



ENERGY INNOVATION FOR THE NEXT GENERATION

DISTRIBUTED SOLUTIONS



Innovation Drive Microgrid, San Diego, CA

OUR MISSION

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

For over 35 years, EDF Renewables has been providing clean energy solutions throughout North America.

EDF Renewables North America is a market-leading, independent power producer and service provider, delivering:

// **grid-scale power:** wind (onshore and offshore), solar photovoltaic and storage projects

// **distributed solutions:** solar, solar+storage, electrical vehicle charging and energy management

// **asset optimization:** technical, operational and commercial skills to maximize performance of generating projects

EDF Renewables' North American portfolio consists of 16 gigawatts (GW) of developed projects and 11 GW of operating assets under service contracts. EDF Renewables North America is a subsidiary of EDF Renewables, the dedicated renewable energy affiliate of the EDF Group.



Origination



Development



Transaction



Construction



Optimization



DISTRIBUTED SOLUTIONS

Simple. Reliable. Integrated.

The energy industry has transformed, and renewables have claimed their place. The grid has evolved, with electricity now flowing both ways – to and from consumers. At the edge of the grid, where consumers and utilities interact, is where we see the most disruption and innovation.

In the grid edge ecosystem, EDF Renewables can offer complete integrated energy solutions – full microgrids, or standalone solar, storage, solar+storage and energy management.

We provide end-to-end service from development, engineering, procurement and construction to operations, and finance.

20 years

Our distributed business began in 1998, consisting of residential and small commercial solar projects.

SOLAR

energy is a sustainable, infinitely renewable resource for energy consumption, experiencing continued growth as the cost of installation has dropped 70% since 2010.

Producing sustainable energy to meet demands.

We provide industry-leading, cost-effective, design, engineering, construction, and operation of solar projects throughout North America.

Our dedicated team of developers, engineers, construction managers, O&M service providers, finance and legal professionals are focused on making solar generation accessible, affordable, and responsive to the needs of our clients and the communities in which they operate.

EDF Renewables is a leading developer of environmentally sensitive sites, revitalizing former landfills, brownfields, and wastewater treatment plants into on-site solar facilities.

We work both in front-of-the-meter adding value for load serving entities and their customers and behind-the-meter with on-site commercial and industrial systems.



EDF Renewables North America made a 50% investment in EnterSolar in September 2018 to facilitate the continued growth within the C&I solar marketplace. The partnership leverages EDF Renewables' unparalleled experience in renewable energy and storage, along with EnterSolar's strong track record in developing behind-the-meter solar photovoltaic projects for a broad range of corporate clients.

Together, we provide a full-service, single resource for companies looking for a seamless and profitable transition to renewable energy.

197
projects
across the
United States

162
MW
installed

2,000+
installations

We have experience designing, developing, and constructing solar projects on all types of sites, including landfills, brownfields, and wastewater treatment plants.

950+ MW

Our Distributed Solutions team has installed over 950 MW of solar photovoltaic projects.

20-100

Temporary construction jobs created per project during construction.

20

States with O&M jobs for the life of projects.

STORAGE

systems help energy and facility managers manage, forecast and reduce operational energy costs and hedge against rising costs as much as 5-10% annually.

Adding value, cost control and energy security.

Reducing operational cost is more crucial than ever before. EDF Renewables strives to bring our business customers solutions that fit their specific requirements.

Storage may be the right solution for your business as a stand-alone system or bundled with a solar system. In addition to lowering operational energy costs, storage can help control and forecast long-term energy budgets and increase energy reliability.

There are several options when it comes to adding storage – direct purchase, power purchase agreement, shared savings, or power purchase agreement with shared savings. Each solution comes with a different set of factors.

	Purchase 	Power Purchase Agreement (PPA) 	Shared Savings 
Ownership	Host	EDFR	EDFR
Upfront Cost	Host Incurs 100%	None; EDFR pays 100%	None; EDFR Pays 100%
Structure	Buy Asset + O&M	Pay for Energy Output	Pay for Savings
O&M	Annual Fee	Included	Included
Performance Risk	Host	EDFR	EDFR
Comments	Max Reward with 100% Ownership	No Capex; Pay for Performance	No Capex; Only Pay for Savings

EDFR offers a combined PPA and Shared Savings Solution



330 MW
in operation

EDF Renewables can help you navigate these options and find the best solution for your business and bottom line.

EV CHARGING

is rapidly accelerating with the United States reaching one million electric vehicles sold by 2020 and more than half of new cars sold by 2040 will be EVs.



Electric Vehicle Smart-charging Systems – large scale, cost effective, load managed.

Charging solutions must be implemented in the right places and quantities to sustain the growth of Electric Vehicle (EV) adoption.

To meet the scale required of the current adoption trends, businesses are confronted with substantial upgrades to their electrical systems, making EV charging installations financially burdensome and lengthy in time, if not completely infeasible.

PowerFlex Systems created Adaptive Load Management (ALM), a software algorithm that optimizes power consumption across a large network of charging stations. ALM optimizes each station's output to meet user demand while only using a fraction of the aggregate power traditionally required.

This allows businesses to shave as much as 60% off the cost of electrical system upgrades and peak demand charges, paving the way to larger and more affordable charging networks that ultimately meet or exceed the adoption pace of electric vehicles.



EV CHARGING

Workplaces
Campuses
Municipalities
Fleets

5,000
contracted

500
in construction

1,800+
deployed



Design



Hardware



Software



Installation



Maintenance

ENERGY MANAGEMENT SYSTEM (EMS) AND FORECASTING



Software solution for optimizing and controlling decentralized power systems.

EMS

A smart control of your installation

- // Maximize renewable energy **operating revenue**
- // Facilitate **renewable energy integration** and stabilize the grid
- // Optimize the **electric bill** and secure **power supply**
- // Support **energy transition** at a territory scale

Our EMS can serve multiple applications: renewable energy intermittency management, ancillary services, economic dispatch, auto-consumption maximization and energy bill reduction.

PROJECT SIZING

In advance of the project, we study the **optimal sizing of storage** (energy and installed power) through an economic and technical analysis, to adapt the sizing to the resource and grid constraints.

FORECASTING

Our **innovative method of production** forecasts for day-ahead or intraday and merges all weather forecasting methods.

EMS SUPPLY

Our software solution is an EMS based on **forecasts and real-time control software**. We manage the on-site implementation, configuration, commissioning and user training.

MAINTENANCE

After installing the solution, we take over the maintenance and supervision to guarantee the sustainability and performances of our control software.

Forecasting

Improve the control of energy assets

- // **photovoltaic energy** production
- // **electric consumption**

We commercialize on-demand renewable production and consumption forecasts to guarantee a better performance and energy control of your installation.

PV ENERGY PRODUCTION

PVSCOPE^{TM*} generate day-ahead and intra-day photovoltaic power production forecasts. It combines and offsets different methods to minimize prediction errors.

SKYSCOPE^{TM**} generate short-term photovoltaic power production forecasts within a horizon ranging between the next minute and the next 15 minutes.

ELECTRIC CONSUMPTION

CONSOSCOPE^{TM**} generates day-ahead and intra-day consumption forecasts by combining local weather variables that influence consumption with real-time consumption measurements and industrial process characteristics.

*Developed with EDF R&D and in partnership with the French Laboratoire de Météorologie Dynamique de l'École Polytechnique

**Developed with EDF R&D

OPERATIONS & MAINTENANCE (O&M)



Transparent solutions with an owner's perspective.

Distributed Solutions provides operations and maintenance support for solar, solar + storage, and EV charging projects, whether or not initially designed and installed by us. Our O&M technicians provide remote and on-site trouble-shooting, warranty, and maintenance services to assure that each project we serve operates at maximum efficiency.

Maintenance

With **11 GW under contract** and over 450 full-time technicians, supervisors, managers, and support staff, EDF Renewables is fully equipped to perform all required services for your renewable energy project.

Monitoring

EDF Renewables provides critical 24/7/365 remote monitoring and diagnostics from its state-of-the-art Operations Control Center (OCC), increasing equipment availability, reducing downtime and its associated operational and maintenance costs. The OCC currently has **8.6 GW under remote monitoring**.

Asset Management

Our dedicated team actively manages **6.7 GW of wind, solar, and storage projects** in North America, bringing a depth of experience and expertise to every project to ensure ongoing profitability for project owners and investors.



RENEWABLE POWER HELPS PEOPLE, BUSINESSES, AND COMMUNITIES FLOURISH



Areas of Great Opportunity

Landowners make the most of valuable land and existing infrastructure. Dual-use, agricultural production and electricity production on the same piece of land results in two revenue streams.

Corporate and industrial, education and public sector, maximize rooftop, parking lot, and unused open spaces for increased benefit. Generate solar power to reduce, even eliminate, electric bills and provide a consistent return on investment.

Utilities and co-ops put unused land to work, using locally produced generation that reap measurable benefits of peak load management, reduction in fossil fuel usage and greenhouse gas emissions, and compliant with renewable portfolio standards.

Industrial Sites

brownfields, landfills or other unusable areas

Farmland

little to no disruption to farming, dual income

Large Rooftop

warehouses, distribution centers

Parking Areas

solar carport development, electric vehicle charging stations

Unused Land

owned by a city, municipality, or nonprofit organization

CORPORATE SOCIAL RESPONSIBILITY



EDF Renewables has dedicated its efforts to creating a sustainable energy economy. We've done that by building and operating solar and wind energy generating projects across North America.

What helps to define us is our commitment to the communities in which we operate. At the core of every EDF Renewables project is sustainability and corporate social responsibility (CSR).

Our CSR efforts do not happen in isolation. They are part of our corporate DNA. We believe that the world of energy is changing, and customers are becoming more involved in all aspects of the business. Transparency and engaging with community stakeholders is an integral part of the process.

As a responsible electricity company that champions low-carbon growth, we have adopted a number of CSR goals that reflect our commitment to working closely with our customers and the communities in which we operate.

EDF Renewables CSR GOALS



CLIMATE CHANGE

Go beyond the requirements of the 2°C trajectory set by COP21 by drastically reducing our CO₂ emissions.



PEOPLE DEVELOPMENT

Adopt industrial groups' best practices in people development: health and safety, gender diversity and social advancement.



FUEL POVERTY

Offer all vulnerable people information about and support with energy use and energy benefits.



ENERGY EFFICIENCY

Innovate through digital energy efficiency solutions to enable all customers to use energy better.



DIALOGUE & CONSULTATION

Systematically organize a process of transparent and open dialogue and consultation for every new project around the world.



BIODIVERSITY

Launch a positive approach to biodiversity, not limited to understanding and reducing the impact of our activities in the long run but having a positive effect on biodiversity.



Distributed Solutions
Grid-Scale Power
Asset Optimization



Wholesale Trading
Energy Optimization



Energy Management Systems
Research and Development



Building Energy Services



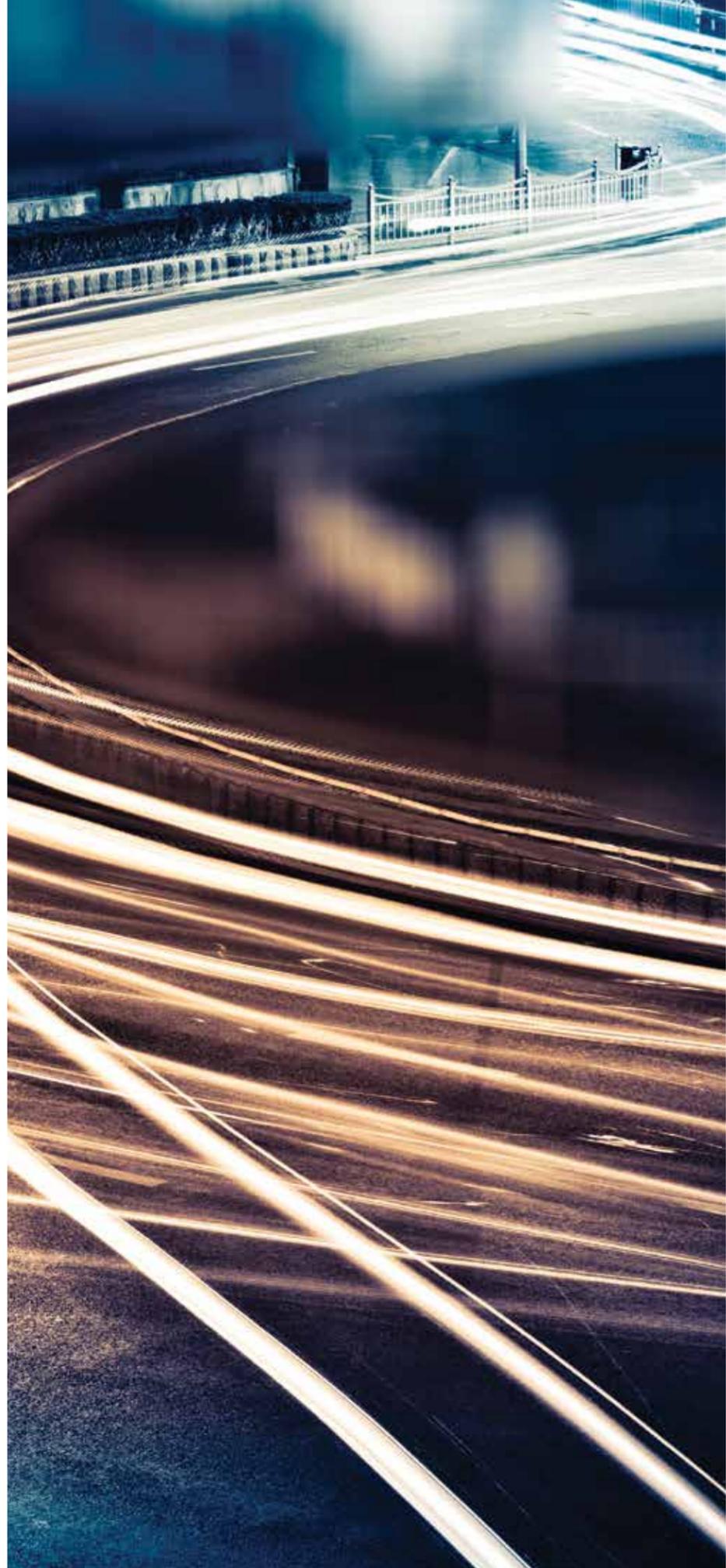
Public Lighting Management



Electric Vehicle Charging



Solar for Corporates



OUR OFFERINGS

Partners in energy innovation.

EDF Renewables' and EDF affiliates' coordinated offerings allow our corporate and institutional clients to meet their sustainability goals while saving them money.

Developing a clean energy roadmap with a full range of services to solve any energy challenge, no matter the complexity, is what we do best. The collaboration across our teams gives our customers access to an entire suite of options under one roof.

To learn more about the energy mix that is right for your business, contact us:

 distributedsolutions@edf-re.com

 EAST 802-359-6516
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Solar Carport



Solar Rooftop



Solar Ground-mount



Electric Vehicles



Operations & Maintenance



Energy Efficiency



Energy Management Systems



Retail Energy Supply



Thermal Generation



Research & Development



LED



Storage



The EDF Group is a global leader in low-carbon energy, with activities ranging from power generation to transmission and distribution, to trading and retail.

EDF Renewables is the global renewable energy affiliate of the EDF Group. Present in 20+ countries, the company develops, builds and operates renewable power plants.

EDF Renewables North America is a market-leading independent power producer and service provider with 35 years of experience. The company delivers grid-scale power: wind (onshore and offshore), solar photovoltaic and storage projects; distributed solutions: solar, solar+storage, EV charging and energy management; and asset optimization: technical, operational and commercial skills to maximize performance of generating projects.



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