

THANK YOU

for attending the

Rich Road Solar Open House

We enjoyed meeting you!







Our Commitment to Ethical Development

These principles reflect our promise 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 projects 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

35+ years

We were on the forefront of the burgeoning wind industry in California as a service provider beginning in 1985.

\$18+ billion

Since 2010, we have paid over \$18 billion to vendors, including lease payments made to landowners.

8,000

Our 20 GW project development has created 8,000 on-site jobs.

20 GW

We expanded into project development in 2000 and have developed 20 GW of grid-scale solar and wind projects across North America.

as of 12/31/20

EDF Renewables GRID-SCALE POWER

Bigger projects. Bigger impact.

EDF Renewables' Grid-Scale Power team provides **origination**, **development, transaction and construction** services for large-scale wind (offshore and onshore), solar power generation and storage projects across North America.

Our team of leaders can solve energy challenges facing businesses and communities no matter the size or complexity.





Creating Value from Origination to Commercial Operation

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



Origination

Comprehensive **analysis**, **identification and evaluation** of prospective sites and matching those sites with customer needs.



Development

Resource **assessment**, **permitting**, **site design**, **interconnection rights** and technology selections.



Transaction Securitization of energy offtake and financing.



Construction

Implementation of all aspects of the **system**, **design**, **installation**, **and construction** to ensure a quality build.



Asset Optimization

Asset management, monitoring and maintenance to **ensure profitable and optimal performance** of facility.



Leading The Way in Renewable Energy





We Help Companies Achieve Their Sustainability Goals

SAMPLING OF EDF RENEWABLES CUSTOMERS





We Partner with Utilities, Cooperatives and Public Customers

SAMPLING OF EDF RENEWABLES CUSTOMERS





EDF Renewables NYS Development Pipeline





Annual Impact





9,909,873 Avoided metric tons of Carbon dioxide annually

CO2 reduction equivalent to taking **2,140,964** cars off the road We take pride of the impact the **1.6 GW** we put in service in 2020.



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2020 Safety Results North America



∎

0.65 TRIR

Total Recordable Incident Rate = (# of recordable incidents)/ (hrs *200k)

0.57 DART

Days Away, Restricted or Transferred = (# of days away, restrictions, job transfers) / (hrs * 200k)



2,613,776 hours

Worked by employees



(as of 12/31/20)



We more than doubled our ability to track and report on Industrial Wastes across our organization in 2020 after we implemented a robust waste management system.

We increased the

amount of materials we recycled from 2019 to

2020 by 83,383 tons (or increased the amount recycled by 19%).

WASTE MANAGEMENT REDEFINED





OVERVIEW

Project Name: Rich Road Solar
Project Owner: EDF Renewables
Host Municipality: Canton, St.
Lawrence County
Proposed Capacity: 240 MWac
Proposed Land Use: ~ 1500 acres

PROPOSED CONNECTION POINT

CONNECTION LINE

Recently rebuilt 230 kV transmission line in the southern portion of the project boundary which is in the process of being upgraded to 345kV by NYPA. A new substation will be built to connect to the line.

No new transmission lines will be built for the project besides the one already in construction.



FACILITY AREA

- Project will be comprised of about 1,500 acres of solar array plus setbacks, driveways, and vegetative buffering.
- Shown in yellow are the parcels with agreements currently signed.
- A few more may be signed to optimize the project.
- Panels will be strategically placed to minimize and avoid environmental impacts.
- Some landowners also have restrictions on which areas of their lands are permitted to use (i.e. not all areas of each parcel will be used).
- As design progresses, more detailed drawings will be provided for public view.





Facility Design

- Design the facility to avoid and/or minimize environmental impacts
 - Wetlands
 - Wildlife
 - Stormwater
 - Road use
- Efficient panel placement to maximize land use
- NYS Mandated Setbacks

Setback Type	Solar Facility Setback
Non-participating residential property lines	100 feet
Centerline of Public Roads	50 feet
Non-participating property lines (non- residential)	50 feet
Non-participating occupied residences	250 feet

Modules: crystalline silicon solar panels, around 500,000 panels.

Single Axis Trackers: panels are mounted on single-axis tracker racking system. The system sits on driven steel piles. Panels track the sun from east in the morning to west in the evening. In their tallest configuration, 9-10 feet tall.

Inverters & Transformers: about sixty (60) inverter/transformer units convert DC electricity from modules to AC electricity. Inverters positioned on the interior of arrays and are around 20' x, 8' and 9' tall.

Collector Line: underground cable buried 42-48" below ground. Connects inverters back to the substation. Deeper burial and specialized methods to cross roads and/or wetlands.

Substation: Combines all collector lines and increases voltage to grid-level; connects to existing transmission lines. Located as far as practical from homes to eliminate sound and visual impact.

Driveways: Typically gravel with geofabric 15' wide and constructed to support an 80,000 pound fire truck or delivery truck. Turn-arounds at key locations.

Fencing: 7' tall fixed wire knot agricultural style fencing with either steel or wood poles. 25' wide gates with knox box for fire dept access.



Site Design - Photos









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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



Vegetative Screening

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 residences.













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 provides wildlife benefits
- Plantings can help to better integrate the facility into the surrounding landscape













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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 could be used to perform vegetation management





Hunting Around a Solar Facility



• Hunters are safe and responsible, and we trust them around our facilities

 As such, there is no required setback or restriction on hunting around our projects, of course with the landowner's permission

Maintain best practices and use common sense to prevent firing into the project

Communication is key – contact phone numbers posted in visible areas to reach our operations team 24/7/365 and speak to a live voice

New 94C Permitting Process

And the creation of the Office of Renewable Energy Siting or ORES

- EDF has applied to transition into the new 94C permitting process. 94C has replaced Article 10.
- Final regulations were executed March 3, 2021.
- Standardized conditions for solar projects to meet.
- Level of environmental studies, design, engineering, largely unchanged, however, more detailed design and engineering required.
- Early coordination on environmental impacts & reports required.
- Adherence to substantive provisions of local zoning laws still required but a waiver is available like Article 10.
- One-year timeline for approval following a completeness determination (roughly 60 days following an application).
- \$1,000/MW fund for intervenors & towns. Definition of intervenor is tightened up.



SECTION 94-C APPLICATION TIMELINE





ENVIRONMENTAL

AGENCY COORDINATION

- EDF Renewables will be coordinating with regulatory agencies to ensure that potential environmental impacts are fully considered
- Studies provide information to EDF Renewables and coordination agencies to help avoid and minimize potential environmental impacts.

- EDF Renewables will coordinate with many agencies, including:
 - NYS Department of Public Service (NYSDPS)
 - NYS Department of Environmental Conservation (NYSDEC)
 - NYS Department of Agriculture and Markets (NYSDAM)
 - State Historic Preservation Office (NYSHPO),
 - NYS Department of Transportation (NYSDOT)
 - U.S. Army Corps of Engineers
 - St. Lawrence County Department of Planning
 - St. Lawrence County Department of Public Safety
 - St. Lawrence County Soil and Water Conservation District
 - Zoning Boards, Planning Boards, and Fire Departments

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ENVIRONMENTAL STUDIES

EDF Renewables has begun several studies already, with more to come in the second half of 2021 and into 2022





- Noise during construction and operation of a solar project is minimal compared with other types of power generation and mostly associated with electrical equipment
- The largest sound emitting equipment is the substation, which we will work to locate as far from homes and receptors as possible
- Modeling studies will predict the combined sound levels of the background and the facility

VISUAL ASSESSMENT

- Consultation with stakeholders on areas of sensitive visibility
- Photographs from these key observation points during leaf-off conditions looking toward the facility
- Studies will map potential visibility and prepare visual simulations to illustrate what the facility will look like when completed and inform the development of landscaping to screen views from roads and neighbors





Sample Visual Simulations

From EDFR's Homer Solar Energy Center in Cortland County











Acoustics & Noise Modeling

Noise Impact Assessments

EDF Renewables will conduct a noise assessment to assure that the project is compatible with the surrounding area. The assessment includes:

- Background sound level monitoring to assess existing sound levels
- Sound propagation modeling to project future sound levels
- Development of mitigation recommendations to ensure that the project is in compliance with meetings applicable noise limits.
- Compliance with 94c noise requirements

EQUIPMENT	SOUND GENERATION
Solar Panels	The panels do not generate any sound
Inverters	These convert DC to AC current and generate some sound during the day
Transformers	These increase the voltage for collection and distribution and generate some sound day and night
Substation	Some noise day & night. Requirement to be less than 35 dBA at nearest receptor

Sample Sound Map



Common Sound Sources & Levels



CONTRACT OF renewables

ENVIRONMENTAL

STUDIES

EDF Renewables will be conducting environmental studies to inform the design process and ways to avoid and minimize impacts, such as tree clearing, and to confirm presence of wildlife and plant species.

Mapping of these features and reports of the studies will be submitted.

ARCHEOLOGY

- Visual observations by archaeologists to determine presence or absence of cultural material
- Shovel testing consists of digging shallow pits and sifting soil through wire mesh to look for cultural material not visible on the surface

WETLANDS

 Field crews of wetland biologists identify and delineate wetlands and streams based on soil types, vegetation, and hydrology and record the dimensions of these features using Global Positioning System (GPS) technology

RARE/THREATENED/ENDANGERED SPECIES

 Field crews of biologists walk through the area and identify protected plant and wildlife and habitat using Graphical Information Systems and GPS technology to map the locations

COPE renewables

STORMWATER MANAGEMENT

EDF Renewables will implement a Stormwater Pollution Prevention Plan to protect streams and wetlands during construction.



- Coordinate with state and local agencies
- Minimize areas of grading, excavating and clearing
- Silt fencing along borders of construction areas to protect nearby streams and wetlands
- Keep vehicles and equipment inside the fenced areas
- Stockpile topsoil away from waterbodies
- Revegetate disturbed areas in phases, as soon as possible after construction activities are complete
- Use agreed upon seed mixes for revegetation to reflect native species



THE OPPORTUNITY OF RENEWABLE ENERGY

- Currently solar jobs support more than 231,000 Families and that number is expected to grow by 4x to meet renewable energy targets
- Average annual growth rate of 50% over the last 10 years
- Generates enough electricity to power more than 18.6 million homes
- Solar generation offsets more than 116 million metric tons of CO2 emissions each year



CLEAN ENERGY EMPLOYMENT GROWTH 160/0 2015 through 2019 3.20/0 between 2018 and 2019

3X FASTER than overall employment growth rate in New York **3X FASTER** than national clean energy job growth rate

Data and Photo taken from NYSERDA 2020 Clean Job Report and SEIA Solar Industry Facts



Solar energy provides stable revenues for 35+ 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).



Amprior 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

SIRCE ALLER ALLER

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!



Total project cost anticipated ~ \$320 million A portion is sourced locally (i.e. labor, material supply)



Estimated 3-4 full time permanent highly skilled jobs during operation



Approximately **250 jobs** anticipated during the peak of construction

Contribute around \$30 million in direct revenues

for local municipalities, schools, and St. Lawrence County over the projects life



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.

NEW REVENUES FOR THE COMMUNITY

Long Term PILOT and Host Community Agreements

- Split between Towns, County and Schools
- Covers value of the project's equipment
- Solar Pilots typically range from \$2,500/MW to \$3,000/MW, equal to \$600,000 to \$720,000 per year.
- Increases annually for the term of the PILOT (typically 20 yrs)
- Increase in local revenues with no additional municipal costs

Increased Tax Revenues on Land

- As agricultural exemption is removed, a 5-year tax payment equal to the amount of the exemption is paid
- Going forward, land is assessed at full value, resulting in a boost to the tax base

Special District Taxes

 Large contributions by the project so special district tax rolls, ex: Fire Departments, Light Districts, etc. as applicable to the project lands



Community Benefit Fund

- Up to \$30,000 per year for the initial 10 years of the project
- Run by members of the community with the help of the local project team
- Donations chosen by local community representatives
- Distribute funds to local civic groups, nonprofits, projects, or other beneficial community programs in the Town of Canton

School Scholarships

 For the first ten years of the project, two graduating high school students interested in renewable energy or the trades will each receive two thousand dollars (\$2,000), with renewal available

HOST COMMUNITY BENEFITS

In part of EDF Renewables' commitment to our project communities, we have produced additional measures to create holistic benefit packages





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.



EDF Renewables works alongside our project communities with vocational schools, community colleges, and other workforce institutions to create pathways for the local workforce to train and enter the renewable energy field.



PROJECT **TIMELINE**





PUBLIC ENGAGEMENT CONTINUES THROUGHOUT THE PROJECT LIFECYCLE

Electricity without emissions & pollution

Safe and non-toxic materials

The modules are comprised of silicon, copper, and aluminum between glass and plastic with an aluminum frame.

These types of solar modules cannot release any toxic materials.

No risk for the environment

Inverters and Transformers used to condition power for use on the grid do not contain heavy metals or toxins. Even during a malfunction or when damaged, no environmental risk is present.

Promoting Native Plant Species & Pollinators

Native vegetation to support wildlife & pollinator species in the area, improving carbon sequestration.

No pesticides or herbicides are used in solar array areas unless mandated by environmental agencies

- For example if invasive plant species were to develop in the area
- Within substation, herbicides are required by code to ensure plants do not grow into electrical equipment & cause a fire.

Solar Emissions Free Power



SOLAR FARM EQUIPMENT









Aerial view of project



Panels installed on racking



Inverter/Transformer Skid



Land is revegetated

Decommissioning & Removal



- Decommissioning is the process of removing equipment (solar panels, inverters, transformers) and improvements (roads and fences) and returning the land to original condition
- Decommissioning of the project is planned from the start, expected in year ~35-40 of the project's life
- 94C Permit & local laws require a security, typically in the form of a letter of credit, to be posted to cover the cost to decommission the facility, prior to the start of operation
 - The Host Communities and the State will have access to this letter of credit
 - The amount will be adjusted based on inflation over time
- Where the land was previously used for agriculture, any topsoil that was removed or disturbed during the construction, operation or decommissioning of the solar facility is replaced, aerated, and the land can be returned to farming



ENERGY STORAGE

- Project may include energy storage batteries that would be located 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





New York State leads the nation, in energy storage system safety, including new code requiring extra protective measures to enhance the level of protection.

- EDF Renewables will have a local team of operations personnel to monitor and maintain the system to the highest of standards.
- An Emergency Preparedness and Response Plan will be prepared with feedback from the first responder community.
- Training of Local First Responders prior to installation and annually thereafter.
- The facility will be monitored 24/7 365 days per year from our operations control center in San Diego California which is a NERC registered medium impact facility, maintaining the electronic cyber and physical security perimeter requirements for the registration. We have a Disaster Recovery plan in place to mitigate remote monitoring impacts, including redundant co-location servers, backup power to support 48-72 hours of power should there be a local utility outage and network connectivity redundancy.
- Energy storage systems, like the one proposed for this project, are already safely installed in urban environments. These systems are made of the same type of batteries you find in your mobile telephones, electric vehicles and portable computers.



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- Emergency Preparedness and Response Plan will be prepared with feedback from the first responder community.
- Training of Local First Responders prior to installation and annually thereafter.
- The facility **will be monitored** 24/7 365 days per year from operations control center in San Diego California.
- Maintain electronic cyber and physical security perimeter requirements.
- Disaster Recovery plan in place to mitigate remote monitoring impacts, including redundant co-location servers, backup power to support 48-72 hours of power should there be a local utility outage and network connectivity redundancy.



EDF Renewables' 24/7 NERC-compliant operations control center located in San Diego, CA, where remote monitoring, diagnostics, troubleshooting, and cybersecurity measures are implemented for all wind and solar power farms under operation



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