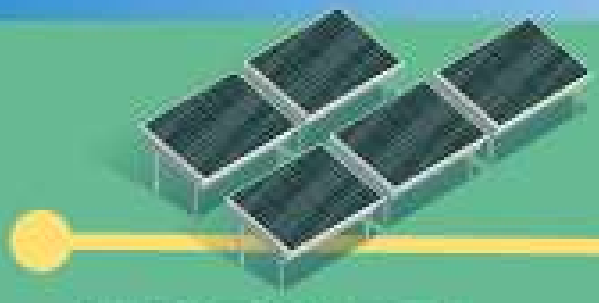
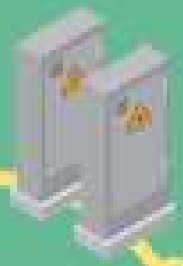
Solar power for your community.

Here's how it works.



Solar Photovoltaic (PV) Panels

Solar photovoltaic (PV) panels are comprised of small solar cells made of silicon, a semiconductor material. Numerous solar cells are mounted in the panels, which are encased within protective transparent glass. When strung together, the panels are known as a photovoltaic (PV) array.

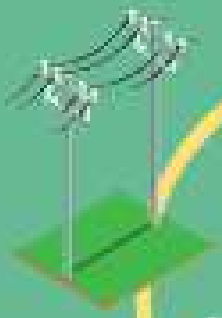


Inverters

The electrical output of the solar panel is in the form of direct current (DC), not unlike a battery. The electric grid transmits alternate current (AC) electricity. Inverters convert the DC into AC before connecting to the utility line on site.

Transformer

A transformer on site steps up solar farm output voltage to the electrical grid voltage.



Electric Transmission Lines

Electric transmission lines transport the electricity produced at solar farms and other power plants to a substation, where it is converted to lower voltage before being sent to and stored through distribution lines.

Power Supplied

Electric power is supplied to the grid for residential and other facilities to use.

RIC ENERGY

Solar power with RIC Energy

The construction of a solar power facility often comes with questions from the community. RIC Energy is committed to being a community partner, so let us walk you through those areas in which we receive the most questions.

HEALTH AND SAFETY

- Panels used by RIC are tested in advance to ensure their resistance to damage. The RIC panel of choice is a Canadian Solar brand silicon-cell unit. Canadian Solar is a worldwide distributor whose solar panels pass Toxicity Characteristic Leaching Procedure (TCLP) tests, as required by the Resource Conservation Recovery Act (RCRA), which allows the panels to be certified as non-toxic.
- Solar panels used by RIC consist of a semiconductor layer of silicon cells; silicon being the second most common element in the Earth's crust. The silicon, along with wiring to allow current to flow, is encased within a sturdy, tested tempered glass. The panel is supported by a steel or aluminum frame, which is supported by metal racking, further supported on a metal post or I beam. The panels are expected to have commercial value for 30 years, at which time they may be reused elsewhere, or almost entirely recycled.
- The International Energy Agency studied the risk to human health from solar panels [throughout their installation, life, and removal] and found no dangers from potential leaching [of heavy metals], reporting study results well below US screening levels, while also maintaining safe water conditions within the guidelines from the World Health Organization. As an example of how safe panels are, it is noted that Cohoes, a city near Albany, NY, is placing solar panels on their drinking water reservoir as part of their "Cleaner Greener Cohoes" initiative. (Other locations are doing likewise where space is limited.)

MAINTENANCE OF SOLAR FACILITIES

- The solar facility is fully automated and monitored remotely 24/7 through an electronic system. If ever a problem occurs, corrections can be made immediately.
- Each RIC facility has a unique operation and maintenance (O&M) plan. Technicians visit the site a few times each year for equipment and site inspections, maintenance, and mowing.

PROPERTY VALUES

- RIC solar sites are designed for compatibility with the nearby residential and agricultural properties.
- The relationship between property values and large-scale solar arrays has been researched across the United States. The results (see below references) indicate solar facilities generally have no measurable impact on the value of adjacent properties. The most oft-cited study which draws a correlation between solar farms and property values was published in 2020 by the University of Rhode Island (URI). URI studied property values changes associated with nearby utility-scale solar installations in Massachusetts and Rhode Island, and while they concluded suburban residential property values had less than 2% depreciation of property values when nearby solar farms replaced resources perceived as scarce, (i.e., green spaces), this same study found no associated impact on property values for solar farms located in rural areas. The two states the paper evaluated have the 2nd and 3rd highest population densities, which makes siting solar installation away from residential areas a challenging task. The research paper concludes that their findings "indicate that the global benefits of solar energy in terms of abated carbon emissions are outweighed by the local disamenities."

GLARE

- Solar panels convert sunlight into electrical energy. Because dispersing or reflecting light is counter to that intent, panels are coated with an anti-glare surface to retain as much of the solar spectrum as possible, reflecting only between one and two percent of incoming sunlight. This is a lower reflectance than water or window glass.
- The Federal Aviation Administration (FAA) reviews commercial solar farms to ensure there will be no adverse effects related to glare or other issues such radar interference and physical penetration of airspace. The FAA has provided a letter of support for this project.

VISIBILITY

- A Visual Impact Analysis is performed from roadways, adjacent properties (with permission), and publicly accessible locations.
- RIC solar facilities have a landscaping plan to screen sites from neighboring residents from all but substantial distances or through small spaces between vegetation upon very close inspection.

NOISE

- Components of operating solar facilities that generate sound include inverters and transformers. This hum—about the equivalent of a human conversation—is generally inaudible beyond the facility boundary and occurs only during daylight.
- Noise during construction may occur from heavy equipment operation and post installation, which shall be temporary and limited to daylight hours.

WILDLIFE AND WILDLIFE HABITATS

- NYS Department of Environmental Conservation, NY Natural Heritage Program, and US Fish and Wildlife Service are always consulted to ensure no impacts to rare, threatened, or endangered species or critical habitats on or within the vicinity of the parcel.
- After construction, pollinator-friendly vegetation will be planted.

WATER RESOURCES

- A site-specific stormwater pollution prevention plan shall be implemented in conformance with state requirements to ensure the continued protection of water resources.
- Solar panels consist of a solid tempered glass that does not leach or present a contamination hazard.
- Wetlands and waterbodies on site are avoided whenever possible, or otherwise reviewed by state and federal agencies to ensure no or minimal impact.

AGRICULTURAL LANDS

- The property, including any agricultural lands, will be returned to its original condition at the conclusion of the solar operation through a decommissioning process reviewed and approved by the town.
- Wherever possible, RIC solar projects minimize the impact to agricultural lands as well as the need for tree clearing. Within the solar facility, a low-growing, pollinator-friendly meadow seed mix will be used for reclamation on any bare soils.
- Solar energy allows the land to remain fallow, while not

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growing into brush. Doing so promotes soil regeneration whereby nutrients are replenished and beneficial soil microorganisms and organics increase in the soil.

- Meanwhile, herbicides and other pesticides, as well as excess fertilizers, need not be applied. This resting period is beneficial to the soil, as compared to being in continuous agricultural use. At the lease termination, the land will be reclaimed to its original state.

ELECTROMAGNETIC FIELDS (EMFS)

- EMFs are invisible forces of energy that are associated with the use of electrical power as well as natural and man-made lighting. EMFs are grouped into one of two categories by their frequency: 1. Non-ionizing: low-level radiation which is generally perceived as harmless to humans 2. Ionizing: high-level radiation which has the potential for cellular and DNA damage (see references below).
- Solar facility systems generate low levels of non-ionizing radiation which is the same as the ones we come in contact with through radio and TV waves, cell phones, and microwaves every day without negative health impacts. The low levels of EMF emitted by solar panels does not interfere with Wi-Fi, radio, or television reception or signal transmissions.
- Scientists have evaluated the electromagnetic fields associated with commercial solar photovoltaic electric power generating facilities and determined that in all cases, the electric fields were negligible compared to Institute of Electrical and Electronics Engineers and the International Commission on Non-Ionizing Radiation Protection limits and when compared to the Federal Communications Commission limits (see references below).
- Therefore, communities around solar facilities are not at risk for adverse health issues from EMFs.

PROJECT REMOVAL

- In a lease situation, the land shall be returned to its original state at the conclusion of the solar operation. A decommissioning plan, which includes a bond provided to the local municipality by the facility owner, ensures necessary financial resources are available to complete the safe and efficient removal of all Project components upon lease termination.
- The useful commercial life of solar PV panels is generally 30 years. After which, panels may be reused or recycled.
- Any materials not repurposed or recycled shall be properly managed and disposed of per solid waste regulations.
- Restoration activities ensure the site is returned to its original condition for continued use in agriculture or another productive land use opportunity.

PUBLIC BENEFITS

- Power generated is green, renewable energy that will be consumed locally.
- This project is being proposed in accordance with NYSERDA's Community Distributed Generation (CDG) Solar Program, which allows homeowners and businesses to voluntarily subscribe for a savings on their electricity bill.
- RIC solar facilities are eligible for a Community Choice Aggregation program, which would allow the municipality to fast-track eligible registrants.
- A solar farm does not use water or sewer or generate traffic or noise or odors. It does not add children to the school, nor is it expected to require public services such as fire or police protection. As such, it is not a burden on local taxes nor require additional municipal infrastructure. Rather, it provides increased revenue—often substantial—to the community for a beneficial outcome at no cost to the community.
- This project will help achieve New York State and national clean energy goals to fight climate change.

REFERENCES