stripped from the aggregates by the soil biology the aggregates become compressed and the soil then becomes hard and compacted. When the soil becomes compacted the root system of the plants cannot grow to their full potential which greatly inhibits their access to vital nutrients and soil moisture. An impact of the plants being shaded and not being able to photosynthesize properly is that when the levels of Carbon produced by photosynthesizing plants is reduced and the soil microbiology cannot be fed the adequate levels of Carbon, the microbiology becomes dormant until the conditions improve, which can be years. This results in the plants being nutritionally poor because they have a low mineral density due to the reduction in the population of soil microbiology which feeds essential nutrients to the plant in exchange for Carbon. In addition the smaller root system of the plants due to the soil becoming compacted from the reduction in Carbon also leads to nutritionally poor plants." (Kieran Knight, report on effects of solar panel placement on prime farmland for Best Environmental Technologies, October 2017).

Note that if these effects on soil microbiology do exist, they may affect surrounding wetlands as well, decreasing biodiversity at an initially microscopic level, with effects spreading gradually throughout the wetlands ecosystem. Weakened plant growth is also likely to result in the spread of invasive plant species, which are generally more tolerant of problematic soil conditions. The most practical control for invasive species is the selective use of herbicides, which the applicants have all but precluded.

- Studies need to examine the short-term, long-term, and cumulative effects with solar plant development on the loss of some of Greene County's most productive farmland. Given the county's active and growing level of agricultural production, taking flat, clearly valuable land out of production may compromise the county's ability to sustain the increasing level of agricultural activity it has been experiencing (USDA Census of Agriculture, 2012). Furthermore, the growing market for local agricultural products, estimated at $8.7 billion nationwide (Ibid.) offers new potential opportunities for produce sales in the New York City area. In 2015, New York State farms produced $441 million in direct food sales, ranking third among U.S. states for local food production (Ibid.). The demand for productive farmland in Greene County appears likely to increase significantly in the coming years.
- Studies are also needed to examine the effects of long-term solar panel shading on soil and vegetation, as well as possible compaction on soil microbiology in previously tilled land, with an emphasis on carbon loss.

Grazing and other integrated land uses

Attempts to integrate grazing into the Facility Area pose many problems, including further soil compaction. As a general agricultural practice, cropland should not be used for foraging by animals such as sheep and cattle, which causes considerable compaction, especially where grazing areas are limited, as they would be near solar panels. Much of the soil on Greene County #3 is too poorly drained to graze sheep, which do not tolerate wet soils. In addition, any attempt to integrate grazing into the Facility area requires:

- Water resources
- Substantial shelter
- Ongoing protection from coyotes (in an area where the use of firearms is impractical or prohibited)
- Planting winter forage crops, possibly without the use of farming equipment
- Facilities for stored forage
- Ongoing monitoring of animal health and veterinary care

- In the case of sheep, close attention and increased levels of care during lambing season, as well as seasonal shearing
- Parasite and disease control
- Careful attention to the possible contamination of wetlands with uncontrolled parasites and diseases
- Additional mowing (most pastured animals avoid certain plants)
- Avoidance of almost all pesticides and herbicides

Cattle require relatively simple care but would cause much more extensive soil compaction and larger quantities of feed. Sheep are especially prone to parasites and diseases and require more protection from both predators and the elements. Any fencing must take into account the type of animal being grazed and the needs both for containment and protection. For example, a coyote can climb as well as jump a chain-link fence:

> "A coyote can jump an 8-foot fence**.** It is also very adept at climbing. To keep coyotes out of property, it is recommended to erect a wire fence that is at least 6 feet tall and topped with a wire extender set at a 45-degree angle. Coyotes are also diggers, so any galvanized mesh at the bottom of a fence in a coyote-inhabited area should extend at least 8 inches beneath the ground's surface and ideally extend out at least a foot from the fence's base." (Reference.com)

Note that the description of Facility Area farmland refers to "pasture fields." No animals are grazed in the Facility Area, so it follows that no pastures exist there.

The applicants' Web site reference to raising free-range poultry in an area of raptor concentration with well-established populations of coyotes, foxes, and other omnivorous or predatory species. The problems inherent in this are not worth detailing. Residents near the Facility Area consistently experience bird loss even with carefully constructed facilities for the birds' protection.

3.9 Visual

Landscaping

- The applicants have stated in conversation that "Landscaping is expensive." Two strong implications of this statement are that 1) landscaping will not be a priority in terms of cost, and 2) the developers do not have adequate funds to cover vegetative screening. If project costs increase unexpectedly for any reason, will vegetative screening still be included in the project? How much funding is planned for visual mitigation?
- Will plantings used for screening purposes be sourced locally, in consultation with landscapers who are familiar with the area, its weather and soil conditions, local pest and disease issues, and experience with the effectiveness of "deer-resistant" species?
- Where landscaping is used, what plant species and sizes will be used, and will they be deciduous or evergreen in nature? What are the size and growth habits of installed trees or shrubs be at the time of planting and mature growth? What is the expected time to maturity? To what pests and diseases are the plantings susceptible? What initial care and ongoing maintenance will be required for the first five years, and who will be responsible for it? How long will plantings be guaranteed to survive in terms of replacement? We request a period of five years to ensure their survival and satisfactory growth habit; some of this landscaping will be installed in locations not owned by the landowners who benefit from the screening, and those property owners may not allow replanting.
- In the case of existing vegetation to be left in place, will this be deciduous or evergreen, and if deciduous, for how many months per year will the facility be visible from such locations?
- In assessing whether views are possible from specific locations, please indicate whether seasonal views may be expected.
- The PSS states that the "tallest components of the generating portion of the proposed facility will have a low profile" (page 9) but go acknowledge that views of the facility are possible both from elevated vantage points and "to those areas located adjacent or very close to the Facility." How many residences will have permanent or seasonal views of the facility, and which roadways will be affected, including the Scenic Byway on State Route 385? Coxsackie's quiet country roads

with their bucolic views of farmland are a basic element of the town's character. Will this be changed? Note again the question of panel height figures prominently in these evaluations.

Glare

While the PSS states that glare studies are unnecessary, this assertion has been made in cases where the effects of glare were in fact quite pronounced, as described in a letter filed with the Public Service Commission on 19 April 2018 by Michael J. Fournier and Calvin Luther Martin, PhD. (Case No. 17-F-0602) Assumptions are not adequate in a situation that may affect hundreds of local residences. In addition the effects of glare on the threatened and endangered raptors that currently inhabit the Facility Area, and the facility's location on a major migratory route for geese should be analyzed more thoroughly.

4.13.2 Other Material Issues Raised by the Public and Affected Agencies

The PSS states that with respect to evaluation of applicable reasonable and available alternatives, Hecate, pursuant to the Article 10 regulations, will limit descriptions and evaluations to parcels owned by, or under option to, Hecate Greene or its affiliate. By limiting its analysis simply to parcels owned or under option, Hecate fails to provide important information to impacted residents and jurisdictions as to alternative areas it may have considered, that could potentially have less environmental and economic impact on the community, and if so, what the underlying factors were for rejecting alternative locations. To the extent that such decisions were principally driven by economic factors affecting Hecate, the process ignores consideration of alternative areas that would contribute to the supply of clean and renewable sources of energy but that might better address the environmental and economic concerns of local residents and communities, simply because they may not optimize the economic interest of Hecate. If such alternative sites do exist and were identified, local jurisdictions could address some of Hecate's concerns through negotiation on the PILOT. We would urge Hecate to provide an assessment of alternative siting that goes beyond the very limited scope of parcels owned or under option.

Hecate should specifically address its plans and procedures for maintaining, repairing, and mitigating damage to public roads, facilities, and property, as well as non-facility private property in the course of both the construction and operation phase.

The PSS states that preliminary reviews of existing studies on the effects of wind facilities on property value indicates that wind facilities do not have an appreciable effect on property values and that solar facilities have a much lower profile than wind facilities.

The applicants further state that existing studies on the impact of renewable energy projects on property values will be discussed in the Application.

Applying second-hand data from other renewable energy projects such as wind farms to a 50-megawatt major electric generating facility occupying hundreds of acres in a historic, scenic, and residential area is woefully inadequate given the potential impacts of this specific solar facility. Since no one has proposed a wind project or other renewable electric generating facility in the town of Coxsackie, the more obvious question is, all things equal, how the value of comparable homes around an agricultural area compare with values around a major electric generating facility such as a utility-scale power plant.

We note among Hecate's operating solar projects are numerous small megawatt capacity projects which presumably have a footprint significantly smaller than the Greene County Solar Facility proposal (shown in **boldface**) with less potential impact on property value.

- Beacon 1, 2, and 3 in Mojave CA with 162MW capacity
- Brewster in Alpine TX with 50MW capacity
- **Cherrydale in Kendall Grove VA with 20MW capacity**
- **Clarke in White Post VA with 10MW capacity**
- **Forbes Street 1 in East Providence RI with 3MW capacity (with 3MW additional capacity from Forbes Street II under construction)**
- **Jacksonville -Blair Road in Jacksonville FL with 4MW capacity**
- **JHU Solar II in Baltimore MD with 2MW capacity**
- **Monson I in Monson MA with 1MW capacity**
- **Morgan in Polk County GA with 1MW capacity**
- **Old Alabama Rd 1 and 2 in Woodland GA with 2MW capacity**
- **Old Midville in Millen GA with 20MW capacity**
- **Port of Los Angeles in Los Angeles CA with 10MW capacity**
- **Rome Highway in Aragon GA with 1MW capacity**
- **Turner Bend Road in Rome GA with 1MW capacity**
- **United States Postal Service in Los Angeles CA with 11MW capacity**

The only operating US solar projects developed by Hecate with a size comparable to the Hecate Greene projects are Beacon and Brewster. Based on available information, these sites do not appear remotely similar to the Hecate Greene site, nor would data on the impact on property value in these locations be considered as validly comparable.

1. Beacon 1, 2, and 3 in Mojave CA. Mojave CA is located in the southwestern region of the Mojave Desert with average annual rainfall of under 6 inches annually. Mojave at an elevation of approximately 2,800 feet is a flat, barren and desert area with the town clustered around an airport. Solar arrays appear to be located southeast of Mojave in a barren desert area with low population density.

2. Brewster in Alpine TX. We note that Alpine is the county seat and only city in Brewster County, TX, which is on the border with Mexico. Alpine is located on a high plateau in the Chihuahua Desert. Solar arrays appear to be located in a relatively flat and barren landscape. Brewster County consists of 6,192 square miles and a population of less than 10,000.

Hecate's evaluation of the impact on property values in Greene County should be based on data for a comparably sized facility in a similarly situated scenic location featuring both proximity to picturesque mountains, a tidal river, and historic and attractive viewsheds forming the basis for tourism. The analysis should also take into account the impact of the topography and viewshed on property value of impacted residences, as well as potential spillover impact on neighboring properties should comparable values decrease. Please specifically address the impact on properties in the immediate vicinity of the Facility Area, including those whose view cannot be adequately blocked by vegetative screening as well as from Scenic Areas of Statewide Significance (SASS) and other scenic roadways. Please indicate what, if anything, Hecate will do to mitigate or remediate the impact to property values and the hardships they will cause the residents directly affected by any decrease. In addition to providing a comparability analysis as described above, the applicant should use retain an independent expert to conduct an in-depth analysis of real estate data sets to ascertain the historic impact of introducing variables relevant to the Hecate proposal (e.g., full or partial view of a low-profile expansive industrial property) on residential property values.

Property valuation should be based on actual comparable sales and listing data. Analysis of the impact on property valuation should also be extended to account for potential loss of property tax revenues as well as impact on the local economy resulting from reduction in residential net worth. According to the U.S. Census Bureau's data, the typical American's net worth at age 65 is $194,226. However, removing the benefit from home equity results in that figure plummeting to just $43,921.

To the extent that local property values decline following construction of the facility, to what extent will Hecate indemnify or reimburse local property owners and businesses for the adverse economic impact from the economic benefits that accrue to Hecate Greene, or subsequent owners of the Facility?

While we realize that falling property values are a common NIMBY concern, solar facilities on this scale simply have not been built in residential portions of New York State or New England, and we note that Hecate Energy has never constructed a plant on this scale in a residential area. This lack of precedent and experience are cause for reasonable concern among area residents, and particularly among landowners whose views of the facility cannot be fully mitigated.

In addition, it would be advisable to extent the valuation analysis beyond the impact of the Hecate project, but to also include projections for the impact of at least an additional 120MW of capacity currently being proposed for the town of Coxsackie. Approaching the economic impact on simply a project by project basis would prospectively understate the totality of negative impact and externalities resulting from a larger base of projects in a compact geographic area.

Any valuation analysis should include the participation of local realtors, especially those who are listing properties close to the Facility Area. Through direct contact with potential buyers, realtors are more acutely aware of specific concerns and market conditions than local assessors, who have less contact with buyers and the public. Realtors should be able to provide insights into those measures that would best address buyers' concerns and the challenges that both sellers and realtors may face in selling properties close to a major electric generating facility.

The occurrence of tornados, at least one of which has taken place on the site of Greene County #3, does not seem to have been addressed by the applicants, who state that the panels can be adjusted for wind events and severe weather. Tornados are not straight-line wind events for which such adjustments can made. Having noted the damage from the 2009 F1 tornado on the Greene County #3 site, local residents have also stated concern that debris removal and damage repair will be handled promptly by the applicants

4.14 Cost of Facilities

The PSS states that a capital cost estimate for the Facility, to include all aspects of construction, including direct and indirect charges is to be provided. On account of the magnitude of the capital commitment involving the facility, as well as the scope of other commitments being made being made with respect to the project, we request that Hecate provide us information on its sources of financing to provide reassurance related to the financial sustainability of the project over its life, and Hecate's financial ability to meet its commitments as outlined in the PSS. This information should include, but not be limited to, capital contributions, loans, guarantees, governmental grants, aid and subsidies. Sources of financing, funds, and working capital related to the Facility's operations once construction is completed, should also be provided, including established or contemplated power purchase agreements, sale of renewable energy credits, governmental grants, capital contributions, loans, guarantees and any other sources of financing and credit.

In addition, to better understand the economics of the project, the ability of the project to contribute to the welfare of the community, and the potential impact on PILOT, we request a pro forma P&L for the project over the life of its operation.

In addition to potential direct negative impacts of the Hecate Solar project on the environment, local economy, scenery, community standard of living, and area property values, a potentially significant negative derivative impact would be if, after completion, the project turned out not to be economically viable. In this scenario, the Town, County, and residents would be negatively impacted by the activity and the costs of decommissioning the plant, since no up-front funds would be supplied for this purpose.

In order to better understand the long-term viability of the project, we would request key assumptions (specific, or using a range if specific assumptions are unavailable) that underlie the economic analysis Hecate Greene has undertaken with respect to the facility. We would also request that Hecate Greene provide the economic analysis based on the most recent plant configuration, as relevant, as opposed to prior analyses which are no longer applicable based on changes to the scope of the project.

This analysis should be used in support of the pro forma P&L requested above.

Please provide basic assumptions underlying the projected production of electricity from the plant including annually, and by year if production is expected to change, including:

- Annual days of operation accounting for potential downtime
- Percent of capacity utilized incorporating sunlight, seasonal and weather variables
- Expected degradation of generating capacity over time

Also provide pricing assumptions (either already negotiated or projected) for the purposes of estimating the ongoing revenue stream accruing to Hecate Greene:

- Actual price or price formula per kilowatt/hour received for sale of electricity into the transmission line by vendor and for term of the contract
- Price or price formula per kilowatt/hour for any sale of electricity not contracted for under current agreements
- Revenue to be received (and from which parties) for the sale of renewable energy credits
- Direct or indirect aid, subsidies, incentives, or grants provided by governmental or other entities

Please provide an all-inclusive estimate of capital and other related costs (e.g., land acquisition, improvements, etc.) of constructing the facility. Provide the origin of key plant components such as solar panels and whether they were manufactured domestically or are imported, and if imported, the country or countries from which they are sourced, including how proposed tariffs will affect the likelihood of sourcing them from a given country. Also provide, to the extent currently known, information on sources of financing including loans, outside investment, governmental aid, subsidies, guaranties, etc.

Provide a projection of annual operating costs and how they will vary based on variables such as electric production levels and other external factors. Include payroll, supplies, management, corporate services, and all other sources of costs. Please explicitly itemize rental, royalty and all other payments or items of value to be made to the owners of the land on which the facility is to be located. To the extent that land is to be purchased as part of the project, please provide details on the purchase and financing arrangements.

Please also provide the assumptions Hecate has made with respect to the PILOT it will be paying and the basis for those assumptions. As part of this information, provide a sensitivity analysis on the impact of the project using different levels for the PILOT ranging up to 100% of the value that would be taxable under reassessed land use.

Because Hecate has stated their intention of selling the plants, the level of detail provided should be such that would be used by sophisticated investor(s) contemplating such a purchase.

In addition, related to the issue of financial stability, please explain in greater detail the ownership structure of the three Hecate entities (Hecate Energy Greene County 1 LLC, Hecate Energy Greene County 2 LLC, and Hecate Energy Greene County 3 LLC), their resources, and the extent to which Hecate Energy or other parties will assume the commitments and liabilities of the three LLC entities, in the event the LLC entities are unable to perform. Will the Hecate LLC entities hold accessible reserve funds, be bonded, or otherwise provide guarantees related to fulfilling their obligations?

Further we request information on whether Hecate Energy, its affiliates, and subsidiaries have ever been sued in the course of developing, constructing, and/or operating renewable Hecate). If so, please give details of the outcome.

4.15 Public Health and Safety/4.18 Safety and Security

Section 4.15 Public Health and Safety and Section 4.18 Safety and Security do not address the potential impact on public safety considerations of having a construction site of up to 200 employees surrounded by residential areas and within the vicinity of a school and other public venues. We request that the applicants provide specific plans for avoiding public safety concerns to include loitering, vandalism, unsafe driving, consumption of alcohol and illegal drug use, given the large concentration of workers during the construction phase, many of whom may not live locally.

- What plans, policies and safeguards will the applicant and subcontractors adopt to ensure a construction environment that has minimal impact on the surrounding community and its residents?

- What background checks and other measures will the applicants and/or subcontractors use for workers and vendors to ensure the safety of the workforce and local residents?
- How will Hecate monitor the activity of its subcontractors to ensure compliance with policies and procedures?

Public safety considerations should be focused on a broader view (beyond site and operational security) of the potential safety impact to the community of a large-scale construction environment.

As procedures stated on page 54 specifically call for the summoning local law enforcement officials, please clarify which officials (e.g., Greene County Sheriff, NYS Police) will be summoned and how their presence on either the construction site or the operating facility site will affect their ability to respond to local emergencies.

During the construction phase and operation phases of the plant, please describe potential emergencies to which local first responders may be called and any specific precautions that should be taken by them.

Please note that our local fire companies are staffed by volunteers. It is increasingly difficult to recruit volunteer firefighters; most join under the assumption that they will be helping to protect local residences where friends, neighbors, and family members are live or the businesses that employ and serve them. The applicants are requesting that additional activities be added, further putting firefighter and other first responders' health and safety at risk.

It is expected that the applicants will provide any specialized training and equipment required, as well as tax revenue to support their efforts. Full disclosure should be made in advance to all first responders regarding the materials contained in facility elements such as solar panels, inverters, and transformers, as well as any items contained in storage facilities on site. We understand that the panels used will probably use a relatively benign technology, but the possibility of emissions from even small quantities of burning plastics in or around the panels could pose a hazard in the event of a fire.

- Given the modest array setbacks in some areas of the facility, as shown in the revised panel layout of 22 June 2018, has consideration been given to the potential effect of a car or truck striking the fencing and/or an array during an accident? Is the fence intended to absorb impact and prevent contact with the actual panels? If not, what are the consequences of a vehicle striking a live panel? What are the implications for first responders? We suggest addressing these subjects specifically as public safety concerns.

4.17 Air Emissions

In their overview, the applicants state that the facility will have a positive impact on air quality by producing electricity with zero emissions. This statement would seem to be generally true of renewable energy projects, and needs further clarification in regard to the specific siting of the Greene County Solar Facility.

Please describe and quantify the nature of air quality improvements that will occur within the Facility Area as well as the Study Area. Describe the general and specific fossil fuel sources that currently impact air quality in the Coxsackie area, and to what degree they will be lessened.

For instance, the Athens Generating Plant located only a few miles from the Facility Area, has total CO_2 emissions totaling 1,093,365.51 metric tonnes, placing in 246th place on a list of 2,729 North American power plants (Commission for Environmental Cooperation, 2005 report). To what extent will the presence of the Greene County Solar Facility affect CO_2 levels and other emissions in the Study Area?

4.19 Noise and Vibration

The PSS states that "Vegetation management will primarily be done with periodic mowing and trimming." What is the approximate noise level, schedule for, and duration of mowing activities? Please include a mowing and trimming noise analysis for those for homes adjacent to the Facility Area. We understand that solar facilities are generally perceived to be quiet, but we request noise studies for all properties adjoining the facility, including those whose boundary consists of a roadway.

4.23 Water Resources and Aquatic Ecology

On page 115, the water table is described as shallow. During recent years, area water table levels have varied dramatically due to extreme weather patterns (drought, excessive rain). Please ensure that no water resources will be used during periods of drought (more than 28 days without rain).

4.27 Socioeconomic Effects

When compared with the community's potential economic losses, minimal economic benefits are expected from siting the Facility in Coxsackie. Recent business investment in the historical downtown district may be compromised, for example, and the future amount and quality of local investment may be significantly impacted.

Tourism forms an important part of the Greene County economy. According to a 2010 study commissioned by Greene County, tourism accounts for the following economic impacts to the county:

- Visitors spent $166 million in Greene County in 2008.
- Tourism sustains 2,125 jobs directly in tourism-related sectors and a total of 3,156 jobs including indirect impacts. This is 21.5% of total in-county employment across all sectors in Greene County.
- In 2008, tourism generated $10 million in local taxes and $11 million in state taxes. In the absence of tourism-generated local taxes, Greene County households would need to be taxed an additional $545 per year to make up for lost local taxes.
- Greene County has significant opportunities to increase the economic impact of tourism. Its lodging sector is diverse across B&Bs, hotels, motels, resorts, and cabins. In addition, the county is home to over 7,000 seasonal second homes. In fact, many of the projects that the Greene County IDA is currently involved with relate to recreation and tourism.
- In particular, several wedding venues are located in or have been planned for Coxsackie and the immediately surrounding area. What effect would large-scale solar development have on these businesses, and how will the owners be compensated for their losses?

Two hundred temporary construction jobs are highly unlikely to offset losses from tourism revenue.

The effects of large-scale solar development on tourism in Coxsackie, covering secondary effects to the rest of Greene County should be studied in depth, given the number of jobs and tax revenues that tourism supplies, at least some of which may potentially be lost, as will future business opportunities.

The applicants acknowledge that not all views of the facility can be mitigated successfully through the use of vegetative screening. In some cases vegetative screening causes viewshed loss that devalues properties. Regardless of the overall effects of the facility on property values in the area, these affected landowners will almost certainly experience difficulty in selling their properties, especially as second homes, and selling prices are expected to be lower. This holds true especially for residents living in close proximity to the sites but extends to landowners with elevated views of the sites. Lower property values can be expected to considerably lower the net worth of these landowners, many of whom are retired or otherwise unable to absorb these undeniable losses.

PILOT funds do not address the direct and substantial losses of these stakeholders. How will landowners whose property values will be impacted most significantly by proximity to the facility or with viewsheds that include it as a prominent feature be compensated for their losses?

When compared with the community's potential economic losses, minimal economic benefits are expected from siting the Facility in Coxsackie. Recent business investment in the historical downtown district may be compromised, for example, and future investment is unlikely to occur.

No direct sociological benefits appear to be included in the document.

The PSS does not appear to recognize any negative effects on the community from constructing the facility here. These effects need to be outlined and studied in detail. The public need for energy must be weighed against possible economic damage, which the applicant has failed to address in any meaningful way.

Note again that the "public need" addressed by this facility is directed in part at residents of Connecticut and other New England states, where 40 percent of the energy produced by this plant will be sold. It is unclear whether "public need" as defined in the Article 10 process includes the needs of other nearby states. Selling this energy or energy credits outside the state necessitates the investment of still more resources to meet the energy needs of New York State.

To gain a more detailed understanding of the impact on and benefits to the local community, as well as determine the degree and permanence of the commitment that the applicants are offering to the local community, we request additional details as follows:

- Will the applicants directly control construction of the project as the primary contractor, or will it outsource that responsibility to another entity?
- What has the applicants' outsourcing practice been on similar U.S.-based solar projects?
- If outsourcing primary contracting responsibility to a separate entity, can it identify that entity and whether it will in fact be a local contractor?
- If the applicants intends to outsource the primary contracting responsibility, will Hecate Greene employees be available on site daily and exercise overall supervision?
- The Greene County labor force is estimated at approximately 20,000 (sources include BLS, Data USA), of whom 6.5% are employed in construction. Has Hecate determined the extent to which it will rely on construction labor from outside of

Greene County, where that labor will be sourced, and to the extent that labor from outside of Greene County will be required, how that labor will be accommodated or housed, as necessary, and the impact on local infrastructure?

- The applicants specifically state that the majority of workers will be sourced locally to the extent available with the local community. This is a statement of general intent and is not based on applicable information on the available labor force and skill sets. Can the applicants provide a more definitive estimate of the number of workers it expects to source from Coxsackie and Greene County, and the percentage sourced from outside Greene County?
- Can the applicants address the impact on the cost and availability of local construction services available to community residents, businesses, and local and regional governments during the construction phase of the Facility, which will absorb significant resources for a limited period of time?
- The applicants have indicated they will develop data on the average construction work force by discipline for each quarter during the construction period; peak construction employment level; estimated construction payroll; and nonpayroll expenditures likely to be made in the vicinity of the Facility. This information should include data on the size and availability of the local labor force, to provide local residents with the opportunity to plan their own construction-related activities around the availability of local workers.
- The applicants have also indicated they will provide data on the number of jobs and payroll during a typical year once the facility opens, and other expenditures likely to be made in the vicinity during a year of operation. With respect to the estimate of "several" workers employed by the Facility after completion, will those workers be full-time or part-time and what skill sets will be required? What salary range applies to these positions? What benefits will be provided to these workers?
- The applicants have publicly stated their intention to sell the facilities; we would like to learn more about their plans to transfer ownership and the proposed timing of this transfer, as well as whether they will take into account the buyers' previous experience with owning and operating facilities of this size and scope. Has the applicant had discussions with potential purchasers of the Greene County projects?
- The applicants indicate that the economic impact analysis of the construction and operation phases will be based on project and industry data for similar projects. We would like Hecate to identify the actual projects and assumptions on which the analysis is based, as well as a detailed explanation as to how they were harmonized

with an inventory of existing labor availability, job skills, supply availability and general economic conditions in locales such as Coxsackie and Greene County.

- Please validate the assumption that the Facility is not anticipated to result in any additional operation or infrastructure costs to local school districts, municipalities, authorities, or utilities, particularly with respect to the construction phase of the projects, and the potential need for labor from outside the local area.
- Please describe what aspects of "facility operation and maintenance activities" (page 8) will generate "annual fees"? To what do the "fees" apply? What is the basis for the figure "several hundred thousand dollars"? A list of operations and activities needs to be developed and dollar amounts assigned to these, based on the applicants' experience with operating other plants of this size in residential areas.

The PSS states that the proposed facility will have a positive impact through local employment and service opportunities, specifically by generating temporary construction employment to be drawn from Greene County and the regional labor market. The document states that over 200 construction workers will be employed during peak construction, and once in operation, the Facility will employ "several" workers plus additional support from local service providers to maintain the Facility Area and associated systems. It is states that the Facility will also result in increased revenue to Greene County and the Town of Coxsackie, indicating that PILOT (payment in lieu of taxes) negotiations will begin shortly, purchases of local supplies, goods, etc.

The following statement requires clarification:

> "Facility operation and maintenance activities will general several hundred thousand dollars of annual fees..."

To what exactly do "annual fees" refer, given that wages paid to employees and local contractors are not fees? On what is this statement and monetary amount based?

To gain a more detailed understanding of the impact on and benefits to the local community, as well as understand the degree and permanence of the commitment that Hecate is offering to the local community, we request additional detail on the following:

- Will Hecate directly control construction of the project as the primary contractor, or will it outsource that responsibility to another entity?
- What has Hecate's practice been on similar US-based solar projects?
- If outsourcing primary contracting responsibility to a separate entity, can it identify that entity and whether it will in fact be a local (Greene County) contractor?

- If Hecate intends to outsource the primary contracting responsibility, will Hecate employees be available on site daily and exercise overall supervision?
- The Greene County labor force is estimated at approximately 20,000 (sources include BLS, Data USA), of whom 6.5% are employed in construction. Has Hecate determined the extent to which it will rely on construction labor from outside of Greene County, where that labor will be sourced, and to the extent that labor from outside of Greene County will be required, how that labor will be accommodated or housed, as necessary, and the impact on local infrastructure?
- Hecate specifically stakes that the majority of workers will be sourced locally to the extent available with the local community. This is a statement of general intent and is not based on applicable information on the available labor force and skill sets. Can Hecate provide a more definitive estimate of the number of workers it expects to source from Coxsackie and Greene County and the percentage sourced from outside Greene County.
- Can Hecate address the impact on the cost and availability of local construction services available to community residents, business, and government during the construction phase of the Facility, which will absorb significant resources for a limited period of time.
- Hecate has indicated it will develop data on the average construction work force by discipline, for each quarter during the construction period; peak construction employment level; estimated construction payroll; and nonpayroll expenditures likely to be made in the vicinity of the Facility.
- Will Hecate manage the facility after construction is complete, and if so, how many Hecate employees will be employed onsite?
- If Hecate does not intend to manage the facility after construction is complete, what entity will Hecate hire to manage the facility and what criteria will it use to ensure sound management, or does Hecate intend to sell the facility to another party?
- We note that while Hecate continues to own and operate a number of its completed solar projects, Hecate has sold the Cherrydale, Clarke, Monson, and Rome Highway solar projects. Has Hecate had discussion with potential purchasers of the Greene County projects?
- Hecate has also indicated it would provide data on the number of jobs and payroll during a typical year once the facility opens, and other expenditures likely to be made in the vicinity during a year of operation. With respect to the estimate of “several”

workers employed by the Facility after completion, will those workers be full-time and part-time and what skill sets will be required?

- Hecate indicates that the economic impact analysis of the Construction and Operation phases will be based on project and industry data for similar projects. We would like Hecate to provide the actual projects and assumptions on which the analysis is based, as well as a detailed explanation as to how they were harmonized with an inventory of existing labor availability, job skills, supply availability and general economic conditions in Coxsackie and in Greene County.
- Please validate the assumption that the Facility is not anticipated to result in any additional operation or infrastructure costs to local school districts, municipalities, authorities, or utilities, particularly with respect to the construction phase of the projects, and potential need for labor from outside the local area.
- With respect to the PILOT, is Hecate willing to pay a PILOT equivalent to the full property tax which would ordinarily be assessed according to a re-appraised property value based on its current use as a utility, and not based on the valuation as currently zoned?