

## Hawthorn Solar – Public Hearing Responses

CS Energy has gone through the questions that were received and answered each individually. Through these responses, several items were repeatedly brought up through questions and comments. In order to effectively and comprehensively address these key items, CS Energy has drafted the below summary which compiles answers from questions and comments received multiple times.

### 1) Benefits of the Hawthorn Solar Project

#### Clean Energy

The proposed project will produce 20 Megawatts (MW) of clean energy that will flow to the New York grid for its lifetime, which is anticipated to be up to 40 years. Per the National Renewable Energy Laboratories (NREL), a 20 MW renewable energy project will produce 32,781,536 kWh annually, which is equivalent to 23,232 metric tons of CO<sub>2</sub>. This amount is enough to provide clean electricity to 4,740 New York homes on average, annually. This project will put electricity onto the wholesale grid, where it connects, that will be purchased and distributed to its customers, via the Substation just North of Hoosick.

#### Jobs

The construction of this project will also require up to 100 construction jobs that will pay living wage throughout the construction period, which is expected to last approximately 12-18 months. These jobs will be sourced locally to the extent possible, providing a direct benefit locally. CS Energy prioritizes working with local labor unions, and will coordinate with the Local Labor Unions, including Liuna Laborers Local 90 and IBEW Local 236 to secure jobs for local residents.

The project will also contract with a local entity or individuals to carry out the general maintenance of the site, which will include vegetative maintenance and identifying any necessary repairs on site. To allow the land to remain in agricultural use, the project intends host sheep on site as a means of vegetative maintenance. The project will contract with a local shepherd for sheep grazing on the site. The maintenance will provide local employment but will not result in a significant increase in traffic, as minimal maintenance on site is required.

#### Tax Benefits

The project will provide additional revenue to the town via taxes through a Payment in Lieu of Taxes (PILOT) program, in addition to the property taxes that will continue to be paid on the underlying property. The PILOT amount will be based on the state's new assessment model. Our current estimate for the projects assessed value in the first year of operation based on the most recent version of the assessment model is \$6,700,000. The PILOT program allows for an additional, steady stream of revenue, provided to the town, school district, and county, on top of the taxes that will continue to be paid on the underlying land, allowing all entities receiving this money to budget and effectively allocate based on the amount they will be receiving each year. We anticipate that the value of the PILOT will be generally consistent with the value that

the project would pay in taxes during the PILOT term. Once the PILOT term, which typically lasts 15-20 years, ends, the project will pay taxes on the tax rolls. Special district taxes, such as those to the fire and library special district, will be paid based on the assessed value of the project throughout the lifetime of the project.

### Environmental Benefit

The project will also provide over 25 years of generally uninterrupted habitat for birds, insects and small mammals. No soil will be removed from the site, and the soil underlying the panels will be allowed to rest throughout the project life, allowing for it to regenerate and replenish nutrients lost through consistent agricultural activities. This will allow for the site to return to productive agricultural use at the end of the project life. Unlike other forms of development, the project will not remove the site from agricultural use, and all the area underlying the panels will be planted with pollinator species or grasses. Not only will the project benefit the underlying land, but the project also intends to host sheep on the site - this collocation of the panels with sheep grazing will allow for a low impact agricultural use to continue on the site. The site, outside of potential sheep grazing, will be essentially a silent and odorless neighbor, surrounded by trees, producing clean energy, with a meadow of pollinator species and grasses underlying the site – vastly different than any industrial use.

Additionally, around the site, over 1,000 trees will be planted to shield the view of the project, while also providing additional habitat, and a benefit to the environment, coupled with reseeded following project decommissioning. It should also be noted that, although this project may have some impacts on wildlife in the general vicinity within and directly adjacent to the project site, the project will be providing clean energy, which will go toward transitioning the grid of the state and add to the slowing of climate change overall, that this project, and others like it, will minimize large, long term impacts to wildlife that may present themselves in the increasing wildfires, heating or fluctuating climate. It can be difficult to quantify the impact of clean energy when the noise may create a temporary disparate impact, and the previous farmland or forested land transitions to a solar project, but in keeping with the long term goals of the state, wildlife and the residents of this state and nation will receive a long term benefit from the construction of this project and other renewable energy projects in the state.

## **2) Panel safety**

Studies on the type of panels that will be used at the Hawthorn Solar Project have determined that there is no risk of leaching posing a risk to human health or the environment, as detailed below. Panels used in projects in the past were cadmium telluride panels, which did pose a risk of leaching. The panels used here will not be cadmium telluride panels and will not contain cadmium. It is our understanding that no panels in solar projects in the state of New York, either constructed or proposed, use or will use cadmium panels. There are no battery/energy storage facilities associated with this project.

There are minimal risks that accompany energy facilities. Some of those risks include the risk of small, self-contained fires, and the risk of injury through the construction and

maintenance of the project. Each of these risks are limited – fires associated with solar projects are typically contained around the electrical equipment and are self-contained, damaging only the system or the area directly around the system. Small brush fires can occur, but the system itself is not conducive to spreading fires as none of the project components are particularly flammable. The fire department will receive training prior to the operation of the project in the correct response measures. Prior to the operation of the project, the applicant will coordinate with first responders to determine whether or not there is specialized equipment that is necessary to effectively respond to emergencies on site. Should any special equipment be needed, the applicant will work with the fire departments to determine what can be provided by the project.

Information from the New York State Energy Research Development Authority regarding panel safety is included below, which uses third party research to provide information on the safety of panels.

#### *Are solar panels toxic?*

- Solar panels largely consist of widely-used and non-toxic components, including an aluminum frame, tempered glass, and various common plastics. The most common type of solar panel consists of crystalline silicon PV cells which generate electricity when exposed to light. These non-toxic crystalline silicon cells consist almost entirely of silicon, one of the most common elements in the Earth's crust. Cadmium-based thin-film solar panels are the second most common type of panel (accounting for less than 15% worldwide), however NYSERDA is not aware of any of these installations currently in New York. *Cadmium based panels will not be used in the Hawthorn Solar Project.*
- Some minor system components, including solder, may contain toxic chemicals at extremely low concentrations. Analysis performed by the North Carolina Clean Energy Technology Center did not find a potential toxicity threat from leaching, even in worst case scenarios (hurricane, fire, tornado, etc.), indicating an insignificant threat to human health and the environment. Release of toxic chemicals from other solar system equipment including inverters, racking, and cabling is also unlikely as solar installations must conform to state fire safety and electric codes, and they pose little or no risk of contaminating the soil or ground water.

#### *Can solar panels break and release toxic materials?*

- The most common solar panel failure modes include glass breakage and various failures of internal electrical connections, neither of which would typically result in the release of any materials to the environment. Solar panels are constructed primarily of silicon or cadmium telluride, tempered glass, and metals. Similar to a car windshield, when solar panels experience a catastrophic event, the panels typically stay fully intact, thus not releasing any materials into the environment. Additionally, reputable solar panel manufacturers (*such as Tier 1 panel manufacturers*) will ensure that their equipment is certified to applicable performance and safety standards including those established by the International Electrotechnical Commission (IEC) and Underwriters Laboratory (UL).

### 3) Viewshed impacts views and property value impacts

There is little evidence that indicates that solar development has a significant impact on property value. Studies have been conducted that indicate values may rise when adjacent to projects and some that indicate property values may experience a small drop. The applicant will commit to planting trees that are 6 feet tall at planting and will plant during the first available planting season in construction, rather than planting at the operation of the project. This will allow for the trees to provide, at operation and throughout the project life, viewshed mitigation at a faster rate than is typical for projects.

Without any mitigation or existing vegetation accounted for, the project may be visible from 12 residences. A photo is included below which shows how the panels will look like from the western side of the project – where the most residences were identified that have a potential viewshed. This photo with mitigation shows the panels entirely shielded after the first five (less as trees will be planted at construction) years of growth. We anticipate the number of residences identified above being significantly less, provided the existing hedgerows and vegetation adjacent to the project and throughout the general area around the project, and with mitigation measures that will be implemented. It is the applicants experience that, although agricultural land is viewed as optimal to some, others may have a different view and may prioritize land that is adjacent to areas that have uses other than farming taking place, balancing any perceived potential impacts to property value.

The project is set back at least 250 feet from Pine Valley Road, and on average over 600 feet from Pine Valley. In most locations along the project the topography from Pine Valley Road will shield the view of the panels. Vegetative screening is proposed along the majority of the locations where the panels are visible from residential properties and public vantage points, including along Fords Road and Pine Valley Road. There will be minimal impact to travelers. The panels will have little visibility from the road and it is not anticipated that drivers will be impacted on their commute. The project will have no glare impacts on roads or any residences or neighboring properties. Through landscape mitigation, over 1,000 trees are anticipated to be planted during construction.

### 4) Concerns regarding noise

It is not anticipated that the project will have noise impacts at any adjacent property throughout the projects 25 + year operational life. The stables located on the Windy Lea parcel are located over 2000 feet from any project components. Of the 74-acre parcel under the ownership of Windy Lea, approximately 2 acres are within 600 feet of any project components. The property boundary of Windy Lea is, at the closest, approximately 350 feet from any project components. The substation, which will be located just east of the 115 kV lines that the project will interconnect to, is the closest project component. The property boundary of Windylea is located over 650 feet from the nearest location where any racking will be installed. The closest field owned by Windy Lea is located approximately 420 feet from any project component.

During operation, at 400 feet, the substation will emit noise that is 40 dB, or approximately the sound of a refrigerator. Construction of the substation will produce noise levels, at 425 feet, that are equivalent to the following:

- Excavator will produce noise that is approximately 57 dB, which is the general noise level at a restaurant.
- Concrete trucks used for construction will create noise at 65 dB or the noise level approximately equivalent to that of a car driving by.
- A grader will create noise levels at approximately 59 dB, or the approximate noise level of conversation.
- The noise of a flatbed truck is approximately 55 dB, or a noise level between rain and conversation.

At 600 feet, the substation will produce noise throughout operation that is approximately 35 dB, between the noise level of a whisper and a refrigerator. At 500 feet, the construction of a racking system and piling would be 65 dB, between voices and a car driving by. At 500 feet, inverter installation will be approximately 70 dB, approximately equivalent to a car passing by. While topography may be a factor, the overall noise levels will be limited enough that impacts from topography should not create significant additional impacts. Fans that are located at the transformer has been incorporated into the overall noise levels anticipated, as identified above.

## **5) Agricultural impact and Agrovoltaics**

The Applicant anticipates sheep grazing on at least a portion of the site and has accounted for this in the application materials. The person responsible for the sheep on site will be local and will be responsible for vegetation maintenance across the site. This has been a successful method of agrovoltaics used with other solar sites throughout the state of New York. The site will also be planted with pollinator species that will be able to support sheep grazing, while also attracting pollinator species, benefiting adjacent agricultural uses.

The project will differ from other forms of development, in that it will allow for vegetation and agricultural use to continue in and around the panels. The impacts that are anticipated will occur during construction, and then the site will function as a sheep grazing site that is planted with pollinator species – allowing for birds, insects and bees to use the area throughout the projects 25+ operational life. The applicant not only anticipates continued agricultural use on site, but the site will also serve to benefit future agricultural use of the site on decommissioning, as none of the soil will be removed from the site, and the soil will be allowed to reset and regenerate throughout the life of the project.

## **6) Impacts to roads and stormwater management**

The project has provided a road use agreement to the town in the special permit application materials which states that the applicant will repair all roads damaged from the construction of the project. The only road impacts that may occur will happen during the

construction of the project, as this will be the only time large equipment and deliveries will be consistently made. The haul routes have been designed to minimize impact to town roads, and CS will coordinate with the Hoosick Highway Superintendent to get feedback on the optimal haul routes and times for delivery. Deliveries of the project components will occur regularly throughout a 6 – 9-month period of the 12 – 18-month construction timeframe. Smaller vehicular traffic is anticipated to occur regularly through the 12–18-month construction timeframe, but not at a volume that would significantly increase the traffic volumes on local roads. This agreement includes the repair of any Town of Hoosick roads damaged through the construction of the project. The current proposed haul route will run from Route 7 to Route 105 and on to Pine Valley Road or Fords Road, but may be altered based on feedback and coordination from relevant town officials, such as the zoning board or the Highway Superintendent.

A certified engineer will perform regular stormwater inspections throughout the construction of the project, per the Department of Environmental Conservation requirements. The applicant has drafted a stormwater pollution prevention plan (SWPPP) for the project which will ensure that stormwater control measures are in place for the construction and operation of the project. The engineer will assess the site to ensure the proposed stormwater control measures are in place and are maintained per the SWPPP requirements. The Applicant has also submitted a stormwater management agreement with the application materials, that ensures stormwater controls are maintained throughout the projects operational life. Through the proposed stormwater management measures the projects construction and operation will not result in any additional runoff outside of the site, including roads, other properties, or adjacent to the project boundaries.

## **7) Property boundary lines related to area variance**

The applicant is pursuing this area variance with the understanding that the variance will run with the land only while the project is operational. On decommissioning of the project, the area variance will no longer apply, and the zoning law setbacks will once again be applicable.

The property boundary lines and locations are all internal to the project. All setbacks to non-participating property boundaries are being adhered to, and in most cases, the project exceeds the required setbacks. The variance will allow the project footprint to be reduced.

Photos below show view of Western panels, from Pine Valley Road



RECEPTOR #1 LOOKING NORTH THROUGH SITE (DAY 1 PLANTING – 6' HT)



RECEPTOR #1 LOOKING NORTH THROUGH SITE (5-10 YEAR GROWTH)