

Welcome to the Shepherd's Run Solar Farm

Virtual Informational Open House

Please be sure to join the Hecate Energy team on **December 9, 2020** for the discussion panel of the Open House.

There are 2 convenient sessions covering the same topics,

1:00 p.m. - 3:00 p.m. or 5:00 p.m.- 7:00 p.m.

You can find the invitation for these Zoom meetings at

www.ShepherdsRunSolar.com/OpenHouse



ABOUT THE COMPANY

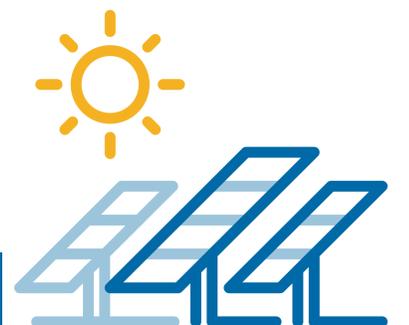
Hecate Energy develops solar, wind and battery storage projects for our clean energy future.

- Hecate Energy develops clean energy power plants from planning and inception through construction and operation.
- Founded in 2012 by a team of energy industry veterans who have worked together for more than 25 years, Hecate Energy's team has developed thousands of megawatts of electricity generation projects across the United States.
- Hecate Energy has entered into over 1.6 gigawatts (powering approximately 910,000 homes) of renewable power purchase agreements since 2012 and has approximately 12 gigawatts of additional projects currently under development of which nearly 800 MW of projects are in New York State.



“Solar energy can help meet the growing demands of today’s increasingly electrified society in a local, sustainable way. Communities welcome solar projects because they are quiet neighbors, that use essentially no municipal resources yet significantly add to a community’s revenue base.”

Alex Campbell, Project Team



ABOUT THE TEAM

Hecate Energy Team

- Alex Campbell, Project Development
- Jim McGowan, Project Development

Public Outreach

- Steve Sullivan, Power Communications

Hecate Energy is taking great care to ensure that the development, construction and operation of the Shepherd's Run Solar Farm benefits the community.

We encourage you to provide feedback on any questions, thoughts or concerns. You may contribute to that effort by participating in several ways:

Contact Alex Campbell, Project Development

E-mail: ACampbell@HecateEnergy.com

Phone: (833) 529-6597



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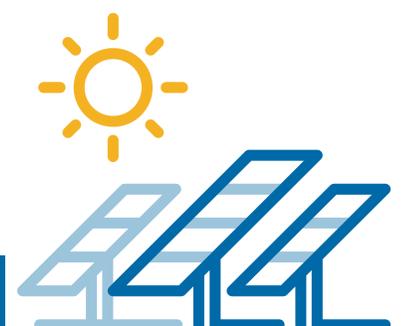
Legal, Environmental, Engineering & Design

- Tyler Wolcott, Read & Laniado, LLP
- Heather Vaillant - TRC
- Robert Molner - Stantec



Visit the Shepherd's Run Solar Farm website:

www.ShepherdsRunSolar.com

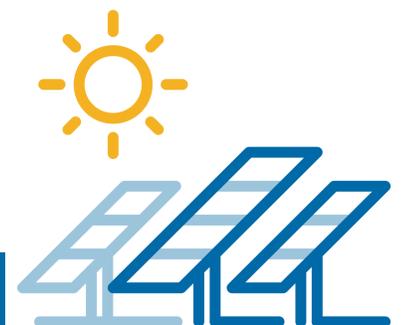
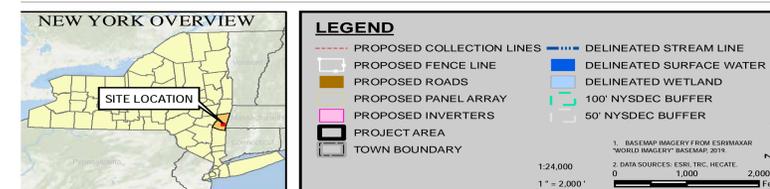
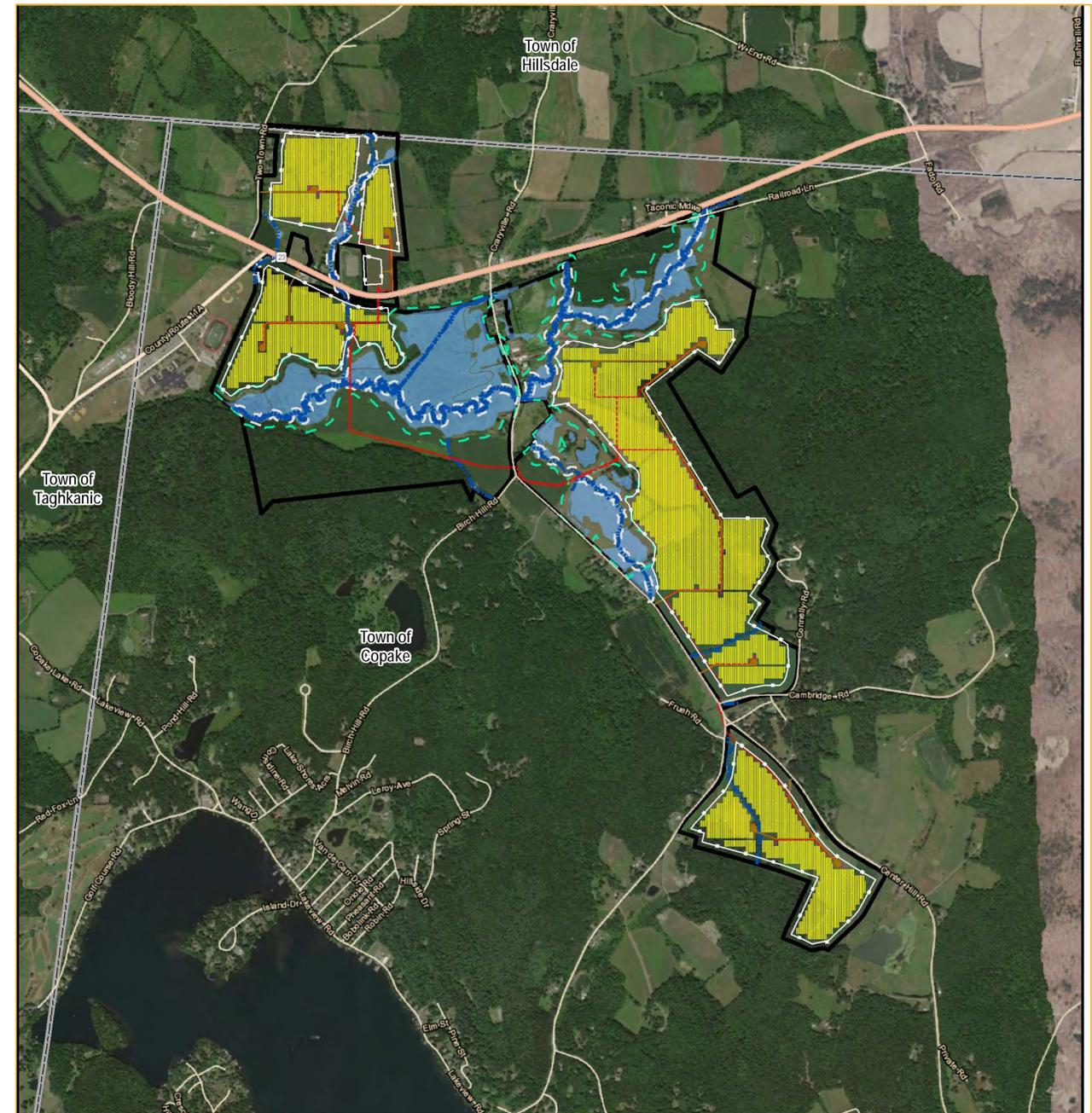


PROJECT OVERVIEW

Shepherd's Run Solar Farm will provide renewable energy to Columbia County while protecting and improving our clean air, water quality, and soil resources.

Project Details

- 60 MW photovoltaic (PV) solar facility
- The facility will be built on several parcels east of Taconic Hills School District and north of Copake Lake. It will occupy approximately 360 acres where the panels will cover 280 acres.
- Ground-mounted solar farm with PV panels on galvanized steel tracker racking structures
- Low-profile, approximately 10 feet high above grade at the tallest point (about the height of field corn stalks)
- Crystalline type panel commonly used for residential rooftop systems



NEW YORK STATE ELECTRICITY SITUATION

Electricity Situation in NYS and Columbia County

Columbia County Electricity Supply

- Stuyvesant Falls Hydro (4 MW net) is the only Power Plant in Columbia County and produces ~14,000 MWh/year¹ or 0.09% of Columbia County's demand.

Columbia County Electricity Demand

- Approximately 25,000 households in Columbia County, which on average each household consumes 6.5 MWh/year, or 162,500 MWh/year total².

Shepherds' Run Solar Electricity

- Generates approximately 110,000 MWh or 67% percent of Columbia County's demand.

¹ EIA, 2018

² EIA, 2020



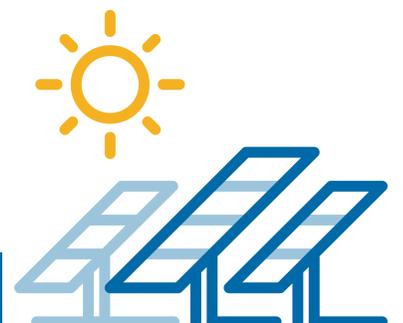
- Currently, we only obtain about 25.6% from renewable energy, of which approximately 22.4% is hydroelectricity.
- Approximately 0.08% of New York's demand will be met by Shepherd's Run Solar.
- We need 15 Shepherd's Run projects to remove existing oil-fired generation.
- Fossil fuel/nuclear generation represent 74.3% of generation and 98,500,000 MWh/year.

New York State's CLCPA goal of 70% clean energy by 2030 and 100% by 2040 is ambitious and important.

We need 900 Shepherd's Run projects to meet New York's 100% clean energy goal.

Generation	MWh	% OF TOTAL
Battery	-	
Coal	690,386	0.5%
Natural gas	50,810,426	38.3%
Nuclear	42,919,011	32.4%
Other	873,145	0.7%
Other biomass	1,615,967	1.2%
Other gas	-	0.0%
Petroleum	1,590,710	1.2%
Pumped storage	(430,718)	-0.3%
Hydroelectric	29,630,000	22.4%
Solar	297,472	0.2%
Wind	3,998,333	3.0%
Wood	525,768	0.4%

25.6%



WHY SOLAR IN COPAKE?

Local Electricity

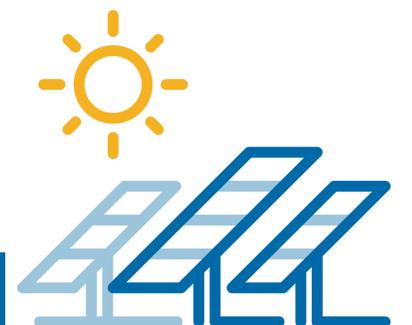
- There is limited existing power supply in Columbia County. The Project will boost electric system reliability due to proximity to a vital section of the electric grid.
- The electricity from the Project will flow to the nearest local points of demand.

Interconnection

- This location offers efficient transmission interconnection to a new Facility substation to be built adjacent to the existing Craryville 115-kilovolt (kV) substation.
- Shepherd's Run Solar Farm will connect directly to the existing Craryville-Klinekill and Churchtown-Craryville 115-kV transmission lines at the new Facility substation.
- This interconnection point was selected based on a regional analysis of capacity and detailed analysis of this substation and these transmission lines.

Landowner Support

- The Project allows landowners/farmers to cover property taxes while not losing their land to future development. Solar is the one of the few forms of development where the land used can be returned to farming.



MISCONCEPTIONS VS. FACTS

Project Misinformation

Misconception: The Project will pollute the water table.

Fact: It will improve water quality. A recent study conducted on Hecate Energy's Greene County Solar Farm compared soil loss from existing agricultural activities to the establishment of meadow habitat throughout the life of the Project and determined a reduction of 2,921 tons of sediment (91% less).

Misconception: The Project site will increase the use of pesticides.

Fact: The Project will decrease the use of pesticides within the operations area of the site.

Misconception: Hecate Energy will receive \$43 billion in subsidies.

Fact: We are paid when we produce energy and sell Renewable Energy Certificates (RECs)

Misconception: The wetlands will be destroyed.

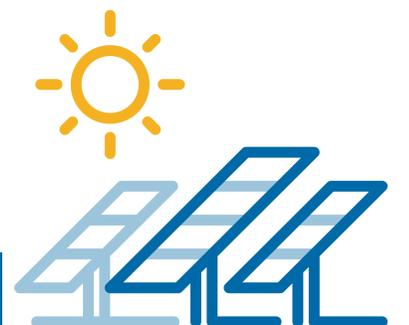
Fact: The Project will preserve the 159 acres of wetlands with a 100 ft. buffer surrounding those areas. Wetland management is reviewed and monitored by NYSDEC, the Department of Public Service and the U.S. Army Corps of Engineers.

Misconception: There will be no wildlife studies conducted.

Fact: The Application will analyze impacts to wildlife, and Hecate Energy has conducted detailed studies of raptors and threatened and endangered species. Large animals like deer, bear, and coyotes are not limited to localized areas with specific habitat requirements.

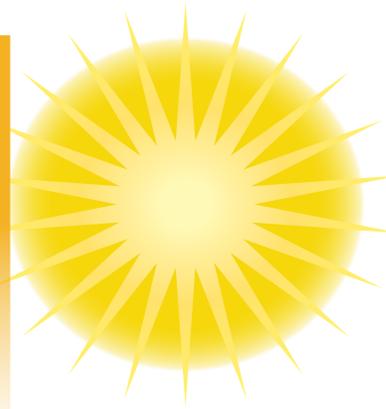
Misconception: This is the largest solar farm being produced in New York State.

Fact: Multiple NYS projects from 5 -8 times as large (300-500MW) have filed interconnection requests and are undergoing permitting.



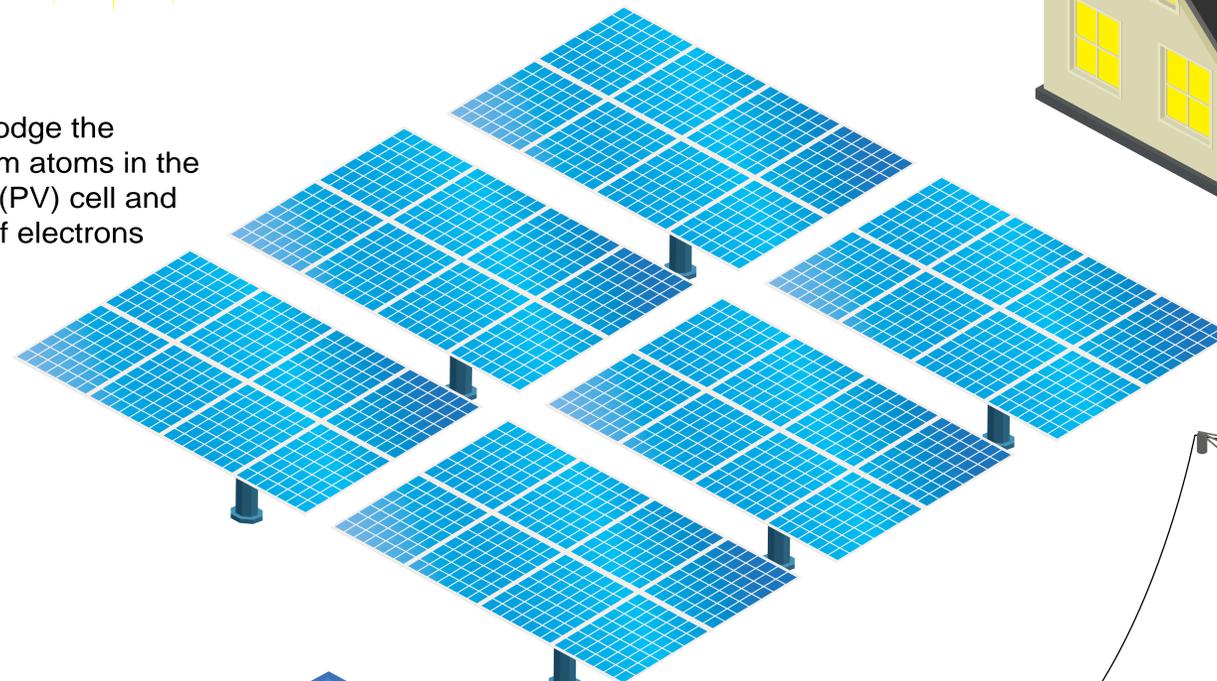
HOW SOLAR WORKS

THE SOLAR GENERATION PROCESS

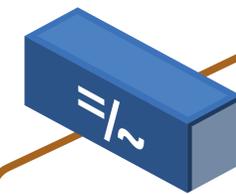


1 Sunlight (photons) hits the solar panels

2 Photons dislodge the electrons from atoms in the photovoltaic (PV) cell and start a flow of electrons



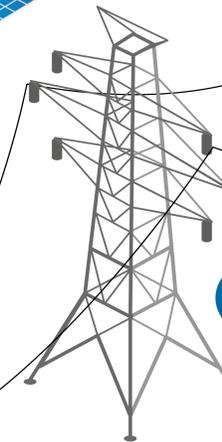
3 Direct current (DC) flows from the panel to an inverter that turns it to alternating current (AC)



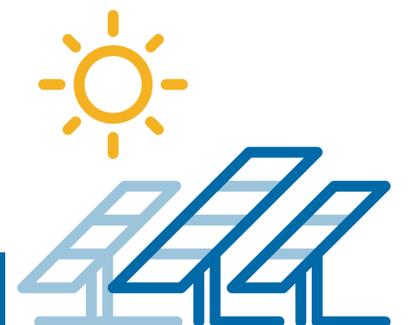
4 The AC electricity flows through wires to transformers which increase the voltage of the electricity and deliver it to the high voltage transmission system



5 The electricity travels across the transmission and distribution systems to get to your home and area businesses



6 Electricity is consumed by lights, heating, cooling, automation and transportation



SHEPHERD'S RUN SOLAR FARM

TECHNOLOGY

Engineering and Technology

- Shepherd's Run Solar Farm will be configured as a ground-mounted solar facility with photovoltaic (PV) panels on galvanized steel tracker structures, which are built to be robust
- The Project will include rows of single-axis trackers, oriented in a north-south direction, that rotate the PV panels from east to west following the sun's daily path, optimizing the amount of power the solar facility can produce and reduce glare.
- The PV array is low-profile, approximately 10 feet high above grade at the tallest point in the mornings and evenings (about the height of field corn stalks).
- The solar panels planned for the Project are the crystalline type commonly used for residential rooftop systems. They contain the same materials (glass, aluminum, plastic) used in many household products such as windows.
- In the event of extreme weather and/or high winds, operational procedures will be implemented to stow the trackers in a direction to best withstand the weather conditions.
- If the solar panels are broken or damaged, there are no materials that would leak or pollute the environment. Hecate Energy Operating Contractor will repair within days.



Hecate Energy Morgan Solar Farm, Aragon, GA

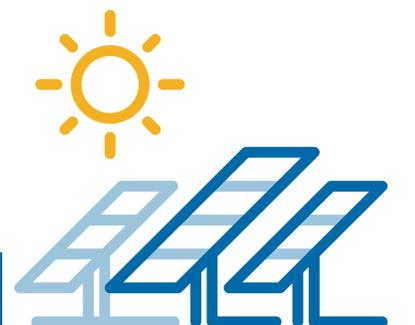


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SOIL & WATER

Hecate Energy will implement best management practices (BMPs) during construction to minimize impacts to soil and water. It is vital to ongoing operations of the Project that drainage be maintained, and it will likely improve.

Stormwater, Soil and Water

- The soil will be planted with a low-growing seed mix of native grasses and other low-maintenance varieties to promote precipitation infiltration, water table recharge, healthier soil, and reduce water run-off and soil erosion.
- Panels do not require washing with chemicals. To the extent washing is needed, which is expected to be infrequently due to regular rainfall, distilled water will be used.
- Little or no chemical vegetation control is planned. No broadcast or aerial spraying would be used, only selective techniques. If there is any use it will be minimal relative to conventional farming.



Did you know?

As compared to conventional energy sources, solar energy does not deplete local water resources because solar photovoltaic cells do not rely on water to generate power.

