

## Questions and Answers on Solar Projects in Dryden

### **BENEFITS**

Q. *What is the rationale for all this solar development?*

A. The Tompkins County Energy Roadmap recommends developing 944 MW of solar PV on 4,720 acres (1.5 percent of the county's land area) as part of the strategy to achieve its 2050 goal of 80 percent carbon reduction. Dryden is a municipal leader in the climate-change movement. Cornell must also be an active participant, leveraging its land resources to enable the successful achievement of these critical goals.

Q. *What is community solar?*

A. New York's community distributed generation program provides opportunities for those who cannot otherwise participate in solarization (renters, those without sufficient capital or land resources, those whose properties are not suitable for solar, etc.) to subscribe to a portion of the project generation for a cost that is typically at a discount from utility retail rates. A project sponsor develops and manages the solar array, and the local utility (NYSEG) will meter the energy generated by the project and apply dollar credits to the monthly utility bills of its customers who have contracted with the sponsor for shares of the solar generation. The sponsor then bills those customers for their equivalent share of solar generation.

Q. *How many homes is this project capable of supplying with electricity and at what kWh volume?*

A. The solar projects proposed in Dryden can satisfy the energy-use equivalent of approximately 7,500 homes, using an average consumption rate of 7,100 kWh per year.

Q. *How does the town benefit?*

A. Dryden will collect new annual tax payments from the proposed solar projects through a negotiated solar tax agreement. Because of the solar installations, the Ellis Tract projects near Turkey Hill and Dodge Roads will bring revenue from land that is currently tax-exempt. Payments resulting from the value of the panel installation at 2150 Dryden Road will be made by Distributed Sun under the solar tax agreement. In addition to monetary gain, this project will add to Dryden's reputation as a green energy leader and attract like-minded businesses and home buyers; it aligns Dryden with other towns around the County and the State in responding to climate change; it increases energy independence by giving residents and small businesses access to renewable energy produced in our backyard; and it reduces our dependence on fossil fuels.

Q. *How will the nearby neighbors be affected?*

A. Undoubtedly, solar projects change the landscape. Distributed Sun has been meeting with those affected to address their concerns. As a result, the new proposal includes bigger setbacks, vegetative screening with native plant species, different fencing, wildlife corridors, grazing not mowing, habitat for birds and pollinators, and minimal tree cutting and trimming. Generally, solar panels are quiet neighbors. They don't pollute land or air and they bring benefits without increasing traffic or adding burdens to schools, sewers, or water

infrastructure. This use would give neighbors assurance of long-term stability in land use. The lands retain agricultural value for the future since the arrays are relatively easy to deconstruct and leave the land essentially as it was before. In addition to local customers being able to get electricity at a discount, Distributed Sun will be improving the reliability and resiliency of NYSEG's local grid for everyone.

## **ABOUT THE SOLAR PANELS**

Q. *Is there any noise associated with the panels?*

A. Solar arrays do not move and do not generate noise. The inverters and transformers generate a faint humming noise that is indistinguishable from ambient noise at 100 feet. No inverters or transformers are being proposed within 100 feet of a property line.

Q. *Is there glare off of the panels?*

A. No. Solar cells are coated with an anti-glare coating designed to absorb sunlight. Glare studies have evaluated the potential glare impacts from solar panels and determined that panels with a single layer of anti-reflective coating reflect less than 10 percent of the sunlight striking it. Several US airports feature solar arrays on their own or adjacent premises, including the existing Cornell project near the Ithaca-Tompkins County Airport.

Q. *What danger is there – fire, electric shock?*

A. Solar arrays installed per the National Electric Code, as these will be, present a very low risk of fire or electric shock. The materials in the array are primarily metal and glass, and solar arrays have electrical safety “trip” features, and coated wires. Upon completion, all of these arrays will be inspected three times: (1) by an independent third-party electrical inspection firm for safety, (2) by NYSERDA for safety, code compliance and reliability, and (3) by a third-party independent engineer for long-term reliability. NYSEG will also conduct a “witness-test” before allowing the solar arrays to operate.

Q. *I hear that the panels are made in China—why not use American-made panels?*

A. There are three American manufacturers who make solar panels for the mass market—SolarWorld in Oregon (majority owned by the Sovereign Wealth Fund of Qatar), Suniva in Georgia (financially not stable), and SunPower. SolarWorld and Suniva have both been at the brink of bankruptcy—meaning that they may not be able to honor their long-term warranties. Modules from all these manufacturers are two to three times more expensive for comparable quality as those from China. Other firms manufacture for exotic applications only, not regular commercial applications.

Q. *How high off the ground are the panels?*

A. On average, the lower end of the modules is 2 feet off the ground and the higher end of the modules is 7.5 feet off the ground. The solar panels are installed at a 25-degree southern tilt to capture the sunlight.

Q. *What is the life expectancy of the panels?*

A. The performance of panels is guaranteed for 25 years. Many arrays around the United States have operated for 30 or more years.

Q. *What happens at the end of a panel's life?*

A. The solar panels' output degrades at only approximately 0.5 percent per year, so the panels can be expected to function for a long time. At the end of their life, 94 percent of the materials will be recycled and the contents extracted. High-purity silicon, silver paste, glass, and aluminum can be reused.

## **THE ECONOMICS OF SOLAR INSTALLATIONS**

Q. *How will solar arrays affect neighboring property values?*

A. In order to have data, sales records are needed. No data yet exists for this valuation, although the Massachusetts Department of Environmental Resources in its published Q&A on Ground Mounted Solar Photovoltaic Systems (p. 13) suggested that there was little evidence that ground-mounted solar arrays impacted property values.

Q. *How much profit does the developer make?*

A. According to a recent study by NYSERDA, solar developers average about 3 percent profit before taxes, which rises to 6-7 percent after tax credits are applied.

Q. *How do solar developers make their money?*

A. By monetizing the tax credits, and selling the electricity generated by the solar arrays. New York provides a nominal incentive for each project on a statewide, competitive basis.

Q. *Who owns the land?*

A. Ellis tract lands are owned by Cornell University. The 2150 Dryden Road site is owned by an individual, Scott Pinney.

Q. *What does Cornell University get from allowing this on its land?*

A. Cornell will retain the renewable energy attributes (known as RECs) to further their carbon neutrality commitment, which includes a goal of 100 percent renewable energy by 2035. Cornell also receives a lease payment from Distributed Sun.

Q. *Why are the projects proposed in such big clusters?*

A. The cluster of 2MW projects is to defray circuit upgrade costs for interconnection to the grid.

Q. *Will electric rates in the town/county go up or down?*

A. No, NYSEG rates for electricity will not change. However, those who subscribe to purchase electricity from the solar arrays instead of from NYSEG can expect a discount over retail electricity prices.

## **LAND-USE ISSUES**

Q. *Why use these particular tracts of land?*

A. Only six currently viable circuits intersect Cornell property in NYSEG territory. Cornell's existing solar arrays in Tompkins, Cortland, Ontario, and Cayuga counties use four of them, the other two are adjacent to the currently proposed projects in Dryden. Across several counties in central New York, Distributed Sun has identified only fifteen circuit/substation combinations that have the baseline capacity to host community-scale solar arrays.

Q. *What are the basic site-selection criteria?*

A. Criteria include but are not limited to:

- Proximity to utility distribution circuits and substations of sufficient capacity
- Size of site and its availability for thirty-plus years
- Relatively level and flat land (to minimize grading and maximize sun exposure)
- Relatively open and free of woody vegetation (to minimize site clearing and shading)
- Site is marginal/sub-prime for agricultural use

Scarcity of places to connect with the electric grid is the most limiting factor for siting. Costs to interconnect are high and upgrades can be ~\$1 million/mile. There are prohibitions on crossing roads, etc. This requires optimization of land-use-planning criteria, project size, and proximity to the substation to balance these costs.

Q. *Are there precedents in NY (or anywhere) for subdividing the project into 2MW arrays?*

A. Yes. The New York PSC (in cases 14-E-0422 and 14-E-0151) has ruled that “each 2MW array must be operationally separate ... one company may operate any number of sites.” Additionally, “only one remote net metered facility may be located within the bounds of a site as described in a deed.” This ruling not only allows but prescribes subdividing the property. All projects proposed in Dryden have been approved for interconnection by the utility. The 10MW Gore Mountain solar installation, which sells power to the state of New York, was constructed in this way.

Q. *What are the setbacks from homes/roads/cemetery?*

A. A buffer of up to 275 feet, with plantings of native trees and shrubs, will be accomplished on Dodge Road between the homes and the solar arrays. The arrays at 2150 Dryden Road are set back from the cemetery property line by at least 130' to the south, 140' to the west.

Q. *Is there a link to the current map of interconnection points in town?*

A. NYSEG provides a circuit map (see: <https://tinyurl.com/gtbf42u>) with baseline circuit and substation information to screen what circuits *might* be viable, rather than specific interconnection points. It is the project proposer’s responsibility (and cost) to determine if a parcel of land somewhere along a potentially viable circuit could host an array, and then pay the utility for the detailed engineering studies needed to identify specific upgrades, upgrade costs, and capacity limits to that point.

Q. *Why do the panels have to be fenced?*

A. The National Electric Code requires that equipment operating at greater than 600V be accessible only to qualified professionals. Fencing limits access to qualified personnel. The fence also contains and protects from natural predators the sheep used for vegetation control.

Q. *What style of fencing will be used in front of homes and by the cemetery?*

A. Game fencing—six-feet high with a six-inch square grid and fixed knot—will be provided. No barbed or razor wire will be used. An example of this fence is viewable at the corner of Game Farm Road and Rt 366.

Q. *How long is the land lease?*

A. Thirty-five years, with a twenty-five-year initial term and two five-year extensions at the project owner's discretion (not the landlord's). The lease requires the developer to remove the array at the end of the lease term. Both the landlord and the Town have mechanisms to enforce and ensure decommissioning. The materials in the racking and panels have substantial reuse and/or scrap value.

Q. *Who does maintenance on the panels and how often?*

A. Maintenance is handled by local electricians and contractors. Preventive maintenance occurs quarterly. Reactive maintenance occurs as needed.

Q. *Is storm water run-off more significant with the panels on the land?*

A. No, solar panels do not create a new point source, nor alter existing sheet flows. No observable change occurs to existing on-site storm-water patterns. Gaps between each panel allow the water from their surface to reach the ground through the racking system.

Q. *Will neighboring property get flooded?*

A. No. No grading is proposed to impact current drainage patterns, and the panels themselves do not change runoff conditions, therefore no change should occur to existing drainage.

Q. *Will the vegetation be replaced with another material such as sod, stone, or pavement?*

A. No. The site will be "brush-hogged" (mown) but will not be graded or otherwise have the existing vegetation or topsoil removed. Existing vegetation will reemerge after the project is complete. In addition, the land will be top-seeded in appropriate areas with a mixture specifically developed by Cornell Botanic Gardens for the solar arrays that includes plant species with pollinator value. Vegetation readily grows under the solar panels and in the 15- to 16-foot-wide aisles between the rows. Temporary stone construction entry points may be installed to control mud tracking on local roadways, and stone may be applied to stabilize vehicle access to the inverter and meter pads. If grading is required (for example, to create a berm for planting), a site-specific storm water protection plan (SWPPP) will be presented to the Town for approval and the NYS DEC would be alerted through a "Notice of Intent." Erosion control work will be performed under the supervision of a qualified professional engineer licensed in New York.

Q. *Why not spread them out around town/county?*

A. There are very few locations on the grid where, even if significant upgrades are made to the grid, solar arrays larger than residential-scale can be interconnected. Projects must be large enough to absorb the interconnection costs and still offer competitive prices to purchasers of the energy. To achieve the state, county, and campus renewable energy goals, all available interconnection points eventually must be used.

Q. *Will trees be planted to replace those cut?*

A. Cornell's Climate Action Plan includes a forestation initiative on as much as 3000 acres. The areas to be cut will create the desired early successional habitat called for by both the NYS DEC and Audubon NY young forest initiatives. Cornell maintains thousands of acres of forest land, including a designated forest management area immediately to the east of the Dodge Road site. Low-growing native shrubs and plantings will be installed in areas where visual screening is preferred.

- Q. *What about the carbon sequestration loss from cutting trees?*  
A. An acre of trees will sequester approximately two tons of CO<sub>2</sub> per year. Because solar generation replaces fossil fuel electric generation, an acre of solar panels avoids the emission of 110 tons of CO<sub>2</sub> per year. Acre per acre, that result is an annual net CO<sub>2</sub> reduction of 108 tons.
- Q. *How will the panels be screened?*  
A. Several native, noninvasive plantings and trees have been suggested by neighbors. Cornell Botanic Gardens is being consulted on suggested choices.
- Q. *How will animals move around if the area is fenced?*  
A. Small mammals and amphibians, as well as birds, will easily go through or over the fences. Travel corridors will be provided for larger animals.
- Q. *Wildlife corridors—where will they be placed?*  
A. Six corridors are proposed between the arrays: two corridors at Dodge Road, two corridors at Turkey Hill Road, and two corridors at the Pinney property (Dryden Road).
- Q. *How are the corridors accomplished?*  
A. The corridors are presented as a gap of eight to fifteen feet in the fence lines.
- Q. *Can the ground under the panels be used for growing crops?*  
A. While the ground could support crops, it is not an ideal use. There is no room for sowing and harvesting equipment. Instead, sheep-grazing has the dual benefit of providing both opportunities for local sheep farmers and pollution-free vegetation maintenance.
- Q. *Will herbicides be used?*  
A. No. Herbicides are not necessary.