



# THANK YOU

for attending the

## Ridge View Solar Energy Center Open House

We are happy to meet with you  
to acquire your feedback for this  
**renewable energy** project.

Please review the display boards  
and feel free to ask us any questions.

### WE WANT TO HEAR FROM YOU

Please complete the form to share your comments.



Elmsley Solar Project,  
Ontario, 24 MW



## Our Commitment to **Ethical Development**

**These principles reflect our commitment to our host communities, landowners, and other stakeholders.**

### **EDF Renewables is committed to:**

- Honesty and transparency in all our development activities
- Engaging with all stakeholders and remaining open to taking input that will improve project and mitigate impacts
- Being present and available in the community to ensure all voices are heard
- Treating landowners, host communities, and stakeholders fairly and equitably

# The Principles That Guide Us

## MISSION STATEMENT

Delivering renewable **solutions**  
to lead the transition to a  
**sustainable energy** future.

## our core VALUES

Safety

Good Sense

Accountability

Transparency

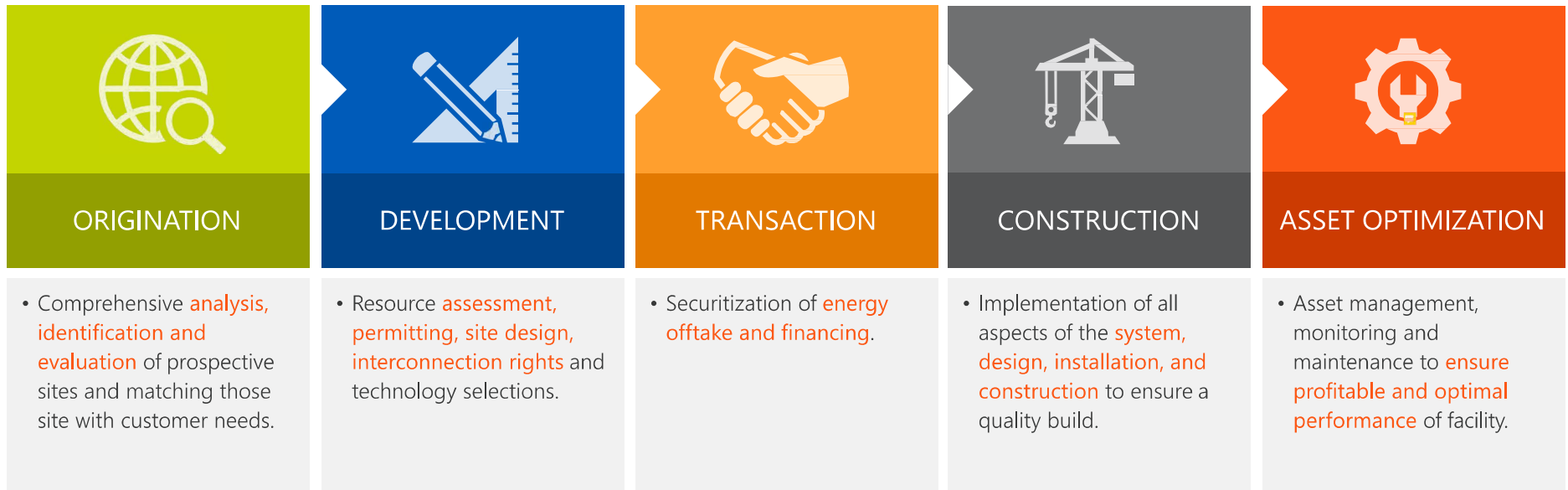
Teamwork

Respect

Passion

# Creating **Value** from Origination to Commercial Operation

EDFR is a **technology agnostic provider** of renewable generation, storage, and management solutions.





# Leading The Way in Renewable Energy

## EDF RENEWABLES NORTH AMERICA

**16 GW**  
developed

**10 GW**  
O&M contract

**24 GW**  
pipeline

**30+**  
years experience

**1,112**  
employees

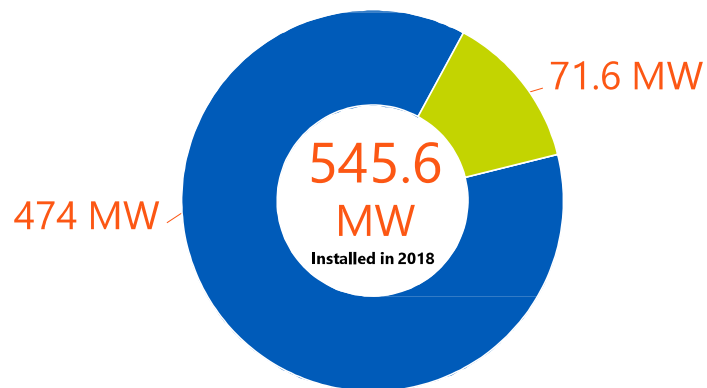
as of 12/31/18

# 2018 Placed in Service

DISTRIBUTED			
PROJECT	STATE	MWp	OFFTAKER (OWNER)
Delta 1 & 2	MI	29.3	Lansing BWL (CMS)
Annapolis Landfill	MD	18.1	City Annapolis (Building Energy)
Southwick	MA	6.6	Eversource
MN Community Solar 1	MN	16.4	Community (US Solar)
Ogdensburg	NY	1.2	OBPA (AEP)

GRID-SCALE			
PROJECT	STATE	MWp	OFFTAKER
Ivester*	IA	91	MidAmerican
Copenhagen	NY	80	National Grid
Pecan	NC	111	Dominion (DBS)
Pendleton	ON	20	IESO
Barlow	ON	18	IESO
Bluemex	SON	119	CFE
Stoneray	MN	35	SMMPA

\*sold to MidAmerican prior to construction/commissioning  
as of /12/31/2018



# Environmental and Economic Impact



**272**

Approximate number of permanent jobs created in North America



**\$1,636,800**

Potential annual revenue for farmers / landowners due to land lease payments



**6,421,502,329**

Equivalent number of bottles of water conserved



**220,785.3**

Equivalent homes powered  
(MWh/10.4 MW per home, per year, per EIA household data 2017)



## 2018 economic IMPACT

We are committed to our environment and the communities we work in and we are proud of the impact our projects create.

**1,826,632**

Avoided metric tons of Carbon dioxide annually

CO2 reduction equivalent to taking

**388,645**

cars off the road

**36,532,632**

Avoided metric tons of Carbon Dioxide over lifetime, CO2



## NEW YORK: 70% Renewable Energy by 2030

Integration of solar projects provides many economic benefits:

- **Additional revenues** for Towns, Counties and School Districts through PILOT or other agreements
- **Long term stable source of revenues** for landowners
- **Creation of jobs** during construction and operation
- **Material and service** procurement
- **Support hospitality** sector during construction



In 2016, of the **44,026**  
employed in the electric power  
generation segment in New York,  
**28%**  
were employed by solar, the  
largest contributor of jobs.\*



New York State sets a target to  
provide  
**70%**  
generation of electricity from  
renewable energy sources,  
including solar, wind, hydro,  
biomass by  
**2030**



In the US, "Proportionally, solar employment  
accounts for the largest share of workers in the  
Electric Power Generation sector... employing  
almost **374,000**  
workers, or 43% of the Electric Power  
Generation workforce.\*

*\*U.S. United States Department of Energy*





# OVERVIEW

**Project Name:** Ridge View Solar

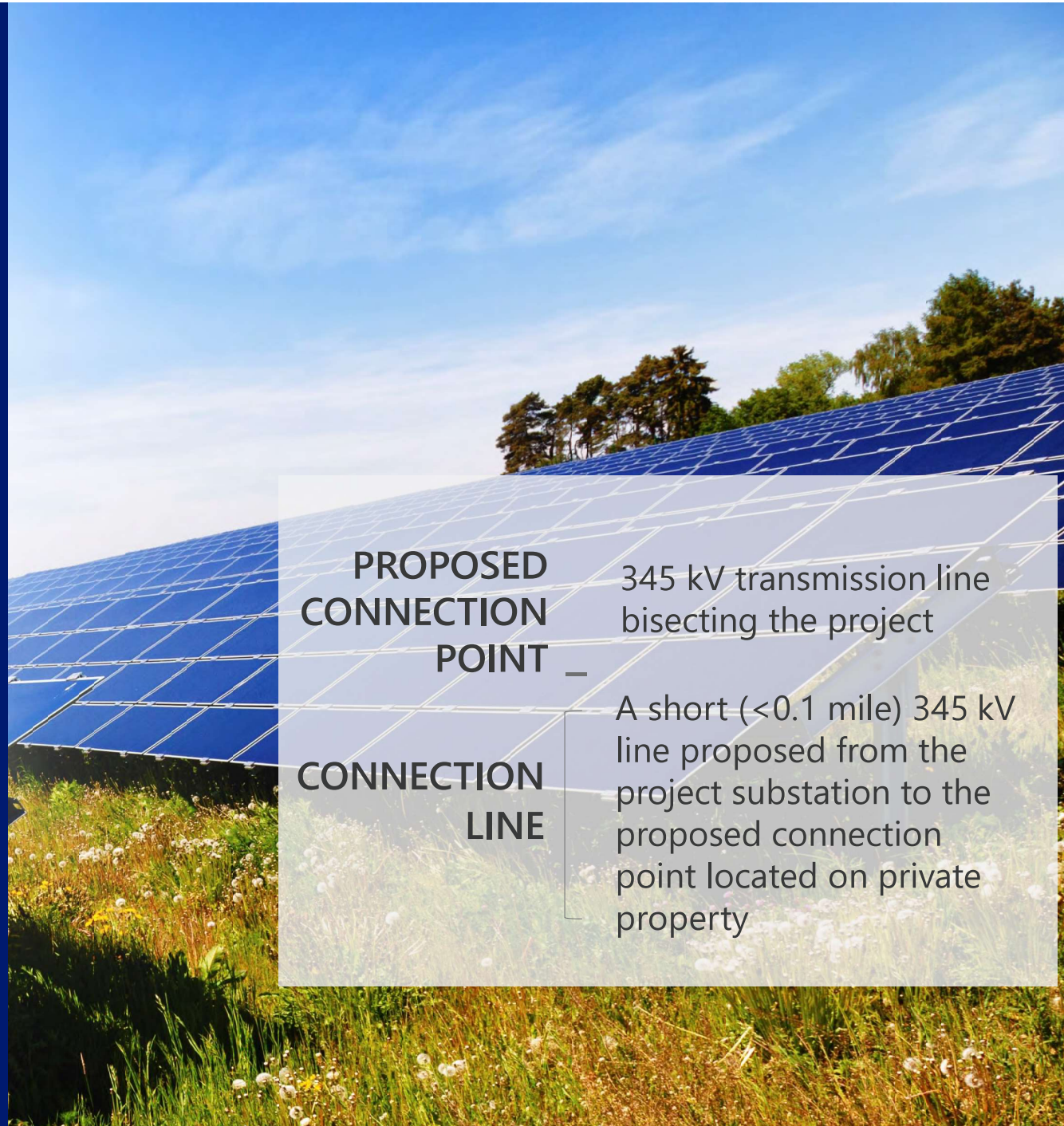
**Project Owner:** EDF Renewables

**Host Municipality:** Hartland and  
Newfane

**Renewable Source:** Solar

**Proposed Capacity:** 350 MWac  
(electricity for 80,000 homes)

**Proposed Land Use:** ~ 2,000 acres



**PROPOSED  
CONNECTION  
POINT**

345 kV transmission line  
bisecting the project

**CONNECTION  
LINE**

A short (<0.1 mile) 345 kV  
line proposed from the  
project substation to the  
proposed connection  
point located on private  
property



# WHY DID WE CHOOSE THIS LOCATION?

## SUPPORTIVE COMMUNITY:

- Towns supported our initial efforts to reach out to landowners. As a result, we found that many landowners are supportive to host or support the project.

## AVAILABLE LANDS:

- Project sited on land already cleared, reducing environmental impacts and facilitating permitting.

## PROXIMITY TO TRANSMISSION LINE WITH CAPACITY:

- Located adjacent to existing transmission lines with available capacity to accommodate electricity generated by project.

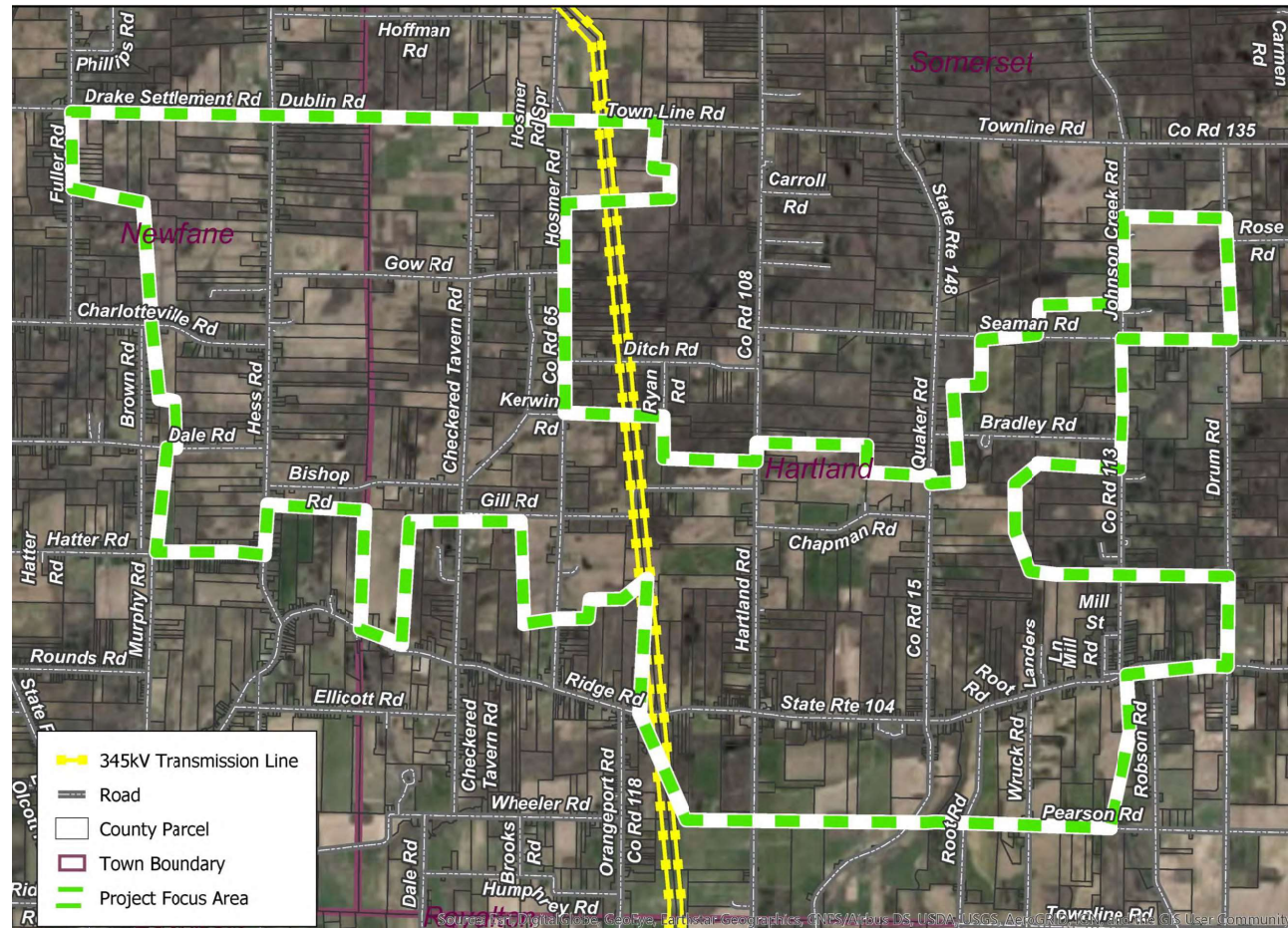




**RIDGE VIEW**  
solar energy center

## PROJECT FOCUS AREA

- Targeting ~2,000 acres of privately owned land within the Project Focus Area in the Towns of Hartland and Newfane
- Will produce enough electricity to power 80,000 New York households



Project focus area is to display approximate area where project components could be installed. Depending on continued feedback from the community, boundaries will change over time. The community will be updated as the project evolves.



# ENVIRONMENTAL STUDIES

- EDF Renewables will be initiating environmental studies of the proposed Facility Area.
- Coordinating with:
  - NYS Department of Public Service (NYSDPS)
  - NYS Department of Environmental Conservation (NYSDEC)
  - NYS Department of Agriculture and Markets (NYSDAM)
  - State Historic Preservation Office (NYSHPO), and regional stakeholders to ensure that potential environmental impacts are fully considered
  - Federal Aviation Administration (FAA)

Studies to help avoid and minimize potential environmental impacts are anticipated to include the following:

## WETLANDS

- Review of U.S. Army Corps of Engineers (USACE) and NYSDEC Wetland Mapping
- Field investigations to identify and delineate wetlands and streams

## RARE/THREATENED/ENDANGERED SPECIES

- Coordination with NYSDEC and USFWS
- Coordination with regional wildlife advocacy groups
- Field investigations to identify potential habitat

## ACOUSTIC STUDIES

- Noise impact assessment, including background sound monitoring and sound propagation modeling





# ENVIRONMENTAL STUDIES

## ARCHEOLOGY

- Coordination with the New York State Historic Preservation Office (NYSHPO) and regional advocacy groups
- Research and archaeological field investigations, as needed, to ensure that facilities avoid archaeologically sensitive areas

## HISTORIC RESOURCES

- Coordination with NYSHPO and regional historical groups
- Historic properties are evaluated in terms of their eligibility for listing on the State and National Registers of Historic Places
- Evaluate potential visual effect on historic properties

## VISUAL IMPACTS

- Identification of visually sensitive sites
- Viewshed mapping of areas of potential visibility
- Coordination with stakeholders and preparation of visual simulations to illustrate what the facility will look like when completed
- Landscaping to screen views of the facility from roads and neighbors



# ADDITIONAL STUDIES AND CONSIDERATIONS

## **PUBLIC HEALTH AND SAFETY**

- Air Emissions
- Noise and Vibration
- Site Security

## **SOCIOECONOMIC EFFECTS**

- Jobs
- Intervenor Funding
- Property Tax
- Environmental Justice

## **EFFECT ON TRANSPORTATION AND COMMUNICATIONS**

- Road Use Agreement
- Effect on Communications and Telecommunications
- Coordination with Local, State, and Federal Transportation and Communication Authorities

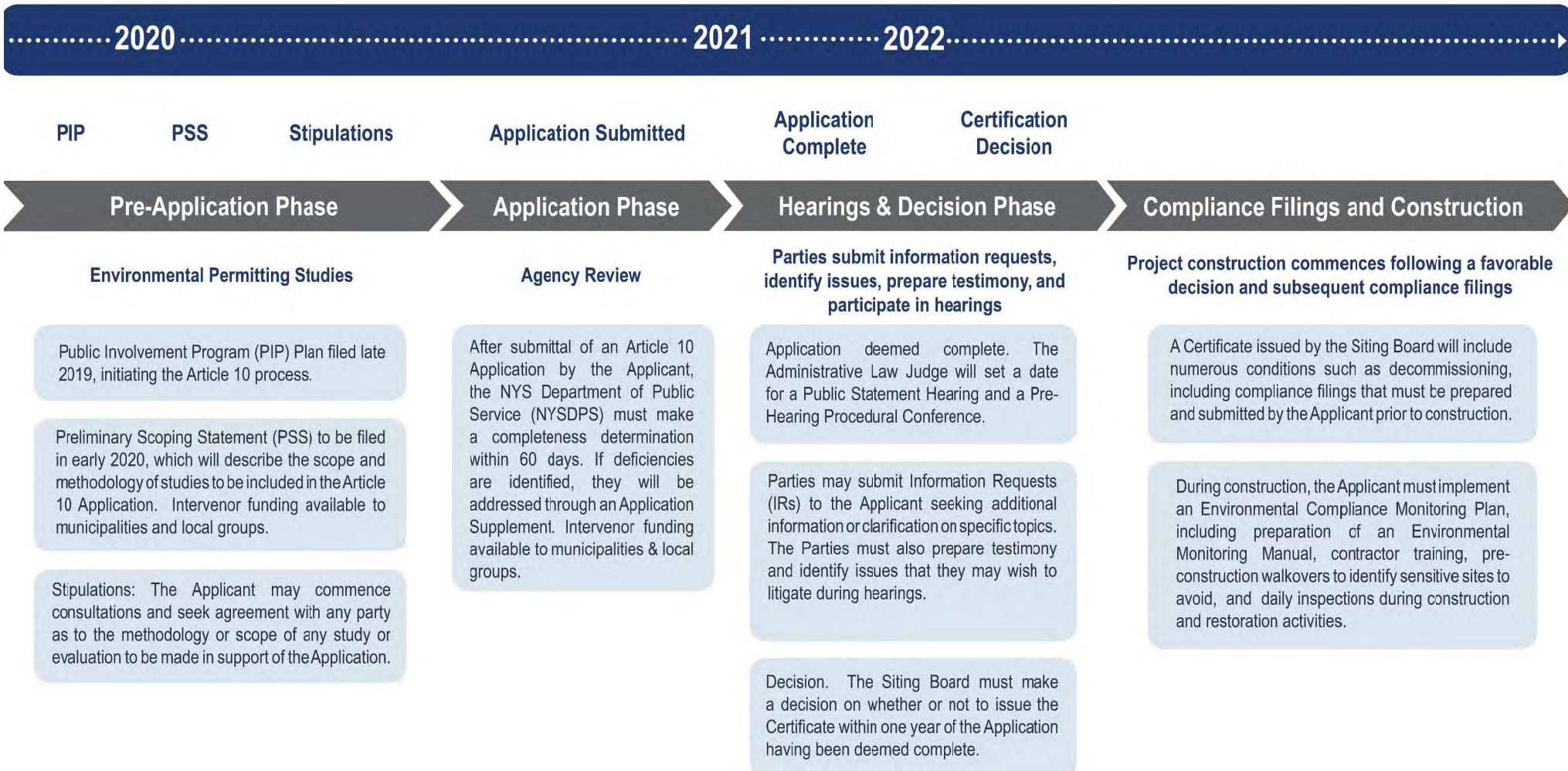
## **SITE RESTORATION AND DECOMMISSIONING**

- Decommissioning Plan
- Financial Security Mechanism



# ARTICLE 10 PROCESS

## NYS ARTICLE 10 | PERMITTING TIMELINE





# ARTICLE 10 PROCESS

## Early Public Input from New York Communities is Key to Successful Energy Projects



### What is Article 10?

Article 10 is the New York law authorizing the construction and operation of major electric generating facilities. Article 10 was enacted in 2011 to be a portion of the New York State Public Service Law and empowers the New York State Board on Electric Generation Siting and the Environment ("Siting Board") to issue Certificates of Environmental Compatibility and Public Need ("Certificate") at proposed power facilities.

### Your Input Matters!

Article 10 is designed to gather stakeholder input at a relatively early stage, before an Applicant has a fully developed proposal, so that issues and resources of particular concern to the community can be identified and incorporated into final Project design.

#### Board on Electric Generation Siting and the Environment

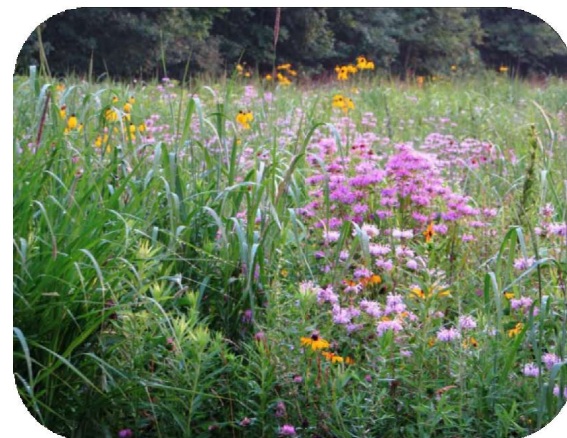
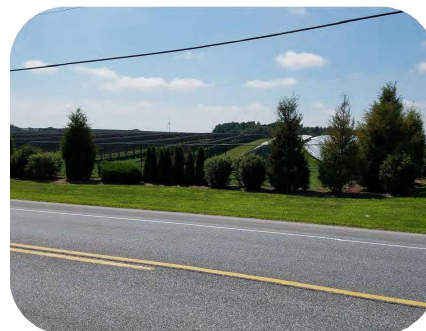
[Article 10 Law](#)[Article 10 Regulations](#)[Board Members](#)[Information Coordinator](#)[Press Releases](#)[Public Notices](#)[Procedures and  
Hearing Rules](#)[Projects Under Review](#)[Requests for Declaratory  
Rulings](#)[Webcast Schedule](#)[Guides](#)[Forms](#)[FAQ](#)





# SITE DESIGN

Approaches to site design for solar projects include selection of fencing and planting materials intended to screen or soften views of the project from adjacent roadways and properties.



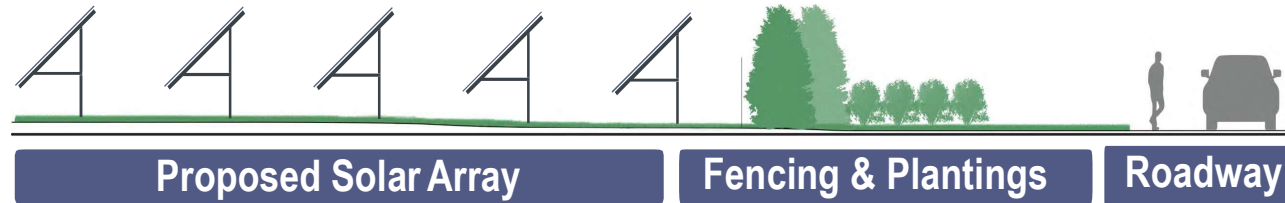


# SITE DESIGN

## Fencing

- Fencing is required for solar facilities for safety and security purposes
- Agricultural style fencing is used for array areas
- Fence styles are typically based

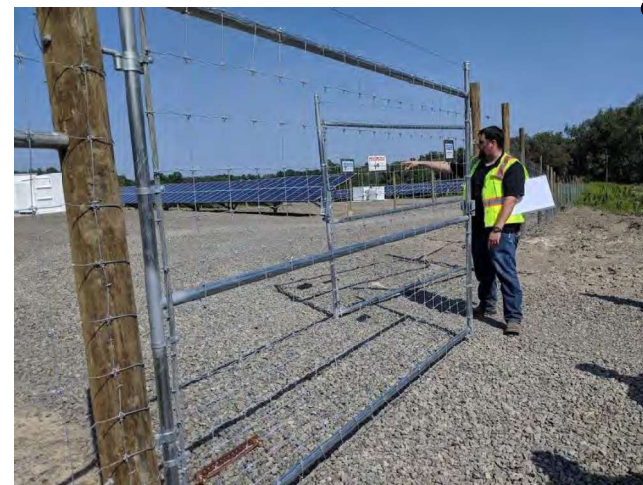
on examples within the local community so installed fencing will blend into the existing visual setting



Agricultural Style Wire Knot Fence (Array Areas)



Galvanized Chain Link W/ Barbed Wire (Substation Only)



Typical Access Gate for Array Areas



# SITE DESIGN

## Evergreen Hedges

- Plantings along fence lines can help integrate a solar facility with the surrounding landscape
- Vegetation may include a screening hedge made up of evergreen trees and shrubs

## Native Plantings

- Use of native shrubs and plantings softens the overall visual effect of the facility and provide wildlife benefits
- Plantings can help to better integrate the facility into the surrounding landscape







# SITE DESIGN

## Pollinator-Friendly Grasses and Wildflowers

- In many agricultural areas, an alternative form of vegetative screening that may be appropriate is tall native grasses and wildflowers along selected roadsides and other fence lines
- Grasses and wildflowers can soften the appearance of the facility and better integrate the facility into the landscape
- Regionally appropriate plantings can also provide habitat for pollinator species when planted around the periphery of the site and/or in locations on site where mowing can be restricted during the summer months
- Sheep are proposed to perform vegetation management; typically around 3,500 for a project of this size





## THE OPPORTUNITY OF RENEWABLE ENERGY

In 2018, the solar industry generated a **\$17 billion investment** in the American economy

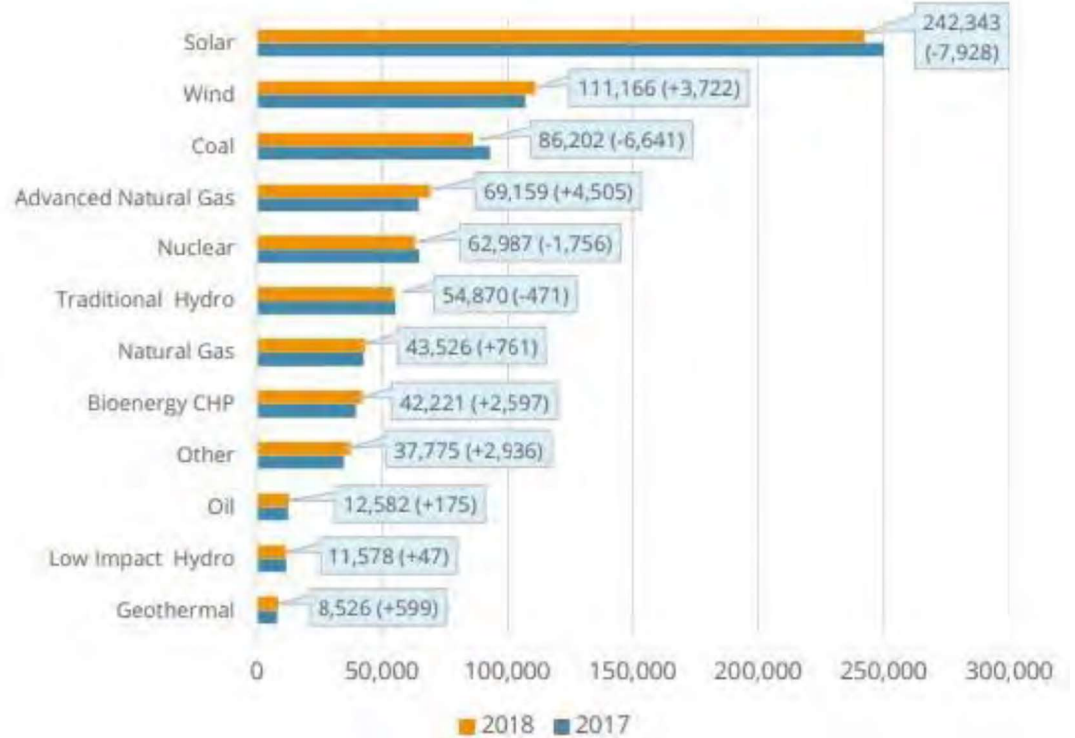
Average **annual growth rate of 50%** over the last 10 years

Generates enough electricity to power more than **12.3 million homes**

Solar generation offsets more than 73 million metric tons of CO2 emissions each year, equivalent to taking 15.6 million vehicles off the road

Solar employment grew about **six times faster** than the **overall U.S. economy** from 2013-2018

### Solar – The #1 Employer in Energy



Source: U.S. Energy and Employment Report (USEER) published by the U.S. Department of Energy (DOE)



Total project cost anticipated  
**~ \$300 million**

A portion is sourced locally  
(i.e. labor, material supply)



Approximately  
**300 jobs**  
anticipated during the peak  
of construction



Estimated  
**4-5 full time**  
permanent highly skilled jobs  
during operation



Propose to contribute  
on order of  
**\$1 million**  
annually in new revenues for  
the Towns, County and School  
Districts



**RIDGE VIEW**  
solar energy center

## LOCAL BENEFITS

### DIRECT BENEFITS:

Surveying, civil engineering, mechanical work, electrical work, road construction, transportation equipment, earthwork activities, maintenance of vehicle fleet, maintenance paths, snow removal and other related services.

### INDIRECT BENEFITS:

Meals and accommodation for construction personnel; products, services and supplies.



## Solar energy provides stable revenues for 20+ years

Host landowners enter into lease agreements that provide annual payments for use of the land.

## Land will be returned to normal state

At the end of the useful life of the solar facility or the expiration of the lease (whichever comes first), the infrastructure is decommissioned and the land is returned to its pre-existing condition.

## Solar facilitates complementary uses

Planting clover or other ground cover can stimulate foraging of bees and butterflies. Some sites in Europe, the United States and Canada have successfully integrated sheep grazing amongst the solar panels.



### Solar Helping to Re-Invigorate Pollinators

- Beehives were installed at the EDF Arnprior Solar Project (23.4 MWp) to enhance the biodiversity of the project by producing honey.
- In 2017, more than 350 "Sunny & Honey" jars were produced!



### Solar and Sheep

- More than 300 sheep at the EDF Arnprior Solar facility graze the vegetation beneath the panels.
- A win-win for both farmer (food supply for sheep) and solar project operator (vegetation maintenance).





**Arnprior Solar Project added a number of biodiversity and environmental features.**

They include the integration of monarch butterfly conservation, bees and honey production and sheep grazing.

**100 pregnant**  
ewes brought to  
site in mid-May

About 10  
**lambs born**  
every day

By end of  
June, ~**300**  
sheep on-site

For the first time,  
farmer will be able  
to sell **grass fed,**  
**free range lamb**

Partnership with  
Arnprior Solar offers  
opportunity to grow  
farmer's business  
while reducing site  
mechanical mowing –  
**a true win-win!**



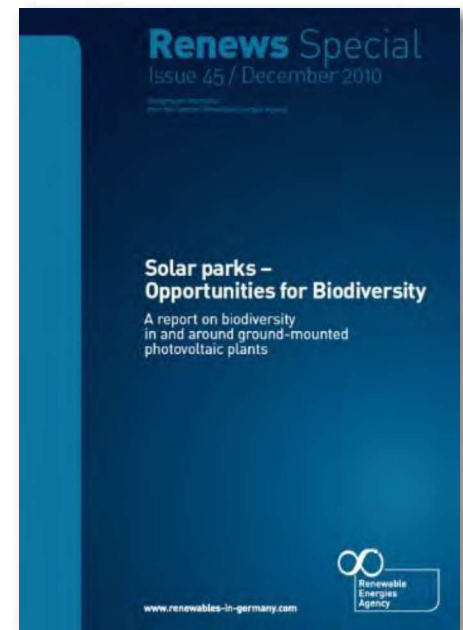


# SOLAR PARKS CAN ENHANCE BIODIVERSITY

“

...as well as making an important contribution to future energy supplies, solar parks can also provide a refuge for plants and animals.

”



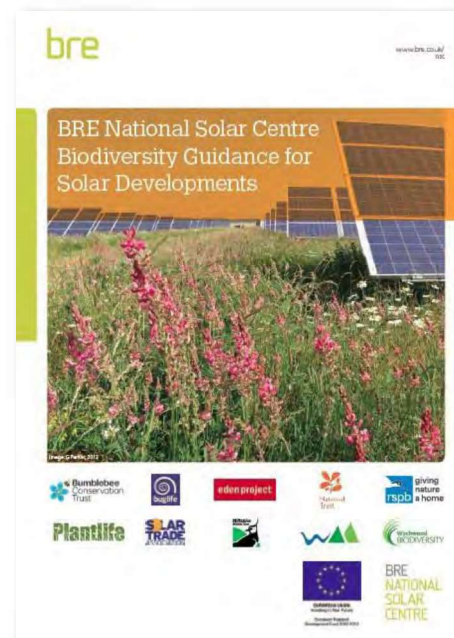
Source: Renews (2010)

“

With appropriate land management, solar farms have the potential to support wildlife and contribute to national biodiversity targets.

”

Source: BRE (2014)





# BEING A GOOD NEIGHBOR

- EDF Renewables integrates projects into the local community through thorough community engagement.
- Stakeholders have the opportunity to communicate their interests for integration into the project design.
- Most of the land beneath and around solar panels remains unused and can accommodate vegetation in the form of grasses, clover or cultural meadows.



Visual buffering, as demonstrated above, can be integrated to reduce the project view from neighboring homes and roads. Original view without visual buffer on the left. Note: trees usually 2-4 ft high at planting and will grow to heights indicated above in 5-10 years.

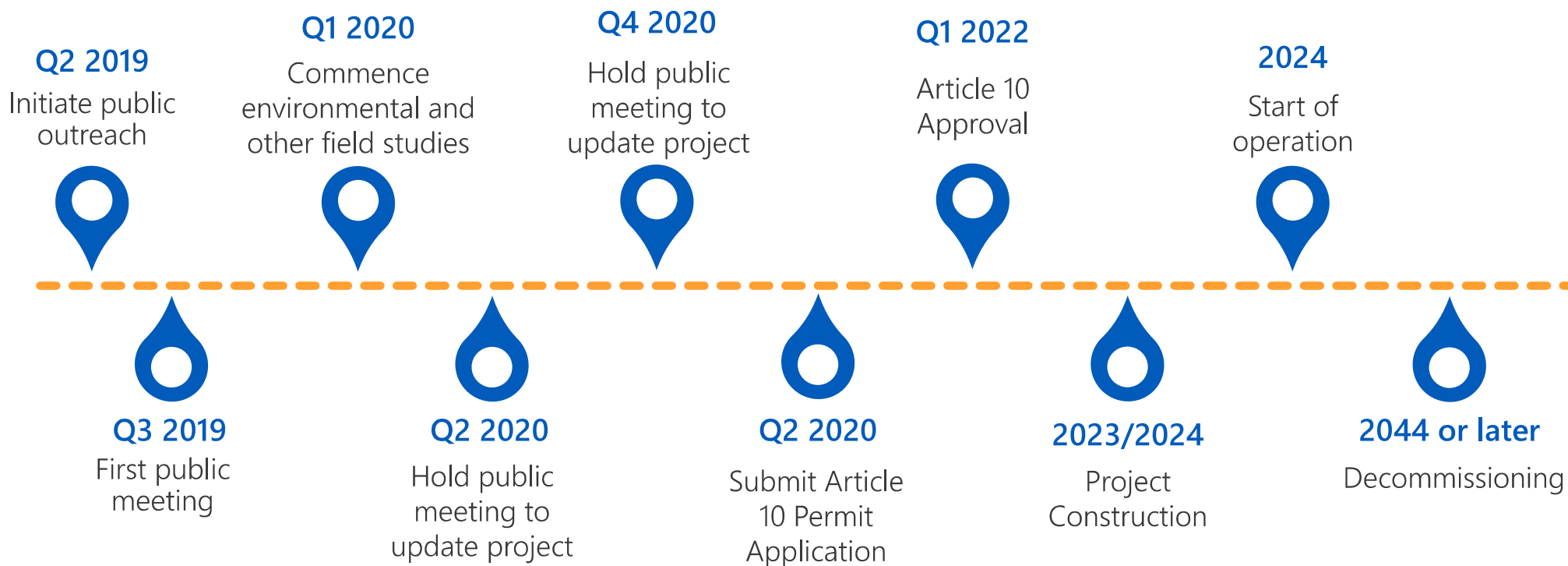


# INTERVENOR FUNDING

- Under Article 10, EDF Renewables is required to provide funds for intervenor participation
  - \$350/MW at time the Preliminary Scoping Statement (PSS) is filed (anticipated in 2020) – total \$122,500
  - Additional \$1,000/MW at time project Article 10 Application is filed (anticipated in 2021) – total \$350,000
- Following 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



## PROJECT TIMELINE

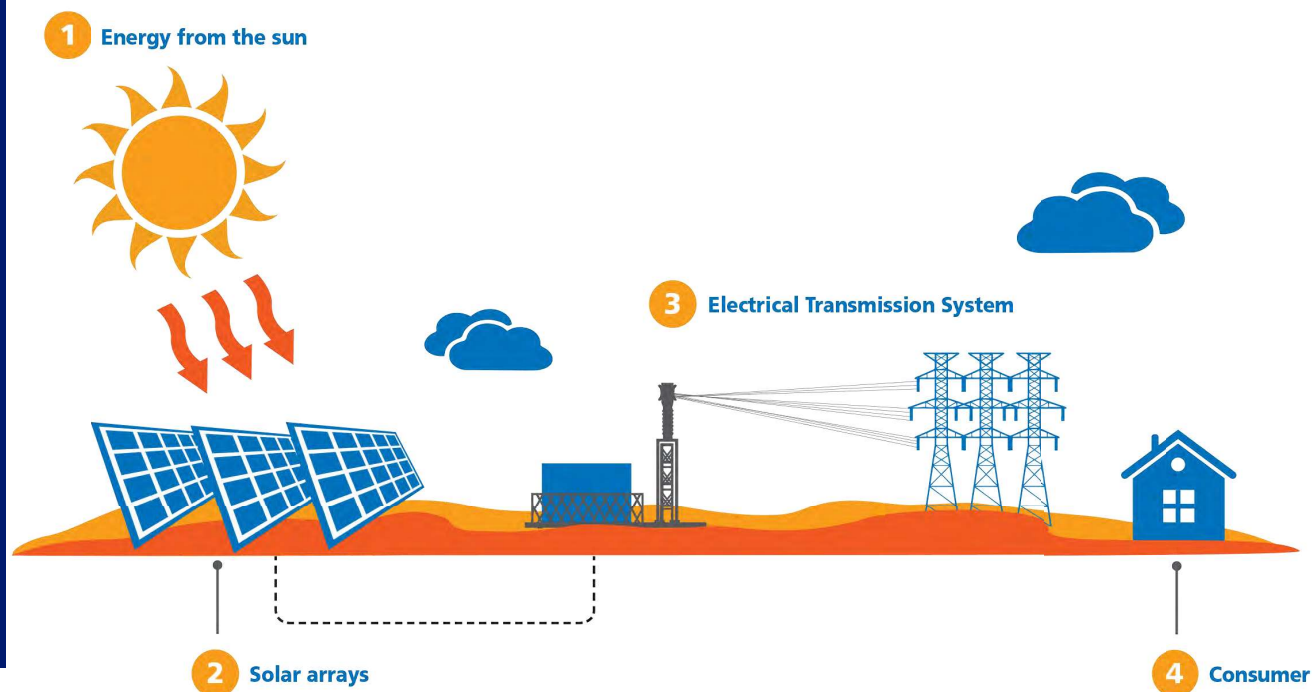


PUBLIC ENGAGEMENT  
CONTINUES THROUGHOUT  
THE PROJECT LIFECYCLE

*\*Dates in schedule above are estimates*



# 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.

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.

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.

4

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



# SOLAR PHOTOVOLTAIC PANELS



## SOLAR PANELS DO NOT POLLUTE

- No fossil fuels are burned to generate electricity
- No mining or fracking
- No fuel transport required
- No combustion
- No emissions or odors
- No water discharges and no use of neighboring water bodies for heating or cooling



## SOLAR PANELS ARE SAFE

- PV panels meet strict electrical safety standards
- PV panel designs are such that they will not leak hazardous materials, even in the case of a fire
- Panels have no moving parts and are expected to last 20-30 years or longer
- Panels that do fail for electrical reasons can be detected and easily changed out (modular design)
- PV panel arrays are fenced to ensure safety and security





# SOLAR ENERGY CENTER EQUIPMENT



Racking mounted on piles



Panels installed on racking



Project substation (grid tie)



Inverter/Transformer Skid



Aerial view of project



Land is revegetated



# PILING OPTION EXAMPLES

- Helical piles and screw piles are both screwed into the ground at depth of approx. 3' below the frost line (approx. 8' deep)
- Driven piles are hammered into the ground, about 15'-20' deep
- Where bedrock is present, a hole is pre-drilled into the bedrock and the pile is screwed or grouted in place.



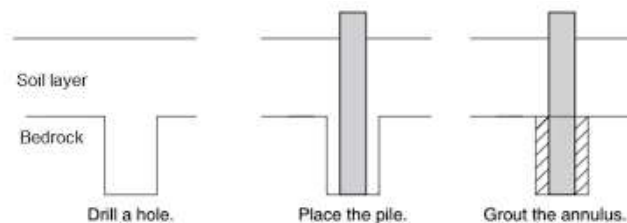
Helical Pile Installation  
(usually about 8' deep)

\*Photo credit: Systèmes Sous-Sol QC



Driven Piles

\*Photo credit: SolarPro Magazine



Involves drilling a shallow hole into the bedrock, placing the pile and grouting the pile for stability.

Ground Sockets

\*Photo credit: Tampere University of Technology



Ground Screws

\*Photo credit: Krinner UK





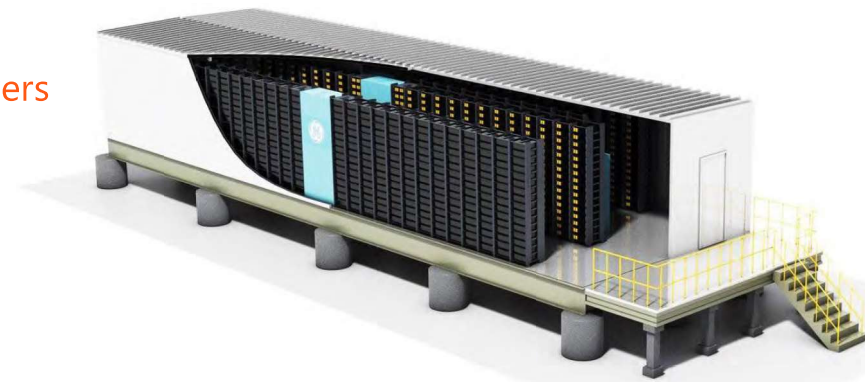
# ENERGY STORAGE

- Project may include energy storage batteries that would be co-located with the inverters within solar panel fields or centralized near the substation
- Batteries typically installed inside 40 x 8 ft enclosure
- Designed to store electricity until more suitable to inject onto power grid



Example of an energy storage battery enclosure (right of picture) and inverter / transformer (left of picture)

Enclosure contains a series of lithium ion batteries – same technology that powers our electronics and electric vehicles





# RIDGE VIEW

## solar energy center



### WE WANT TO HEAR FROM YOU!

We can only have the best project possible for the community if your voices are heard.



### STIMULATE LOCAL DEVELOPMENT

**300+** jobs during construction and 4-5 jobs during operation

About **\$1,000,000** new revenues for the Towns, County, and School Districts each year

**STABLE** source of revenue for host landowners



### COMMITMENT TO BIODIVERSITY

Let's talk about integrating complimentary uses for the project, like pollinators, grazers, other ideas (provided they are feasible).



# CONTACT INFORMATION

Kevin Campbell  
Development Manager  
EDF Renewables

833-333-7369  
[NewYorkSolar@edf-re.com](mailto:NewYorkSolar@edf-re.com)  
[www.edf-re.com](http://www.edf-re.com)

