

# South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

## Preliminary Facility Area

▲ South Ripley 230 kV Substation

— Transmission Line

- - - Facility Area

- - - Town Boundary

— State Boundary

Notes: 1. Basemap: Bing Maps "Aerial" map service.  
2. This map was generated in ArcMap on November 22, 2019.  
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.





# Why did ConnectGen Choose South Ripley, New York?



## State Renewable Goals

- New York State has set a goal for the state's utilities to source 70% of their electricity from renewable energy by 2030 and for them to reach 100% zero carbon electricity by 2040.



## Article 10 Permitting

- Article 10 provides for the siting review of new electric generating facilities in New York State by the Board on Electric Generation Siting and the Environment (Siting Board) in a unified proceeding instead of requiring a developer to apply for numerous state and local permits.



## Supportive Community

- Chautauqua County has a historic interest in renewable energy development.
- Ripley and South Ripley have supported the development of renewable energy.



## Existing Transmission

- The South Ripley Solar Project will be located in close proximity to the existing 230 kV South Ripley substation and transmission line, which has the available capacity to accommodate all electricity generated by the project.



## Available Suitable Land

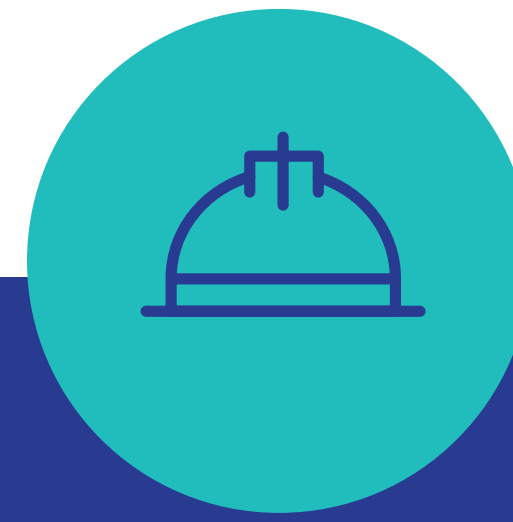
- Preliminary environmental review suggests high site suitability and limited development constraints.
- Minimal impacts to designated Prime Farmland are expected.
- Forest vegetation and topography in the area creates the potential for natural visual screening.

# Local Benefits

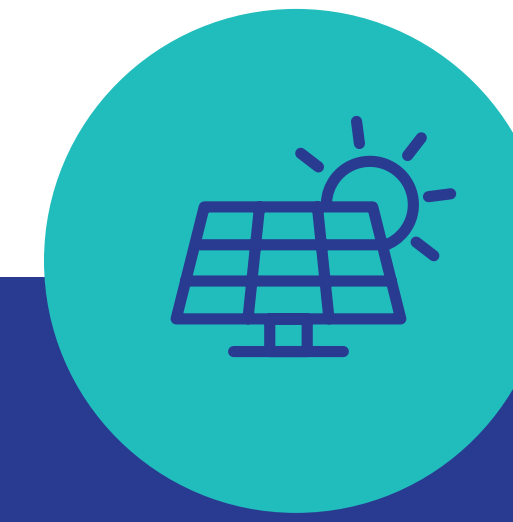
## Direct Benefits:



Up to **\$15 million** in increased revenue to the Town of Ripley, Chautauqua County, and the Sherman school district



Up to **180 jobs** anticipated during the peak of construction

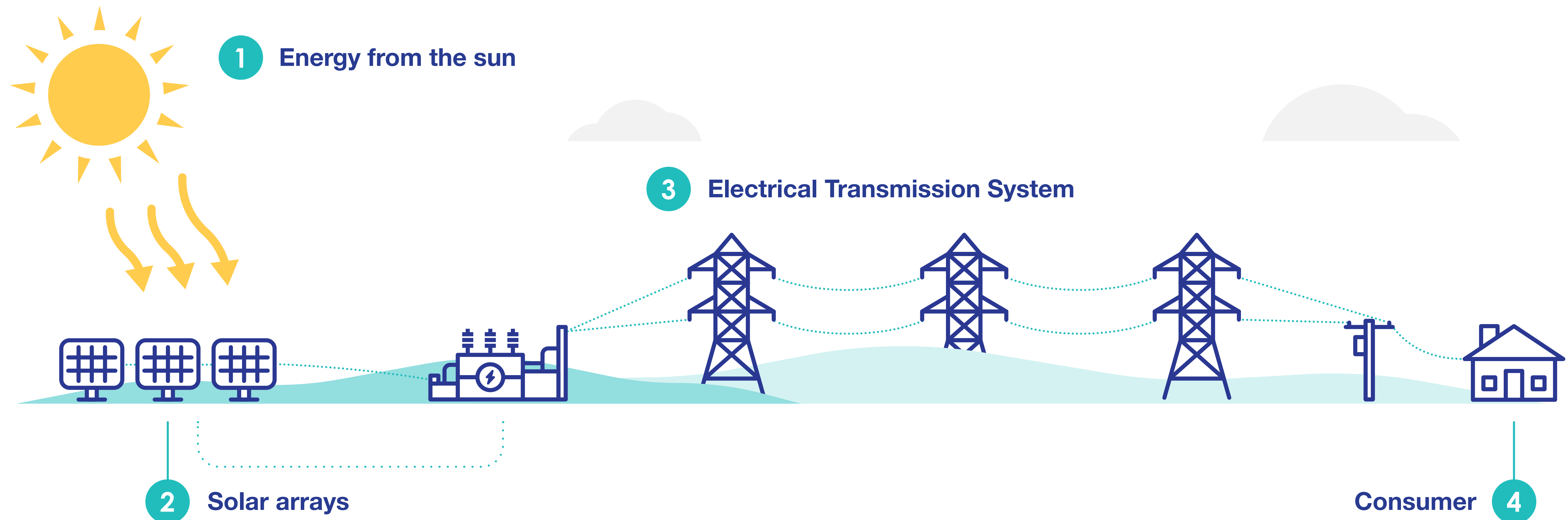


Up to **\$40 million dollars in payments to local landowners** in the form of solar leases, easement agreements, and good neighbor agreements through the life of the project

## Indirect Benefits:

- Revenue to local shops, hotels, restaurants, service and construction material suppliers during construction and operation
- Partnerships with local community groups, local sponsorships, and donations

# How Does Solar Energy Work?



1

Energy from the sun falls onto the earth's surface each day in the form of sunlight. The sunlight is absorbed by the solar panels, converting it into electricity.

3

The absorbed sunlight is transformed into usable energy by way of an inverter that turns direct current (DC) energy into alternating current (AC) electricity. AC is the form of power used in homes and businesses.

2

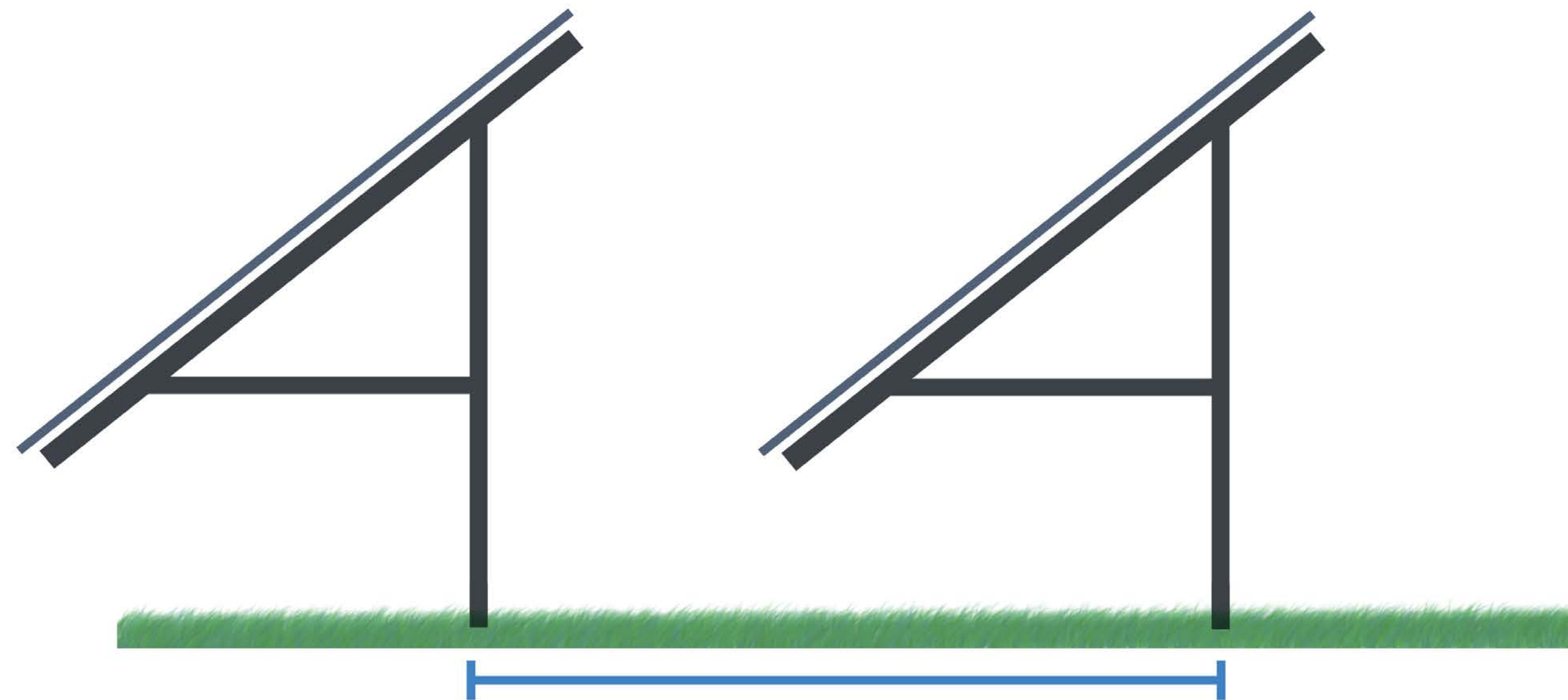
Solar cells are small, square-shaped silicon semiconductors. Each solar cell is connected into a network of many other solar cells to create a PV (Photovoltaic) module or panel. A solar facility is comprised of thousands of panels.

4

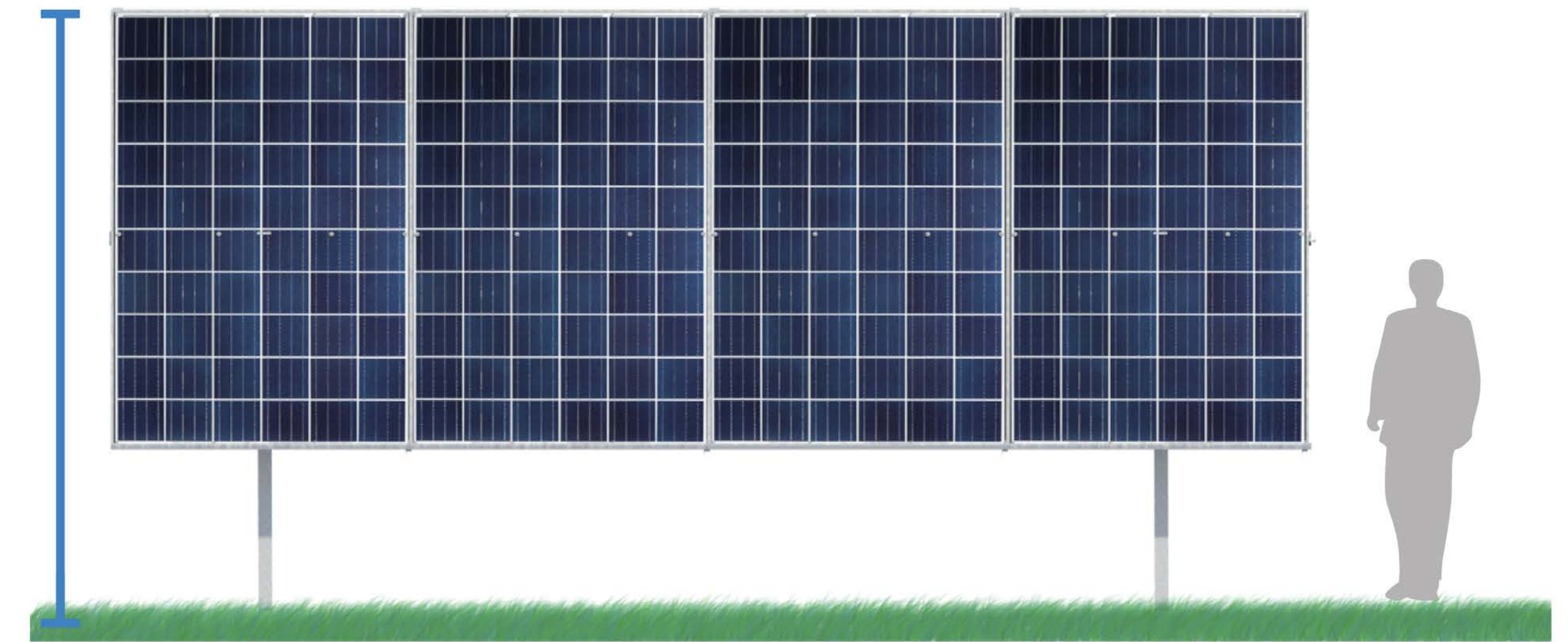
Electricity generated travels through transmission/distribution lines to homes and businesses.



# The Basics of Solar



Typical Solar Module Spacing: at least 12 feet



Typical Solar Module Height: 12 feet

## Solar panels are safe

- PV panels meet strict electrical safety standards
- PV panels are designed to ensure no release or leakage of panel material into the surrounding environment
- PV panel arrays are typically fenced to ensure safety and security

## Solar panels produce minimal glare

- PV panels are designed to absorb light, not reflect light, and therefore produce minimal glare

## Solar panels are quiet

- Solar photovoltaic (PV) panels make little or no sound
- Associated electrical equipment creates minimal sound
- Limited required equipment maintenance such as mowing or access road upkeep would be conducted during the day

## Solar panels do not pollute

- No combustion, emissions, or odors
- No water discharges or use of neighboring water bodies for heating or cooling



# Energy Storage

**The Project may include up to 20 megawatts of 4 hour duration energy storage in the form of batteries co-located with the point of interconnection**

## WHAT BENEFITS DOES ENERGY STORAGE BRING?

- Energy storage allows the project to save energy during low load times and discharge onto the grid when people need power.

## WHAT TECHNOLOGY IS USED?

- Most utility scale energy storage options utilize Lithium-ion batteries – the same technology used in electric vehicles.
- ConnectGen will continue to evaluate the best technologies on the market prior to construction.

## WHAT DO THESE BATTERIES LOOK LIKE?

- Batteries are typically installed in 40 ft x 8 ft enclosures, similar to shipping containers, with built-in fire suppression systems.





# Construction

## SITE PREPARATION

- Clear and grade land as required
- Construct site entrances and access roads
- Create temporary laydown yards

## PILE/FOUNDATION INSTALLATION

- Install piles to hold panel racking system
- Final pile length dependent on slope and soil type
- Common steel pile types: Driven piles, ground screws, helical anchors (no concrete expected)
- Pour concrete pads for inverters and high voltage equipment

## RACK ASSEMBLY AND PV INSTALLATION

- Install panel racks on piles, then install solar modules on panel racks
- Panel racks and modules typically up to 12 feet tall
- Install inverters on pads located near or in between racks of panel modules, and connect to high voltage substation

## CONCLUSION OF CONSTRUCTION

- Remove all construction equipment
- Clear laydown yards
- Restore disturbed land





# Operation & Removal

## SITE MANAGEMENT

- Limited upkeep is required during the life of the facility.
- Most common maintenance activities are associated with vegetation management such as mowing.
- It is also common to seed the field with low growing native grasses or plants to minimize the need to mow frequently.

## EQUIPMENT MAINTENANCE

- The project facilities will be designed for a minimum 30-year lifespan. Should a panel or other piece of project infrastructure be damaged or malfunction, the system's modular design allows for simple repair or replacement.

## DECOMMISSIONING

- ConnectGen is responsible for the decommissioning and removal of project infrastructure at the end of the project's useful life.
- NY State will require a decommissioning fund as part of the state permitting process.
- Ensures funds will be available to dismantle and remove facility components at the end of their useful lives.
- After decommissioning, ConnectGen will strive to return the property to as close to the condition it was in prior to the project.





# Next Steps for ConnectGen



**DEVELOPMENT**  
24 – 36 MONTHS

**CONSTRUCTION**  
9 – 18 MONTHS

**OPERATION**  
30 – 43 YEARS

## **COMMUNITY ENGAGEMENT AND LAND ACQUISITION**

- Coordinate with landowners to introduce the project
- Execute lease agreements
- Engage elected town officials and other community leaders in an effort to inform the broader community

## **2019/2020 NYSERDA RENEWABLE ENERGY STANDARD RFP**

- Secure long term contract for the sale of renewable energy credits with the State of New York

## **ENVIRONMENTAL STUDIES AND PRELIMINARY DESIGN**

- Complete desktop and field studies to identify environmental sensitivities in the project area

## **ELECTRIC GRID INTERCONNECTION STUDIES**

- Undergo technical studies completed by the local utility and NY grid operator to secure the right to connect to the electrical grid

## **REGULATORY REVIEW & PERMITTING**

- Stakeholder engagement and environmental impact assessment through the New York State Article 10 process
- Secure all federal, state, and local permits necessary for construction and operation of the project
- Negotiate tax agreements with local and state taxing authorities

## **FINAL ENGINEERING & DESIGN**

- Complete final engineering and design in preparation for construction



# Article 10

**New York State requires that major electric generation facilities (25 megawatts or more), including solar projects, undergo a rigorous state permitting process, under Public Service Law Article 10, prior to construction and operation.**

Article 10 requires the New York State Board on Electric Generation Siting and the Environment (Siting Board) to issue a Certificate of Environmental Compatibility and Public Need (Certificate) authorizing the construction and operation of major electric generating facilities.

The Siting Board consists of five permanent members and two project-specific local ad hoc members who are appointed specifically to provide a local voice in each proceeding. The New York State Senate Majority Leader and the Speaker of the New York State Assembly each appoint one ad hoc member from a list of candidates submitted by the host Town and County.

For more information on the Article 10 process, visit the New York State Department of Public Service's Siting Board home page.



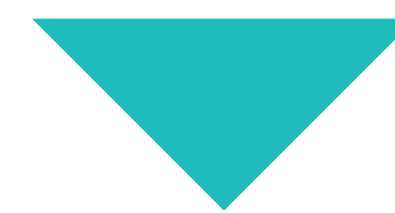
**Under the Article 10 permitting process, utility scale solar developers are required to:**

- **Incorporate extensive public input**
- **Engage a wide range of local stakeholders**
- **Evaluate environmental, public health, and public safety impacts of development**
- **Establish comprehensive strategies for safe operation, project maintenance, and end of life decommissioning**



# Pre-Application

**The Public Involvement Program (PIP)** is the first document filed as part of the project's progress through the Article 10 Application process. The PIP Plan identifies the project's stakeholders, the methods by which stakeholders will be notified and consulted throughout the Article 10 process, and activities ConnectGen will engage in to encourage stakeholder participation.

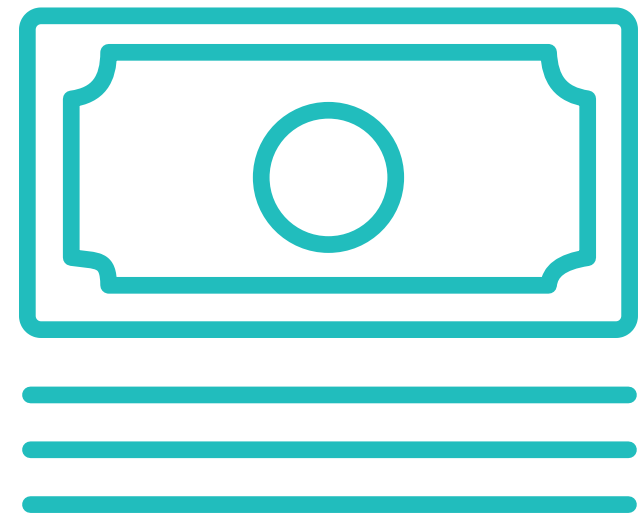


**The Preliminary Scoping Statement (PSS)** provides a description of the proposed project, details the studies that will be performed to evaluate potential impacts, and outlines the steps that will be taken to avoid and minimize impacts. The PSS can be filed 150 days following the filing of the PIP and at least 90 days before filing an Application. The PSS must be provided to state and municipal agencies, state and local officials, and local libraries. A notice summarizing the PSS must also be placed in newspapers. There is a 21-day period for the public to comment on the PSS, and ConnectGen will have 21 days to respond to all comments received. Agreements on the scope and methodology of studies (i.e., proposed Stipulations) occur after the PSS. The major components of the PSS include:

- *Proposed facility and environmental setting*
- *Potential significant, adverse environmental and health impacts*
- *Visual simulations showing potential visual impacts*
- *Proposed studies to evaluate potential impacts*
- *Measures to avoid or mitigate adverse impacts*
- *Reasonable alternatives*
- *Information and plans for decommissioning*
- *Socioeconomic impact studies*
- *State and Federal requirements*



# Intervenor Funding



**Under Article 10, ConnectGen is required to provide funds for intervenor participation.**

**\$350/MWac**

**AT THE TIME THE PUBLIC  
SCOPING STATEMENT  
(PSS) IS FILED**

**\$1,000/MWac**

**IN ADDITION AT THE TIME  
THE PROJECT ARTICLE 10  
APPLICATION IS FILED**

- Following the PSS and Application submissions, funds are distributed to parties making a request to cover expenses toward participating in the review and providing feedback on project materials
- At least 50% of the funding is reserved for municipalities
- For more information on intervenor funding, please consult the project website.





# Environmental Considerations

ConnectGen will consult with many agencies and stakeholders, including: the NYS Department of Public Service, NYS Department of Environmental Conservation, NYS Department of Agriculture and Markets, State Historic Preservation Office, and other stakeholders to ensure that potential environmental impacts are fully considered. Studies to help avoid and minimize potential impacts include the following:



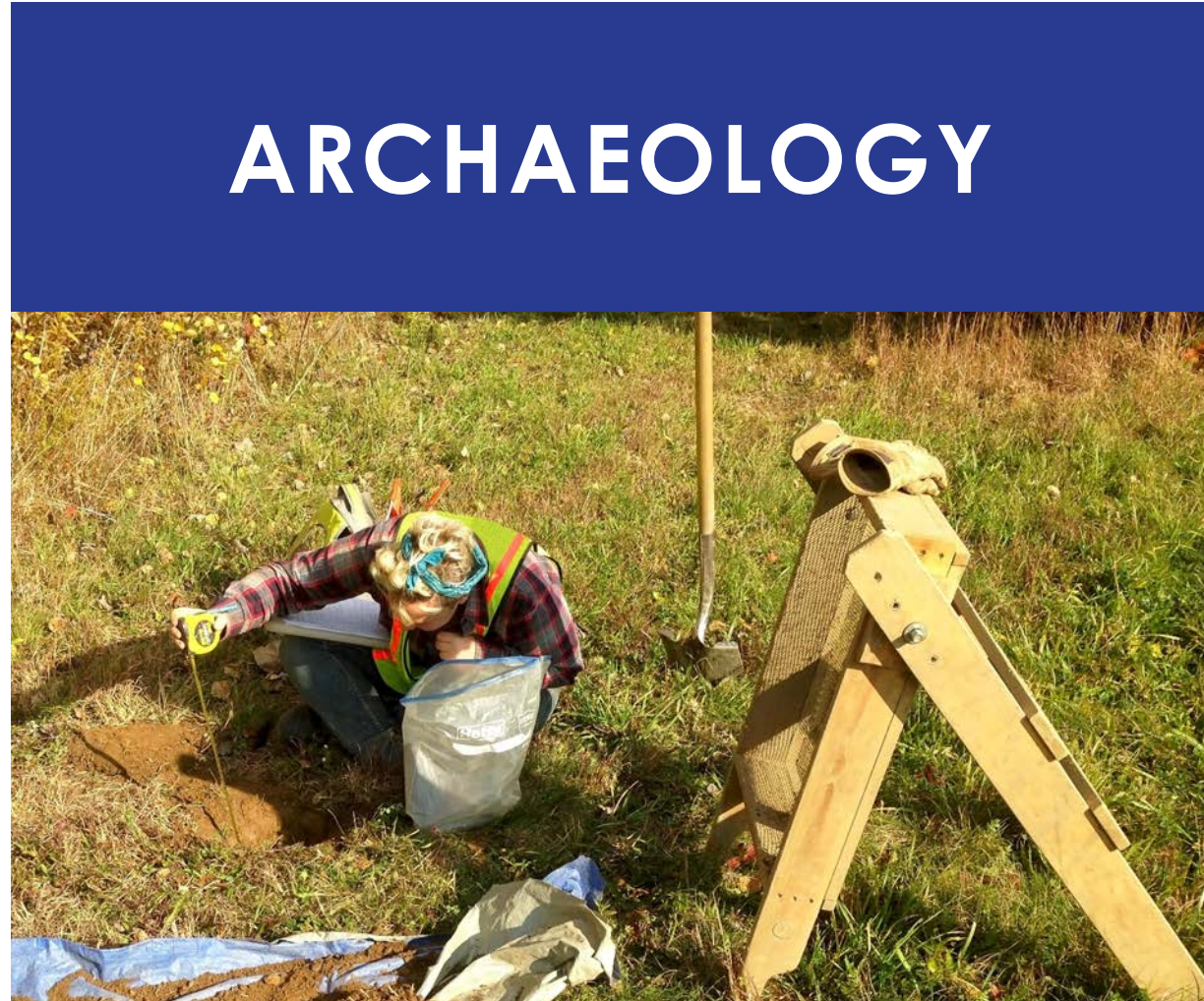
Review of U.S. Army Corps of Engineers and New York State Department of Environmental Conservation Wetland mapping

Field investigations to identify and delineate wetlands and streams



Coordination with NYSDEC, USFWS, and natural resource management entities

Field investigations to identify potential habitat or species presence



Coordination with the New York State Historic Preservation Office, Native American Tribes, and regional advocacy groups

Research and field investigations to identify previously known or unidentified archeological sites



Research, consultation with State Historic Preservation Office and regional historical groups

Historic properties are evaluated to determine their eligibility for listing on the State and National Registers of Historic Places

Evaluate potential visual effect on historic properties



Identification of Visually Sensitive Resources

Viewshed mapping of areas with potential Project visibility

Coordination with stakeholders and preparation of visual simulations to illustrate what the facility will look like when completed



# Application

**Application:** Once ConnectGen has completed the Pre-Application phase of the Article 10 Process and all environmental studies identified in the PSS, we will be ready to file an official Article 10 Application for Certification of Environmental Compatibility and Public Need (Application). The Application must include major project information including but not limited to:

- *A project description*
- *A summary of all public involvement activity*
- *Evaluation of expected environmental and health impacts, environmental justice issues, and reasonable alternatives*
- *Facility and community safety plans*

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Following the Application submittal, the state Siting Board will set a schedule for public hearings and review of the Application materials.

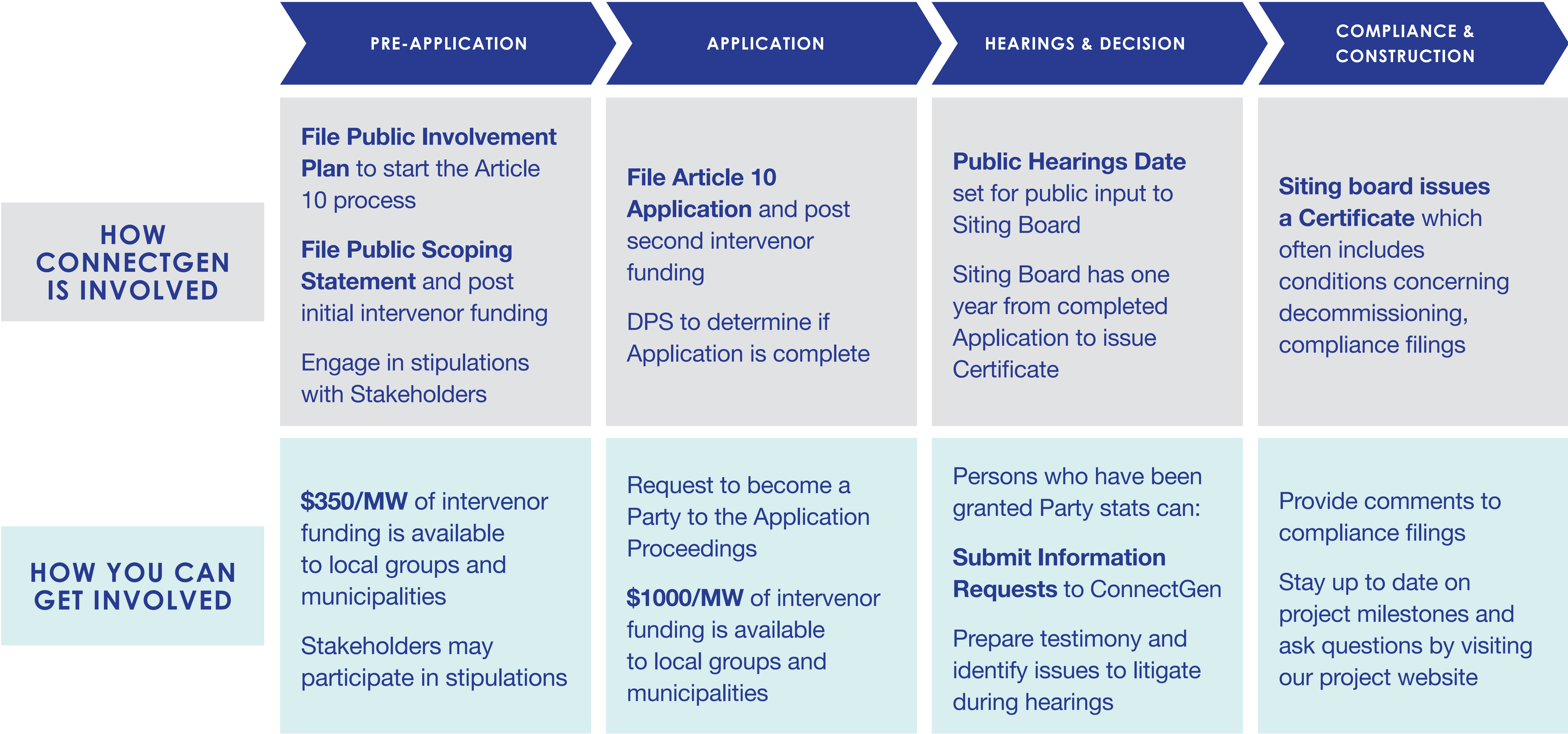
**Siting Board Decision:** The Siting Board must make explicit findings about the nature of the environmental impacts related to construction and operation of the facility and related facilities. Specifically, the Board will consider impacts to:

- *Statewide electrical capacity*
- *Ecology, air, ground and surface water, wildlife, and habitat*
- *Public health and safety*
- *Cultural, historical, and recreational resources*
- *Transportation, communication, utilities, etc.*
- *Cumulative emissions on the local community according to environmental justice regulations*

**The Board will determine that the facility is a “beneficial addition or substitute for” generation capacity, that construction and operation are in the public interest, that adverse environmental effects will be minimized or avoided, and that the project is in compliance with state laws and regulations.**



# Article 10 Process Timeline





# How can you get involved?

## South Ripley Solar Project Contact:

Isaac Phillips  
Development Associate  
ConnectGen LLC

(800) 338-8905  
[www.SouthRipleySolar.com](http://www.SouthRipleySolar.com)  
[info@southripleysolar.com](mailto:info@southripleysolar.com)

## State DMM:

<https://tinyurl.com/south-ripley-article-10>  
Case Number: 19-F-0560

## Local Document Repositories:



### Ripley Town Clerk's Office

14 North State Street  
Ripley, NY 14775



### Ripley Library

64 Main Street  
Ripley, New York 14775



### Minerva Free Library

116 Miller Street  
Sherman, NY 14781



## **10. General Materials Available at Public Meetings**





## Benefitting the Town of Ripley and South Ripley for Decades to Come

ConnectGen is developing a commercial-scale solar and storage project in South Ripley along NE Sherman Road. ConnectGen expects to install up to 270 megawatts (MW) of solar with a 20 MW battery storage component in the area, which has the potential to power over 60,000 homes in New York State annually. The South Ripley Solar Project filed its Preliminary Scoping Statement in May 2020 and is working towards filing its New York State siting application. The target commercial operation date is Q4 2023.

### Bringing a Long-Term Economic Boost to the Town of Ripley and Chautauqua County

Solar power pumps billions of dollars into the country's economy every year, particularly into rural areas, where a large percentage of large-scale solar projects are located.

The South Ripley Solar Project represents an approximately **\$350 million capital investment**, which will result in a significant increase in the Town of Ripley's and Chautauqua County's taxable property base.



Providing additional tax revenues of **more than \$490,000 annually** to the Town of Ripley, totaling **more than \$17 million** over its operational life. The increased annual revenue would comprise **over 50%** of the Town's total annual property tax levy, allowing for reduced taxes for all residents of Ripley or increased spending on public services and other critically important infrastructure.



Providing additional tax revenues of **more than \$200,000 annually** to the local school districts, which could total **more than \$7 million** over the life of the project for the Sherman and Ripley School Districts.



Providing additional revenues to the Ripley Hose Company Station 1, Ripley, and Ripley Hose Company Station 2, South Ripley, averaging **more than \$50,000 per year** and totaling **more than \$1.6 million** in payments over the project's life.



Creating up to **220 family-wage construction jobs** directly and supporting other jobs by increasing business activity among local hotels and motels, grocery stores, gas stations, restaurants, equipment rentals, materials suppliers, and similar businesses.



Paying **more than \$30 million** to local landowners over the life of the project through annual lease payments, easement agreements, and good neighbor agreements, resulting in a consistent stream of revenue that can protect against fluctuating commodity prices and help maintain family farms.



Being an active participant in the local community by developing meaningful relationships that translate into **long-term partnerships** with local organizations, schools, and community members.

### In Support of the South Ripley Solar Project? Let Us Know!

If you are in support of the South Ripley Solar Project and the long-term benefits it will bring to the Town of Ripley and Chautauqua County, we would love to hear from you. **Please call 1-800-388-8905 to learn about the different ways that you can show your support.**



## Frequently Asked Questions

### ARE SOLAR PANELS SAFE?

Yes. Solar panel materials are enclosed with glass and do not mix with water or vaporize into the air, so there is little to no risk of chemicals, including greenhouse gases, being released into the environment during normal use. Crystalline silicon PV panels, an extremely common type of solar panel used around the world, “do not pose a material risk of toxicity to public health and safety.” ConnectGen is committed to installing these types of panels to ensure safety within the community.

All solar facilities are designed to strict electrical safety standards to ensure safe operation. Product safety standards, installation requirements, and building codes for solar facilities are addressed by the National Fire Protection Agency’s National Electrical Code, the International Code Council’s International Fire Code, the International Association of Firefighters, and several other national, state and local safety and product standards groups.

ConnectGen will be fully responsible for the security of the facility and for maintaining consistent safety standards within the project area.

Prior to operation, we will develop an Emergency Response Plan in accordance with industry best practices, which will outline the response procedures to be employed should an emergency arise at the project site. We will work closely and collaboratively with local departments and authorities, including the Ripley Volunteer Fire Department, and will provide pre-construction training to all emergency response personnel.

### WHO WILL BE RESPONSIBLE FOR MAINTAINING THE SOUTH RIPLEY SOLAR PROJECT ONCE IT IS CONSTRUCTED?

ConnectGen will be fully responsible for maintaining the solar facilities and underlying property, including reseeding the disturbed areas with native plants and grasses that will allow flora and fauna to utilize the panel areas. Landscape maintenance at the project site will be performed by companies contracted directly by ConnectGen.

### WILL PEOPLE STILL BE ABLE TO HUNT NEAR THE SOUTH RIPLEY SOLAR PROJECT?

Yes. During construction, ConnectGen will coordinate with participating landowners to ensure that hunting activities are conducted in a safe manner while construction workers are on-site. Once operational, hunting will no longer be allowed within panel areas, but landowners will be able to hunt on parcels around the project area without restriction. Limited fencing, a security measure put in place in accordance with industry best practices and local requirements, will be erected around panel areas. Collection easements between panel areas will not be fenced to allow wildlife to traverse these corridors without disruption.

### DO SOLAR PROJECTS AFFECT AGRICULTURE?

Solar projects are low impact and coexist well with agriculture, operating without any impact to adjacent agricultural properties. During the solar project’s 30 year or more lifespan, the land hosting the project gets a recovery period, allowing the soil to restore fertility and rebuild. Native vegetation can grow under the panels, allowing the land to retain water and topsoil and improving soil health over time, which can increase the productivity and value of the land for agriculture in the future.

Further, ConnectGen will have a Stormwater Pollution Prevention Plan (SWPPP), which will outline ConnectGen’s plans for sediment and erosion controls to manage both the amount and composition of any stormwater discharged from the project site. There are no anticipated stormwater runoff issues for land hosting or adjacent to panel areas.

At the end of the solar project’s useful life, the project is decommissioned and the land can be returned to agricultural use. In addition, a solar project can offer a consistent, weather-resistant source of income for rural farmers and their local economies, providing an alternative “crop” that diversifies farmers’ revenues.

### DO SOLAR PROJECTS NEGATIVELY IMPACT PROPERTY VALUES?

Property value studies conducted across the country have shown that proximity to large-scale solar projects does not measurably impact property values or deter the sale of agricultural or residential land. For example:

- A study conducted across Illinois determined that the value of properties within one mile increased by an average of two percent after the installation of a solar project.
- A study of five counties in Indiana indicated that upon completion of a solar project, properties within two miles were an average of two percent more valuable compared to their value prior to installation.
- An appraisal spanning from North Carolina to Tennessee shows that properties adjoining solar projects match the value of similar properties that do not adjoin solar projects within one percent.

Mounted solar projects are typically no more than 12 feet high, emit minimal noise, and are designed in accordance with strict electrical safety standards to ensure safe operation. In addition, we can take steps to minimize and mitigate the visual impacts of the project through vegetative buffers and setbacks from property lines.

Solar leases offer a viable, long-term revenue stream to landowners. Lease payments are stable and predictable, can protect against fluctuating commodity prices, and allow landowners to diversify their income, which can help maintain and preserve their properties.

\* Please visit our website for more information and links to supporting citations.

**Please Contact Us with Your Questions, Ideas, and Thoughts**

**Email:** [info@southripleysolar.com](mailto:info@southripleysolar.com)  
**Phone:** (877) 338-8905





## Who is ConnectGen?

ConnectGen is a renewable energy company comprised of seasoned energy industry professionals focused on developing wind, solar, and energy storage projects across the United States.

Founded in 2018, ConnectGen's strategy is to apply its proven ability to develop, construct and operate clean energy assets to create a multi-technology portfolio of generation and storage projects. The company currently has 139 megawatts (MW) of solar projects in operations and is developing over 4,000 MW of wind, solar and energy storage projects across North America. ConnectGen LLC is a subsidiary of 547 Energy. 547 Energy is Quantum Energy Partners' clean energy platform company.

## Does the South Ripley Solar Project have the right of eminent domain?

No, the South Ripley Solar Project is a merchant generator of renewable energy, not a fully regulated public utility company with an obligation to serve utility customers, and therefore does not have the power of eminent domain in New York State. Eminent domain is defined as the right of the government to take private property for a public purpose.<sup>1</sup> ConnectGen does not have the right to utilize eminent domain and will secure all land rights for the project through voluntary contractual agreements with project participants.

Additionally, in general, New York State law prohibits investor-owned utilities such as National Grid from owning large-scale generation facilities, like the South Ripley Solar Project. While National Grid may have the ability to take property by eminent domain in order to provide safe and reliable electric transmission and distribution service, current law would not allow National Grid to utilize eminent domain to take a private merchant generation projects. Therefore, eminent domain will not be used under any circumstance for the South Ripley Solar Project.

## Does solar power make economic sense?

Solar power is now one of the cheapest new sources of electricity in most of the world due to declining equipment costs, improved technologies, and public policy supporting the procurement of renewable energy across the country,<sup>2</sup> especially New York, which has a mandate to procure 70% of its energy from renewable sources by 2030.<sup>3</sup>

In the last decade, the cost to install solar has dropped by more than 70%, and as of Q3 2019, prices are at their lowest historical level across all market segments.<sup>4</sup> With continuing technological innovations, new utility-scale solar energy projects are now often cost-competitive with new natural gas generation. In fact, new solar projects are often cheaper than both coal and natural gas.<sup>5</sup> Because solar PV is a technology and not a fossil fuel (like oil, gas and coal), costs will continue to decline as research continues to improve existing technology.

Adding to the growing appeal, solar energy is uniquely able to offer electricity at a fixed-price contract over the life of the project because renewable energy has no fuel cost and therefore no fuel price risk, allowing it to act as a hedge against future volatility of natural gas prices.<sup>6</sup>

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1. <https://ag.ny.gov/real-property/faqs-about-nys-eminent-domain-procedure-law>

2. <https://www.bloomberg.com/news/articles/2020-04-28/solar-and-wind-cheapest-sources-of-power-in-most-of-the-world>

3. <https://climate.ny.gov/>

4. <https://www.seia.org/solar-industry-research-data>

5. <https://www.lazard.com/perspective/lcoe2019/>



### How do solar panels work?

Solar photovoltaic (PV) panels are constructed of silicon, tempered glass, electrical wiring, and a metal frame. Silicon, an element most commonly found in sand, has conductive properties that allow it to absorb and convert sunlight into electricity. When light interacts with a silicon cell, it causes electrons to be set into motion, which initiates a flow of electric current in a process known as the “photovoltaic effect”.<sup>7</sup>

### Is solar power reliable?

No electricity source runs 100% of the time, including coal, gas, and nuclear plants. While solar is variable as a power resource, that does not mean that it is backed up with a coal or gas plant should the clouds cover the sun. The variability of solar can be predictably forecast and used to complement other generation sources. Grid operators have decades of experience managing changes in supply and demand; sudden, unexpected outages at large conventional power plants are more costly and difficult to manage than the gradual, predictable changes in solar output.<sup>8</sup> Because of the balancing efforts grid operators undertake, it’s simply untrue that fossil fuel reserves run around the clock for when the sun doesn’t shine.

Further, the combination of solar + storage makes solar power available when the sun isn’t shining. The batteries charge when the resource is abundant and stores the excess energy, releasing it during peak hours. In addition to allowing for access to solar power when it is not readily available, the integration of storage can keep electricity prices from fluctuating, manage energy ramps during periods of peak demand, and mitigate the risk of curtailment.

### What will the South Ripley Solar Project look like?

A solar project is a large group of solar panels that operate together as one power generation facility, delivering electricity to the existing electric grid. Solar projects are typically arranged in north to south rows with access buffers between each row, not less than 8 feet wide. In addition, access roads will be built between major panel areas to allow operations and maintenance staff to access the solar panels.

A panel array, which includes both PV panels and mounting racks, typically stands around 12 feet tall. The mounting racks are supported by steel pile foundations generally set up to 8 feet into the ground without the use of concrete. Panel designs currently being evaluated by ConnectGen rotate slowly from east to west once a day, keeping the sun at a 90-degree angle from the panels to ensure maximum energy is absorbed. Each section of solar panels is typically fenced off to ensure security and safe operation.

### What other equipment is usually present at a solar project?

Other project infrastructure present at a solar project includes common electrical equipment such as inverters and transformers, and the electrical equipment necessary to deliver energy to the existing electrical grid such as underground and overhead transmission lines. ConnectGen’s project will also include a battery storage facility (see Storage FAQs for more information).

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6. <https://www.nrel.gov/docs/fy13osti/59065.pdf>

7. <https://news.energysage.com/solar-panels-work/>

8. <https://www.forbes.com/sites/joshuarhodes/2018/08/21/what-does-100-renewable-energy-really-mean/#209166ce1ac8>



### **Are solar panels safe?**

Yes. PV panel materials are enclosed with glass and do not mix with water or vaporize into the air, so there is little to no risk of chemicals, including greenhouse gases, being released into the environment during normal use. Crystalline silicon PV panels, an extremely common panel variant used around the world, “do not pose a material risk of toxicity to public health and safety.”<sup>9</sup> While solar panels that contain cadmium telluride have been studied extensively and shown to “pose negligible toxicity risk to public health and safety while significantly reducing the public’s exposure to cadmium by reducing coal emissions,”<sup>10</sup> ConnectGen is not currently considering solar panels that contain cadmium telluride for the South Ripley Solar Project.

Electric and Magnetic Fields (EMF) are present everywhere in our environment, including TV antennas, radio signals, Wi-Fi, cell phones, and common household appliances.<sup>11</sup> EMF emissions from solar panel systems are non-ionizing and in the same extremely low frequency range as those induced by household appliances.<sup>12</sup>

All solar facilities are designed to strict electrical safety standards to ensure safe operation. Product safety standards, installation requirements, and building codes for solar facilities are addressed by the National Fire Protection Agency’s National Electrical Code, the International Code Council’s International Fire Code, the International Association of Firefighters, and several other national, state and local safety and product standards groups.<sup>13</sup>

ConnectGen will be fully responsible for the security of the facility and for maintaining consistent safety standards within the project area.

### **What happens if a solar panel gets hit by lightning?**

Solar projects are designed with lightening protection on all system components, which protect against damage in the event of a lightning strike. The ground grid will be designed in consideration of the conductivity of soils in the area as well as any other nearby conductive materials that are buried or connected to the ground, such as water or natural gas pipes.

### **Do you work with local fire departments in your project area?**

Prior to operation, we will develop an Emergency Response Plan in accordance with industry best practices, which will outline the response procedures to be employed should an emergency arise at the project site. We will work closely and collaboratively with the local departments and authorities. We provide pre-construction training to all emergency response personnel, which includes a description of the facility, any potential construction risks, and the role of emergency responders should an incident occur. After construction is complete, we will host the emergency response personnel for a site visit to make sure they are familiar with the system and our Emergency Response Plan.

### **Do large-scale solar projects make noise?**

Temporary, elevated noise levels may occur during the construction phase of a solar project, but once construction is complete, an operating solar project emits minimal noise during the day and is dormant at night. As part of the Article 10 application process, ConnectGen will submit a detailed study of the potential noise impacts associated with the construction and operation of the facility. The results of the study will assess expected noise levels, and also propose noise limits, which will minimize and mitigate adverse impacts associated with construction and operation of the South Ripley Solar Project. In addition, ConnectGen is committed to taking steps to minimize and mitigate visual impacts of the project through vegetative buffers and setbacks from property lines, which will provide additional sound dampening benefits as well.

9. [https://content.ces.ncsu.edu/static/publication/js/pdf\\_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics](https://content.ces.ncsu.edu/static/publication/js/pdf_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics)

10. [https://content.ces.ncsu.edu/static/publication/js/pdf\\_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics](https://content.ces.ncsu.edu/static/publication/js/pdf_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics)

11. <https://www.who.int/peh-emf/about/WhatisEMF/en/>

12. <https://www.nyserda.ny.gov/-/media/NYSun/files/Model-Solar-Energy-Law-Guidance-Document.pdf>

13. <https://www.seia.org/initiatives/fire-safety-solar>



### **Do solar projects affect agriculture?**

Solar projects are low impact and coexist well with agriculture, operating without any impact to adjacent agricultural properties. During the solar project's 30 year or more lifespan, the land hosting the project gets a recovery period, allowing the soil to rest and rebuild. Native vegetation can grow under the panels, allowing the land to retain water and topsoil and improving soil health over time, which can increase the value of the land for agriculture in the future.<sup>14</sup>

Further, ConnectGen will have a Stormwater Pollution Prevention Plan (SWPPP), which will outline ConnectGen's plans for sediment and erosion controls to manage both the amount and composition of any stormwater discharged from the project site. There are no anticipated stormwater runoff issues for land hosting or adjacent to panel areas.

At the end of the solar project's useful life, the project is decommissioned and the land can be returned to agricultural use.<sup>15</sup> In addition, a solar project can offer a consistent, weather-resistant source of income for rural farmers and their local economies, providing an alternative "crop" that diversifies farmers' revenues and ensures ongoing viable agricultural operation on the remaining farmland.

### **Will people still be able to hunt near the South Ripley Solar Project?**

Hunting will be permitted in and around the project area until the South Ripley Solar Project goes into operation. During construction, ConnectGen will coordinate with participating landowners to ensure that hunting activities are conducted in a safe manner while construction workers are on-site. Once operational, hunting will no longer be allowed within panel areas, but landowners will be able to hunt on parcels around the project area without restriction. Limited fencing, a security measure put in place in accordance with industry best practices and local requirements, will be erected around panel areas, but collection easements between panel areas will not be fenced to allow wildlife to traverse the project area without disruption.

### **What benefits do utility-scale solar projects bring to local communities?**

Utility-scale solar projects represent a significant investment into the local and surrounding communities. Host landowners will receive annual lease payments for thirty years or more. The projects also benefit communities by contributing millions of tax dollars to towns, counties, and local school districts that host the projects.

Utility-scale solar projects also benefit communities by creating local construction jobs, generating revenue for local businesses, and supporting community organizations through sponsorships and donations.

### **Who will be responsible for maintaining the South Ripley Solar Project once it is constructed?**

ConnectGen will be fully responsible for maintaining the solar facilities and any properties within the projects' boundaries, including reseeding the disturbed areas with native plants and grasses that will allow flora and fauna to utilize the panel areas. Landscape maintenance at the project site will be performed by companies contracted directly by ConnectGen.

### **Will herbicides be used during maintenance activities?**

ConnectGen will develop and implement a Vegetation Management Plan that establishes vegetation goals and identifies the specific treatments that may be used to ensure safe and reliable operation of the facility. Common practices to control and manage vegetation will involve mechanized and agrarian means; however, herbicides may be employed, depending on the target plant species, land use activities and landowner input. ConnectGen is committed to the conscientious use of appropriate management techniques to control vegetation in a way that is designed to minimize the risk of unreasonable adverse effects on human health and the environment.

<sup>14</sup>. <https://www.energy.gov/eere/solar/farmers-guide-going-solar>

<sup>15</sup>. <https://www.seia.org/sites/default/files/2019-11/Solar%20Ag%20Land%20Usage%20FactSheet%202019-PRINT.pdf>



## Who will be responsible for decommissioning the South Ripley Solar Project?

ConnectGen's lease agreement states that the company is responsible for the decommissioning and removal of project infrastructure at the end of the project's life.

Additionally, New York State will require a Decommissioning and Restoration Plan be put in place as part of the state Article 10 permitting process. The Decommissioning and Restoration Plan will outline the various ways in which ConnectGen will safely and responsibly remove installed solar equipment and how the property within the project area will be restored to as close to its state prior to construction as possible. ConnectGen will put financial security in place early in the life of the project to ensure that host communities and landowners will bear no responsibility for decommissioning or restoration.

## What happens to the solar panels once they have been decommissioned?

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials,<sup>16</sup> which can be safely disposed of in landfills at the end of the project life. In addition, recycling technologies have emerged in the last several years that have enabled these materials to be recovered and recycled at the end of their useful life.<sup>17</sup> In other cases, solar PV components can be reused or refurbished to have a "second life" of generating electricity.<sup>18</sup> The industry continues to work with recycling partners and to research and explore additional cost-effective recycling technologies.<sup>19</sup> The Article 10 Decommissioning and Restoration Plan will include provisions for end-of-life disposal methods and will ensure compliance with appropriate regulations governing disposal of PV panels at the end of the project life.

## When will the South Ripley Solar Project be completed?

ConnectGen expects to start construction on the South Ripley Solar Project in 2022, with a goal to complete construction and begin delivering energy in 2023. Landowners and members of the community will be kept apprised of the project's milestones and progress throughout the development and construction phases of the project.

16. <https://www.seia.org/sites/default/files/2019-05/SEIA-EOL-Considerations-PV-Factsheet-May2019.pdf>

17. <https://www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels>

18. <https://www.seia.org/initiatives/recycling-end-life-considerations-photovoltaics>

19. <https://www.seia.org/initiatives/seia-national-pv-recycling-program>



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## **Q. What is large-scale energy storage?**

A. Large-scale energy storage is the method and apparatus used to store energy within an electrical power grid. Electrical energy is stored during the day when there is an abundance of electricity being generated, and it is discharged during peak hours when the need is greatest. Advances in technology and materials, paired with economies of scale, have led to dramatically reduced costs associated with energy storage.<sup>1</sup>

## **Q. What kind of energy storage application will be used for the South Ripley Solar Project?**

A. The South Ripley Solar Project will include a 20 megawatt (MW) AC battery storage component. The project will use lithium ion batteries, which is the same type of battery found in everyday consumer electronics, medical devices, and electric vehicles.

## **Q. How is the electricity stored?**

A. Rechargeable battery cells, very similar in composition to the small batteries used in consumer electronics, are arranged into protective cases, called modules, which are then arranged into groups of modules, called racks. These racks are stored in either containers or a building and are connected to the electrical grid. This will allow us to charge and discharge from battery storage project when there is a demand. An analogy is that the arrangement of battery racks is similar to a shoe rack in a shoe store; the battery cells are the shoes, the modules are the shoe box, and the rack is where you put the shoe box.

## **Q. Are battery storage systems safe?**

A. At the end of 2019, 1300 MW of batteries had been installed on the U.S. electric grid.<sup>2</sup> Energy storage has a safety record that is similar to or better than other electricity generation, distribution, or management methods.<sup>3</sup> Driven by the need for grid resiliency and reliability, grid-scale battery storage is projected to have a thirteen-fold increase over the next six years.<sup>4</sup>

Battery manufacturers perform extensive testing before deployment, and energy storage systems are required to be designed to high safety standards. These systems are designed with multiple layers of risk monitoring and mitigation in place. In addition, the site will be remotely monitored 24/7 by trained personnel to ensure no abnormalities are occurring on the system. Internal fire suppression and ventilation systems are designed as backstop protection should any abnormality occur. Moreover, the remote control center has the ability to emergency stop the system in addition to the on-site safety design measures.

Fencing will be erected to keep the public at a safe distance from our storage facility. Only trained personnel will be allowed inside the fenced area to minimize any risk.

In addition, we will comply with the safety measures required by the Federal Regulatory Energy Commission, the North American Electric Reliability Corporation, and applicable regional and local laws. We are also bound by the International Building Code, the International Fire Code, National Fire Protection Association codes and standards and state fire regulations.

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1. <https://www.ubs.com/global/en/investment-bank/in-focus/2019/energy-storage.html>  
2. [https://energystorage.org/wp/wp-content/uploads/2020/04/ESA\\_AR\\_2020\\_FINAL.pdf](https://energystorage.org/wp/wp-content/uploads/2020/04/ESA_AR_2020_FINAL.pdf)

3. <https://energystorage.org/resources/thought-leadership/faqs/>

4. [https://greentechnewstoday.com/renewable\\_energy/energy-storage-to-become-key-grid-asset-with-13-fold-growth-through-2024/](https://greentechnewstoday.com/renewable_energy/energy-storage-to-become-key-grid-asset-with-13-fold-growth-through-2024/)



**Q. Do you work with local fire departments in your project area?**

A. Prior to operation, we will develop an Emergency Response Plan in accordance with industry best practices, which will outline the response procedures to be employed should an emergency arise at the project site. We will work closely and collaboratively with the local departments and authorities. We provide pre-construction training to all emergency response personnel, which includes a description of the project, any potential construction risks, and the role of emergency responders should an incident occur. After construction is complete, we will host the emergency response personnel for a site visit to make sure they are familiar with the system and our Emergency Response Plan.

**Q. What are the benefits of energy storage?**

A. Large-scale energy storage improves the way that we generate, deliver and consume energy, providing many benefits<sup>5</sup>:

- Energy storage has minimal developmental impacts. Storage projects occupy little land, can be screened to minimize visual impacts, are emission-free, and have a low noise profile.
- Energy storage smooths out the electricity supply from energy sources with variable outputs, ensuring that the energy generation meets energy demand.
- Energy storage has a rapid response time, discharging power to the grid quickly to maintain grid stability when rapid changes occur in energy demand.
- Energy storage cuts energy costs by reducing economic losses from major and minor power outages and allowing cheap energy to be stored for later use.
- Energy storage allows for energy diversification by allowing it to be consumed on demand and at a controlled rate.

**Q. How long does it take to construct a battery storage project?**

A. Depending on the size of the project, construction typically takes 4 to 6 months.

**Q. What kind of signage will you use for the South Ripley Solar Project?**

A. We will provide signs that include the project name, address, and emergency contact number, in accordance with the various regulatory authorities, such as the Federal Energy Regulatory Commission, North American Electric Reliability Corporation, International Building Code, International Fire Code, National Fire Protection Association, Occupational Safety and Health Administration, and New York State Uniform Fire Protection and Building Code, that require signage at all energy storage facilities. We will ensure that the signs at our sites meet all current requirements and provide sufficient safety notices as well as an emergency contact number.

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5. <https://energystorage.org/why-energy-storage/benefits/>



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### How do solar panels work?

Solar photovoltaic (“PV”) panels typically consist of silicon, tempered glass, aluminum, copper, and semiconductor materials. Silicon, an element most commonly found in sand, has conductive properties that allow it to absorb and convert sunlight into electricity. When light interacts with a silicon cell, it causes electrons to be set into motion, which initiates a flow of electric current in a process known as the “photovoltaic effect”.<sup>1</sup>

### What will these projects look like?

A solar farm is a large group of solar panels that operate together as one power generation facility, delivering electricity to the existing electric grid. Solar farms are typically arranged in parallel rows with approximately 8 feet wide access buffers between each row.

A panel array, which includes both PV panel and rack mounting, typically stands around 12 feet tall. The mounting racks are supported by steel pile foundations generally set up to 8 feet into the ground without the use of concrete. Panel designs currently being evaluated by ConnectGen include fixed mounting, which are fixed at a set angle, and single-axis tracking mounting, which rotate slowly from east to west once a day, keeping the sun at a 90-degree angle from the panels to ensure maximum energy is absorbed. Each section of solar panels is typically fenced off to ensure security and safe operation.



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1001 McKinney Street  
Suite 700  
Houston, TX 77002

[WWW.CONNECTGENLLC.COM](http://WWW.CONNECTGENLLC.COM)

## SOLAR FREQUENTLY ASKED QUESTIONS





# Frequently Asked Questions

## What other equipment is usually present at a solar farm?

Other project infrastructure present at a solar farm includes common electrical equipment such as inverters and transformers and the electrical equipment necessary to deliver energy to the existing electrical grid such as underground and overhead transmission lines. ConnectGen’s projects may also include a battery storage facility.

## Are solar panels safe?

Yes. Because the PV panel materials are enclosed and do not mix with water or vaporize into the air, there is little-to-no risk of chemicals, including greenhouse gases, being released into the environment during normal use. Crystalline silicon PV panels, an extremely common panel variant used around the world, “do not pose a material risk of toxicity to public health and safety.”<sup>2</sup> Additionally, any Electromagnetic Fields (EMF) produced by solar panel systems are in the same extremely low frequency range as those induced by household appliances.<sup>3</sup>

All solar facilities are designed to strict electrical safety standards to ensure safe operation. Product safety standards, installation requirements, and building codes for solar facilities are addressed by the National Fire Protection Agency’s National Electrical Code, the International Code Council’s International Fire Code, the International Association of Firefighters, and several other safety and product standards groups.<sup>4</sup>

ConnectGen will be fully responsible for the security of the facility and for maintaining consistent safety standards within the project area.

## What benefits do utility-scale solar farms bring to local communities?

Utility-scale solar farms represent a significant investment into the local and surrounding communities. Host landowners will receive annual lease payments for thirty years or more. The projects also benefit communities by contributing millions of tax dollars to towns, counties, and local school districts that host the projects.

Utility-scale solar farms also benefit communities by creating local construction jobs, generating revenue for local businesses, and supporting community organizations through sponsorships and donations.

## Do solar farms affect agriculture?

Solar farms are low impact and coexist well with agriculture, operating without any impact to adjacent agricultural properties. During the solar farm’s thirty-year or more lifespan, the land hosting the project gets a recovery period, allowing the soil to rest and rebuild, which can increase the value of the land for agriculture in the future.<sup>5</sup> At the end of the solar farm’s useful life, the project is decommissioned, and the land can be returned to agricultural use.

## Who will be responsible for maintaining the solar farms once they are constructed?

ConnectGen will be fully responsible for maintaining the solar facilities and any

properties within the projects’ boundaries. Landscape maintenance at the solar farms will be performed by companies contracted directly by ConnectGen.

## Will herbicides be used during maintenance activities?

ConnectGen will develop and implement a Vegetation Management Plan that establishes vegetation goals and identifies the specific treatments that may be used to ensure safe and reliable operation of the facility. Common practices to control and manage vegetation will involve mechanized and agrarian means; however, herbicides may be employed, depending on the target plant species, land use activities and landowner input. ConnectGen is committed to the conscientious use of appropriate management techniques to control vegetation in a way that is designed to minimize the risk of unreasonable adverse effects on human health and the environment.

## What happens if a solar panel gets hit by lightning?

Solar farms are designed with lightning protection on all system components, which protect against damage in the event of a lightning strike. The ground grid will be designed in consideration of the conductivity of soils in the area as well as any other nearby conductive materials that are buried or connected to the ground, such as water or natural gas pipes.

## Do large-scale solar projects make noise?

Temporary, elevated noise levels may occur during the construction phase of a solar farm, but once construction is complete, an operating solar farm emits minimal noise during the day and is dormant at night. As part of the Article 10 application process, ConnectGen will submit a detailed study of the potential noise impacts associated with the construction and operation of the facility. The results of the study will assess expected noise levels, and also propose noise limits, which will minimize and mitigate adverse impacts associated with construction and operation of the solar project. In addition, ConnectGen is committed to taking steps to minimize and mitigate visual impacts of the project through vegetative buffers and setbacks from property lines, which will provide additional sound dampening benefits as well.

## How are solar projects permitted in New York State?

New York State requires that major electric generation facilities, including solar farms, undergo a rigorous state permitting process, under Public Service Law Article 10, prior to construction and operation. The Article 10 process provides rigorous requirements for the study of the environmental, public health, and public safety impacts as well as the incorporation of extensive public input and local stakeholder engagement into the development, design, and construction of solar energy projects.

## How long does it take to complete a large-scale solar project?

The commencement of construction will happen once ConnectGen completes the Article 10 process, which takes approximately 2 to 3 years to complete. Construction of a utility-scale solar project takes between 9 and 12 months, depending on weather constraints and other potential construction limiting factors. ConnectGen

expects to start construction on its utility-scale solar projects in western New York in 2022 with a goal to complete construction and begin delivering energy in late 2022 or 2023. Landowners and members of the community will be kept apprised of the projects’ milestones and progress throughout the development and construction phases of the projects.

## What happens at the end of the project life?

ConnectGen is responsible for the decommissioning and removal of project infrastructure at the end of the project’s life. As added protection for project landowners and host municipalities, ConnectGen will put financial security in place early in the life of the project to ensure that host communities and landowners will bear no responsibility for decommissioning or restoration.

Additionally, New York State will require a decommissioning and restoration plan be put in place as part of the state Article 10 permitting process. The decommissioning and restoration plan will outline the various ways in which ConnectGen will safely and responsibly remove installed solar equipment and how the property within the project area will be restored to as close to its state prior to construction as possible.

## What happens to the solar panels once they have been decommissioned?

Solar PV panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials<sup>6</sup>, which can be safely disposed of in landfills at the end of project life. However, recycling technologies have been implemented in the last several years that have enabled these materials to be recovered and recycled at the end of their useful life.<sup>7</sup> In some cases, over 95 percent of semiconductor material and over 90 percent of the glass used in a solar PV panel can be recycled.<sup>8</sup> In other cases, solar PV components can be reused or refurbished to have a “second life” of generating electricity.<sup>9</sup> The industry continues work with recycling partners and to research and explore additional cost-effective recycling technologies.

<sup>1</sup> Energy Sage: “How do Solar Panels Work?: <https://news.energysage.com/solar-panels-work/>

<sup>2</sup> “Health and Safety Impacts of Photovoltaics.” N.C. Clean Energy Technology Center at N.C. State University: [https://content.ces.ncsu.edu/static/publication/js/pdf\\_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics](https://content.ces.ncsu.edu/static/publication/js/pdf_js/web/viewer.html?slug=health-and-safety-impacts-of-solar-photovoltaics)

<sup>3</sup> NYSEDA New York Solar Guidebook: <https://www.nyserda.ny.gov/-/media/NYSun/files/Model-Solar-Energy-Law-Guidance-Document.pdf>

<sup>4</sup> SEIA: Fire Safety & Solar: <https://www.seia.org/initiatives/fire-safety-solar>

<sup>5</sup> Department of Energy: <https://www.energy.gov/eere/solar/farmers-guide-going-solar>

<sup>6</sup> SEIA: <https://www.seia.org/sites/default/files/2019-05/SEIA-EOL-Considerations-PV-Factsheet-May2019.pdf>

<sup>7</sup> International Renewable Energy Agency: <https://www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels>

<sup>8</sup> International Renewable Energy Agency: <https://www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels>

<sup>9</sup> SEIA: <https://www.seia.org/initiatives/recycling-end-life-considerations-photovoltaics>