PUBLIC VERSION - CONFIDENTIAL
INFORMATION REDACTED

January 28, 2019

Jean Thurston
BOEM California Intergovernmental Renewable Energy Task Force Coordinator
BOEM, Office of Strategic Resources
760 Paseo Camarillo, Suite 102
Camarillo, California 93010
[Submitted via electronic and hard copies to jean.thurston@boem.gov]

RE: Bureau of Ocean Energy Management Docket No. BOEM–2018–0045
Commercial Leasing for Wind Power Development on the Outer Continental Shelf Offshore California

Dear Ms. Thurston:

EDF Renewable Development, Inc., Company # 15027 (EDF), respectfully submits this response to BOEM Docket number 2018-0045 regarding our interest in the future offshore wind lease call areas of Humboldt, Morro Bay, and Diablo Canyon on the Outer Continental Shelf (OCS) in the California Call Areas. EDF applauds BOEM for the considerable effort expended in holding this Call and appreciates the opportunity to submit a nomination.

Required Nomination Information

On October 19, 2018, BOEM published a Call for Information and Nominations for Commercial Leasing for Wind Power Development on the Outer Continental Shelf (OCS) Offshore California [Docket No. BOEM–2018–0045] (Call; 83 FR 53096) in the Federal Register. The Call requests qualified parties interested in commercial wind energy leases within three identified areas, the Humboldt Call Area on the north coast, and the Morro Bay Call Area and Diablo Canyon Call Area on the central coast, to submit a nomination according to prescribed requirements.

Area of Interest

The Morro Bay Call Area begins 24 nautical miles (nm) (44.5 kilometers [km]) offshore Cambria, California and is approximately 27 nm (50.0 km) in length from north to south and about 27 nm (50.0 km) in width from east to west. The Morro Bay Call Area is approximately 311 square miles, or 199,266 acres. The Diablo Canyon Call Area begins 22 nm (40.7 km) offshore Los Osos, California and is approximately 23 nm (42.6 km) in length from north to south and approximately 30 nm (55.6 km) in width from east to west. The Diablo Canyon Call Area is approximately 556 square miles, or 356,188 acres. At this time, EDF expresses interest in leasing all of the OCS blocks and sub-blocks (or aliquots) included in the Morro Bay and Diablo Canyon call areas. Tables 1 and 2 provide the protractions, blocks, and sub-blocks included in each Call Area.

Table 1. Morro Bay Call Area Protractions, Blocks, and Sub-blocks

Protraction Name	Protraction No.	Block No.	Sub-block(s)
San Luis Obispo	NI10–03	6102	L, P
San Luis Obispo	NI10–03	6103	M
San Luis Obispo	NI10–03	6152	D, L, P
San Luis Obispo	NI10–03	6153	A, B, E, F, I, J, K, M, N, O
San Luis Obispo	NI10–03	6202	D, G, H, K, L, N, O, P
San Luis Obispo	NI10–03	6203	All
San Luis Obispo	NI10–03	6204	I, M
San Luis Obispo	NI10–03	6251	D, H, K, L, O, P
San Luis Obispo	NI10–03	6252	All
San Luis Obispo	NI10–03	6253	All
San Luis Obispo	NI10–03	6254	A, B, E, F, G, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6301	C, D, G, H, K, L, M, O, P
San Luis Obispo	NI10–03	6302	All
San Luis Obispo	NI10–03	6303	All
San Luis Obispo	NI10–03	6304	All
San Luis Obispo	NI10–03	6305	A, E, I, M
San Luis Obispo	NI10–03	6351	All
San Luis Obispo	NI10–03	6352	All
San Luis Obispo	NI10–03	6353	All
San Luis Obispo	NI10–03	6354	All
San Luis Obispo	NI10–03	6355	A, B, E, F, I, J, M, N
San Luis Obispo	NI10–03	6401	All
San Luis Obispo	NI10–03	6402	All
San Luis Obispo	NI10–03	6403	All
San Luis Obispo	NI10–03	6404	All
San Luis Obispo	NI10–03	6405	A, B, E, F, G, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6406	M
San Luis Obispo	NI10–03	6451	A, B, C, D, E, F, G, H, I, J, K, L, N, O, P
San Luis Obispo	NI10–03	6452	All
San Luis Obispo	NI10–03	6453	All

Protraction Name	Protraction No.	Block No.	Sub-block(s)
San Luis Obispo	NI10–03	6454	All
San Luis Obispo	NI10–03	6455	All
San Luis Obispo	NI10–03	6456	A, B, E, F, G, H, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6457	E, F, I, J, M, N, O
San Luis Obispo	NI10–03	6501	B, C, D, G, H
San Luis Obispo	NI10–03	6502	A, B, C, D, E, F, G, H, I, J, K, L
San Luis Obispo	NI10–03	6503	A, B, C, D, E, F, G, H, I, K, L
San Luis Obispo	NI10–03	6504	All
San Luis Obispo	NI10–03	6505	All
San Luis Obispo	NI10–03	6506	All
San Luis Obispo	NI10–03	6507	All
San Luis Obispo	NI10–03	6508	I, M, N
San Luis Obispo	NI10–03	6554	D
San Luis Obispo	NI10–03	6555	A, B, C, D, G, H
San Luis Obispo	NI10–03	6556	A, B, C, D, E, F, G, H
San Luis Obispo	NI10–03	6557	A, B, C, D, E, F, G, H
San Luis Obispo	NI10–03	6558	A, B, C, E, F, G, H
Sur Canyon	NI10–02	6340	O, P
Sur Canyon	NI10–02	6390	B, C, D, F, G, H, J, K, L, M, N, O, P
Sur Canyon	NI10–02	6440	A, B, C, D, F, G, H, J, K, L, N, O, P
Sur Canyon	NI10–02	6490	C, D, H

Table 2. Diablo Canyon Call Area Protractions, Blocks, and Sub-blocks

Protraction Name	Protraction No.	Block No.	Sub-block(s)
San Luis Obispo	NI10–03	6102	L, P
San Luis Obispo	NI10–03	6103	M
San Luis Obispo	NI10–03	6152	D, L, P
San Luis Obispo	NI10–03	6153	A, B, E, F, I, J, K, M, N, O
San Luis Obispo	NI10–03	6202	D, G, H, K, L, N, O, P
San Luis Obispo	NI10–03	6203	All
San Luis Obispo	NI10–03	6204	I, M

Protraction Name	Protraction No.	Block No.	Sub-block(s)
San Luis Obispo	NI10–03	6251	D, H, K, L, O, P
San Luis Obispo	NI10–03	6252	All
San Luis Obispo	NI10–03	6253	All
San Luis Obispo	NI10–03	6254	A, B, E, F, G, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6301	C, D, G, H, K, L, M, O, P
San Luis Obispo	NI10–03	6302	All
San Luis Obispo	NI10–03	6303	All
San Luis Obispo	NI10–03	6304	All
San Luis Obispo	NI10–03	6305	A, E, I, M
San Luis Obispo	NI10–03	6351	All
San Luis Obispo	NI10–03	6352	All
San Luis Obispo	NI10–03	6353	All
San Luis Obispo	NI10–03	6354	All
San Luis Obispo	NI10–03	6355	A, B, E, F, I, J, M, N
San Luis Obispo	NI10–03	6401	All
San Luis Obispo	NI10–03	6402	All
San Luis Obispo	NI10–03	6403	All
San Luis Obispo	NI10–03	6404	All
San Luis Obispo	NI10–03	6405	A, B, E, F, G, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6406	M
San Luis Obispo	NI10–03	6451	A, B, C, D, E, F, G, H, I, J, K, L, N, O, P
San Luis Obispo	NI10–03	6452	All
San Luis Obispo	NI10–03	6453	All
San Luis Obispo	NI10–03	6454	All
San Luis Obispo	NI10–03	6455	All
San Luis Obispo	NI10–03	6456	A, B, E, F, G, H, I, J, K, L, M, N, O, P
San Luis Obispo	NI10–03	6457	E, F, I, J, M, N, O
San Luis Obispo	NI10–03	6501	B, C, D, G, H
San Luis Obispo	NI10–03	6502	A, B, C, D, E, F, G, H, I, J, K, L
San Luis Obispo	NI10–03	6503	A, B, C, D, E, F, G, H, I, K, L
San Luis Obispo	NI10–03	6504	All

Protraction Name	Protraction No.	Block No.	Sub-block(s)
San Luis Obispo	NI10–03	6505	All
San Luis Obispo	NI10–03	6506	All
San Luis Obispo	NI10–03	6507	All
San Luis Obispo	NI10–03	6508	I, M, N
San Luis Obispo	NI10–03	6554	D
San Luis Obispo	NI10–03	6555	A, B, C, D, G, H
San Luis Obispo	NI10–03	6556	A, B, C, D, E, F, G, H
San Luis Obispo	NI10–03	6557	A, B, C, D, E, F, G, H
San Luis Obispo	NI10–03	6558	A, B, C, E, F, G, H
Sur Canyon	NI10–02	6340	O, P
Sur Canyon	NI10–02	6390	B, C, D, F, G, H, J, K, L, M, N, O, P
Sur Canyon	NI10–02	6440	A, B, C, D, F, G, H, J, K, L, N, O, P
Sur Canyon	NI10–02	6490	C, D, H

Objectives

EDF acknowledges its interest in future wind development on the OCS offshore California within the Morro Bay and Diablo Canyon call areas by responding to this Call.

Preliminary Schedule of Proposed Activities

EDF expects to follow the BOEM timeline outlined in previous BOEM presentations (graphic below). As part of our efforts, EDF has begun our own analysis of site conditions and the wind resource, as well as environmental studies, wind turbine suitability, foundation design, port review, interconnection studies, and operations and maintenance efforts. A preliminary schedule is included as Table 3.

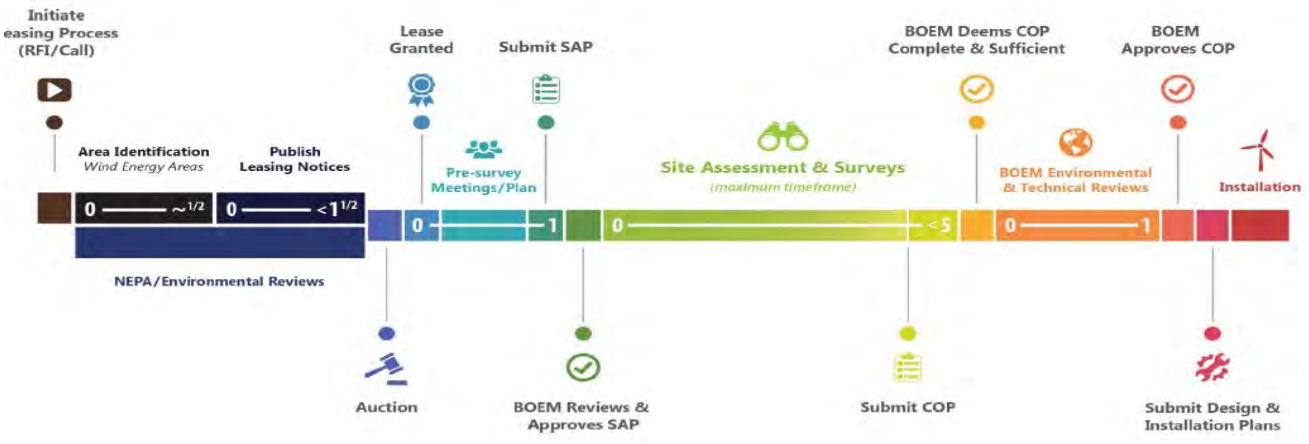

Table 3. Preliminary Schedule of Proposed Activities

Permit/Action	Agency/Regulation	Start (Quarter, Year)	Finish (Quarter, Year)
BOEM Leasing Process	**BOEM**	[redacted]	[redacted]
BOEM/NEPA Process	**BOEM and "One Federal Decision" Agencies**	[redacted]	[redacted]
Site Assessment Plan	BOEM	[redacted]	[redacted]
Construction and Operations Plan (COP)	BOEM	[redacted]	[redacted]
Federal Permits			
Federal Aviation Administration	No Hazard Determination	[redacted]	[redacted]
U.S. Army Corps of Engineers	Clean Water Act Section 401 and Section 10	[redacted]	[redacted]
NOAA National Marine Fisheries Service	Incidental Harassment Authorization	[redacted]	[redacted]
U.S. Environmental Protection Agency	OCS Air Permit	[redacted]	[redacted]
U.S. Coast Guard	Private Aid to Navigation and Local Notice to Mariners	[redacted]	[redacted]
California State Permits			
California State Lands Commission (CSLC)	CSLC Lease for transmission line to occupy the seabed within State Marine Waters and Shoreline Trust Lands	[redacted]	[redacted]
California Environmental Quality Act Process	CSLC Lead Agency for CEQA Compliance (EIR Joint with BOEM EIS)	[redacted]	[redacted]
California Coastal Commission (CCC)	CCC Coastal Development Permit	[redacted]	[redacted]
California Department of Fish and Wildlife (CDFW)	EIR Consultations and CDFW Incidental Take Permit	[redacted]	[redacted]
Regional Water Quality Control Board (RWQCB)	RWQCB Clean Water Act 401 and SWPPP	[redacted]	[redacted]
PG&E/SCE/California Public Utilities Commission	Utility Interconnection substation upgrades included in the CEQA EIR	[redacted]	[redacted]
California Native American Tribes	Consultations	[redacted]	[redacted]
State Historic Preservation Office (SHPO)	SHPO Consultation		
California Department of Transportation	(Caltrans) Encroachment and Use		
County	Conditional Use Permit/Lease/Grading and Building Permits	[redacted]	[redacted]
Start of Onshore Construction		**Q3 2026**	
Start of Offshore Construction		**Q3 2026**	

Pertinent Data

EDF has reviewed publicly available data pertinent to the Morro Bay and Diablo Canyon call areas, and the data is submitted separately in a format compatible with ArcGIS 10.5 on a data storage device per the Call submittal requirements. Data relevant to wind speeds, geology, biological resources, cultural resources, fishing and protected areas, military uses and restrictions, and vessel density and navigation in the Call Areas were consulted and compiled for submittal. An attached data appendix and relevant figures provide a summary of the data reviewed and submitted as part of the response to the Call.

Legal Qualification

EDF Renewables Development, Inc. (EDF RD) (Company #: 15027) is legally qualified with BOEM. Additional information is available upon request.

Technical and Financial Qualifications

Documentation of technical and financial qualifications to construct, operate, maintain, and decommission the proposed facilities is attached.

Thank you again for the opportunity to respond. We appreciate the effort of you and the staff at BOEM to support a robust offshore wind industry. Should you need additional information or have clarifying questions, please contact Rick Miller at [redacted] or Brian Sarantos at [redacted] or via email at Rick.Miller@EDF-RE.com and Brian.Sarantos@EDF-RE.com.

Sincerely,

Rick Miller

Director, Wind Business Development, West Region

EDF Renewables Development, Inc.

Brian Sarantos

Senior Development Manger EDF

Renewables Development, Inc.

Attachments: Data Appendix and Figures
Technical and Financial Qualifications

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

Source	Dataset	Published Year	Website Addresses
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

EDF Renewables North America
15445 Innovation Drive
San Diego, CA 92128
www.edf-re.com

EDF Renewables Development, Inc.
Offshore Wind Lease Qualification Application

Company: EDF Renewables Development, Inc.
Contact: Rick Miller or Brian Sarantos
Address: 505 14th Street Suite 1150, Oakland CA 94612
Phone: [redacted] or [redacted]
Email: Rick.Miller@EDF-RE.com or Brian.Sarantos@EDF-RE.com

Corporate Headquarters
Address: 15445 Innovation Drive, San Diego, CA 92128
Phone: 858-521-3300
Website: www.edf-re.com

Applicant Background

EDF Renewables Development, Inc. (EDF RD) (Company #: 15027) is legally qualified with BOEM and is submitting updated Financial and Technical Offshore Lease Qualifications. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

EDF Renewables North America Projects

PROJECT NAME	YEAR INSTALLED	RESOURCE	PROJECT SIZE (MW)	COUNTRY	STATE/PROV
Barlow Solar	2018	Solar PV	15	Canada	Ontario
Copenhagen	2018	Wind	80	USA	NY
Bluemex	2018	Solar PV	111	Mexico	Sonora
Stoneray	2018	Wind	100	USA	MN
Ivester	2018	Wind	90	USA	IA
Pendleton Solar	2018	Solar PV	19	Canada	Ontario
Pecan Solar	2018	Solar PV	111.3	USA	NC
Valentine Solar	2018	Solar PV	125	USA	CA
Nicolas-Riou	2017	Wind	224.5	Canada	Quebec
Rock Falls	2017	Wind	120	USA	OK
Red Pine	2017	Wind	200	USA	MN
Ringer Hill	2017	Wind	40	USA	PA
Rock Falls	2017	Wind	34	USA	OK
Switch Station	2017	Solar PV	234	USA	NV
Great Western	2016	Wind	225	USA	OK
Salt Fork	2016	Wind	174	USA	TX
Tyler Bluff	2016	Wind	125.58	USA	TX
Longboat	2016	Solar PV	20	USA	CA
Heartland Biogas	2016	Biogas	20	USA	CO
Kelly Creek	2016	Wind	184	USA	IL
Milo	2016	Wind	49.66	USA	NM
Catalina Solar 2	2015	Solar PV	25	USA	CA
Cottonwood	2015	Solar PV	32.6	USA	CA
Cottonwood Carport (Buck Institute)	2015	Solar PV	1	USA	CA
Alexander	2015	Wind	48.3	USA	KS
Carroll Area	2015	Wind	20	USA	IA
Mont-Rothery	2015	Wind	74	Canada	Quebec
Pilot Hill	2015	Wind	175	USA	IL
Riviere du Moulin Phase 2	2015	Wind	201.25	Canada	Quebec
Roosevelt	2015	Wind	250	USA	NM
Slate Creek	2015	Wind	150	USA	KS
Spinning Spur 3	2015	Wind	194	USA	TX
Longhorn	2015	Wind	200	USA	TX

EDF Renewables North America Projects

PROJECT NAME	YEAR INSTALLED	RESOURCE	PROJECT SIZE (MW)	COUNTRY	STATE/PROV
McHenry Battery Storage	2015	Storage	20	USA	IL
Blackspring Ridge	2014	Wind	300	Canada	Alberta
CID	2014	Solar PV	27.2	USA	CA
Granit	2014	Wind	24.6	Canada	Quebec
Mitis	2014	Wind	24.6	Canada	Quebec
Riviere du Moulin Phase 1 (150 MW)	2014	Wind	148.75	Canada	Quebec
Two Dot	2014	Wind	9.72	USA	MT
Lancaster Solar	2014	Solar PV	5.86	USA	MA
Lepomis Solar	2014	Solar PV	5.99	USA	MA
Hereford	2014	Wind	200	USA	TX
Lundgren	2014	Wind	250	USA	IA
Santo Domingo (EDP)	2014	Wind	160	Mexico	Oaxaca
Spinning Spur 2	2014	Wind	161	USA	TX
Windthorst-2	2014	Wind	68	USA	TX
Bii Stinu (EDI)	2013	Wind	164	Mexico	Oaxaca
Catalina Solar 1	2013	Solar PV	143.2	USA	CA
Lac Alfred Phase 2	2013	Wind	180	Canada	Quebec
Massif du Sud	2013	Wind	150	Canada	Quebec
Pukana (Hilo)	2013	Solar PV	0.3	USA	HI
Pinelands (Allendale)	2013	Biomass	20	USA	SC
Pinelands (Dorchester)	2013	Biomass	20	USA	SC
Bobcat Bluff WP	2012	Wind	150	USA	TX
Cowboy (fka Blackwell)	2012	Wind	59.8	USA	OK
LIPA (Cohalan East)	2012	Solar PV	2.83	USA	NY
LIPA (Cohalan West)	2012	Solar PV	1.39	USA	NY
LIPA (Deer Park)	2012	Solar PV	2.95	USA	NY
LIPA (H. Lee Dennison Site)	2012	Solar PV	2.18	USA	NY
LIPA (North County Site)	2012	Solar PV	1.05	USA	NY
LIPA (Riverhead)	2012	Solar PV	1.57	USA	NY
Lac Alfred Phase 1	2012	Wind	120	Canada	Quebec
Pacific Wind WP	2012	Wind	140	USA	CA
Saint Robert Bellarmin	2012	Wind	80	Canada	Quebec
Shiloh IV WP	2012	Wind	102.5	USA	CA

EDF Renewables North America Projects

PROJECT NAME	YEAR INSTALLED	RESOURCE	PROJECT SIZE (MW)	COUNTRY	STATE/PROV
Spearville 3 WP	2012	Wind	100.8	USA	KS
Spinning Spur 1 WP	2012	Wind	161	USA	TX
Pukana (Beretania)	2012	Solar PV	0.26	USA	HI
Pukana (Ewa)	2012	Solar PV	0.33	USA	HI
Patton	2012	Wind	30	USA	PA
Bellevue	2011	Solar PV	1.66	USA	OR
Chestnut Flats	2011	Wind	38	USA	PA
LIPA (Brentwood Site)	2011	Solar PV	0.84	USA	NY
Matrix	2011	Solar PV	2.86	USA	NJ
Lakefield WP	2011	Wind	205.5	USA	MN
Shiloh III WP	2011	Wind	102.5	USA	CA
Pocono Raceway	2011	Solar PV	3	USA	PA
RPI 100	2011	Solar PV	0.43	USA	NJ
RPI 400	2011	Solar PV	0.25	USA	NJ
St. Isidore B SP	2011	Solar PV	11.83	Canada	Ontario
Yamhill	2011	Solar PV	1.19	USA	OR
Beacon	2010	Biogas	50	USA	PA
Elmsley East	2010	Solar PV	11.88	Canada	Ontario
Elmsley West	2010	Solar PV	11.89	Canada	Ontario
Linden WP	2010	WInd	50	USA	WA
Spearville II	2010	Wind	48	USA	KS
Nobles WP	2010	Wind	201	USA	MN
St. Isidore A SP	2010	Solar PV	11.48	Canada	Ontario
Stevens Institute	2010	Solar PV	0.20	USA	NJ
Arnprior A Gillian	2009	Solar PV	11.40	Canada	Ontario
Arnprior B Egan	2009	Solar PV	12.00	Canada	Ontario
Bayshore Recycling	2009	Solar PV	0.68	USA	NJ
Belle Mead	2009	Solar PV	1.81	USA	NJ
Crane Creek WP	2009	Wind	99	USA	IA
Halls (Jayne) Warehouse	2009	Solar PV	1.80	USA	NJ
La Mata/La Ventosa	2009	Wind	67.5	Mexico	Oaxaca
Hoosier WP	2009	Wind	106	USA	IN
Shiloh II WP	2009	Wind	150	USA	CA

EDF Renewables North America Projects

PROJECT NAME	YEAR INSTALLED	RESOURCE	PROJECT SIZE (MW)	COUNTRY	STATE/PROV
Black River Farms	2008	Solar PV	0.14	USA	NJ
Goodnoe Hills	2008	Wind	94	USA	WA
Grand Meadow	2008	Wind	100.5	USA	MN
Wapsi North WP	2008	Wind	100.5	USA	MN
Sacramento Soleil	2008	Solar PV	1.25	USA	CA
Sun Harvest	2008	Solar PV	0.25	USA	CA
Walnut WP	2008	Wind	153	USA	IA
Fenton WP	2007	Wind	205.5	USA	MN
Pomeroy WP	2007	Wind	198	USA	IA
EDF RE V Repower(Las Brisas)	2006	Wind	9	USA	CA
Hawi WP	2006	Wind	10.56	USA	HI
Spearville WP	2006	Wind	100.5	USA	KS
PdV WP (Manzana)	2005	Wind	300	USA	CA
Shiloh I WP	2005	Wind	150	USA	CA
Wall Lake WP (Century)	2005	Wind	150	USA	IA
Oasis WP	2004	Wind	60	USA	CA
Chanarambie WP	2003	Wind	85.5	USA	MN
Viking WP	2003	Wind	12	USA	MN
Tres Vaqueros	2002	Wind	24.51	USA	CA
Hoosac	2001	Wind	30	USA	MA
Peetz Table	2001	Wind	30	USA	CO
Champepadan	2001	Wind	1.98	USA	MN
Moulton	2001	Wind	1.98	USA	MN
Buffalo Mtn/TVA	2000	Wind	2	USA	TN
Chandler	2000	Wind	2	USA	MN
Tierras Morenas	2000	Wind	24	Costa Rica	Costa Rica

EDF renewables

POWERING PROGRESS

EXPERTISE I COMMITMENT I INNOVATION

OUR MISSION

Turning innovative renewable energy ideas and long-term relationships into ethical, high-value sustainable business.

GRID-SCALE POWER

Origination

Development

Transaction

Construction Management

Development &
Sale of Structured Assets

DISTRIBUTED SOLUTIONS

Origination

Development

Engineering, Procurement,
Construction (EPC)

Operations and
Asset Management (O&M)

ASSET OPTIMIZATION

Operations & Maintenance

Monitoring

Asset Management

Performance Optimization

NERC Compliance

10 GW
Developed

5.2 GW
Owned

14 GW
O&M
Globally

1,022
Employees

INNOVATION STARTS HERE

CLEAN ENERGY FOR A BETTER FUTURE

For over 30 years, EDF Renewables has dedicated its efforts to creating a green energy economy through the deployment of renewable energy resources.

We are experts in all areas of project development, operations, and management including:

- wind energy
- solar energy
- hydro
- battery storage
- distributed energy
- resource assessment
- project design
- interconnection
- procurement of equipment
- financing
- permitting
- construction
- long-term management
- operations and maintenance
- project de-commissioning
- repowering

GRID-SCALE POWER

EDF Renewables provides large scale wind and solar power generation across North America to create a cleaner energy future.

EDF Renewables is a leading independent power producer with 10 GW of renewable projects developed in North America.

USA
7.7 GW

CANADA
1.4 GW

MEXICO
.8 GW

8,422 MW

1,367 MW

91 MW

20 MW

CREATING VALUE

EDF Renewables is involved in every phase of the project, ensuring the quality of our installations and guaranteeing a high level of reliability and performance.

ORIGINATION

Comprehensive analysis, identification and evaluation of prospective sites and matching those sites with our customers' needs.

DEVELOPMENT

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

Solutions tailor made for corporate purchasers

With projects sized from 100 kW to over 300 MW, EDF Renewables delivers power to corporations large and small with contract structures to meet each customer's specific business needs.

31 December 2017

TRANSACTION

Securitization of energy offtake and financing.

CONSTRUCTION

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

OPTIMIZATION

Operations and maintenance, asset management, monitoring and maintenance to ensure profitable and optimal performance of facility.

EXPERTISE BUILDING OFFSHORE INSTALLATIONS

DESIGNING SUCCESSFUL RENEWABLE ENERGY PROJECTS

We have proven our **technical skills in marine engineering** through successfully installing fixed-bottom, monopile, jacket, and gravity based foundations on off-shore wind projects.

Designed, built and maintained by EDF Energy Renewables, jointly owned by EDF Energy and EDF Energies Nouvelles, the Teesside offshore wind project, located off the coast of North East England, comprises 27 turbines, each with a capacity of 2.3 MW for a total of 62 MW installed capacity. It was commissioned in 2013.

CREATING ECONOMIC OPPORTUNITIES

Before construction, we engage with local economic stakeholders to identify workers with the relevant skills and qualifications by activating a network of subject matter experts and large companies.

- During the construction phase, we recruit for workers near our projects, and the jobs created in this sector increase the knowledge and skills of the local workforce.
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- We incorporate the many activities in each project area and adapt the wind turbine layout to minimize impacts.

OFFSHORE PROJECTS IN EUROPE

France

- Three offshore wind projects being developed (Fécamp, Courseulles-sur-Mer and Saint-Nazaire), with a total power of 1,428 MW
- A floating wind pilot project under development off the coast of Fos-sur-Mer

Belgium

- C-Power offshore wind project (325 MW) in operation since 2009

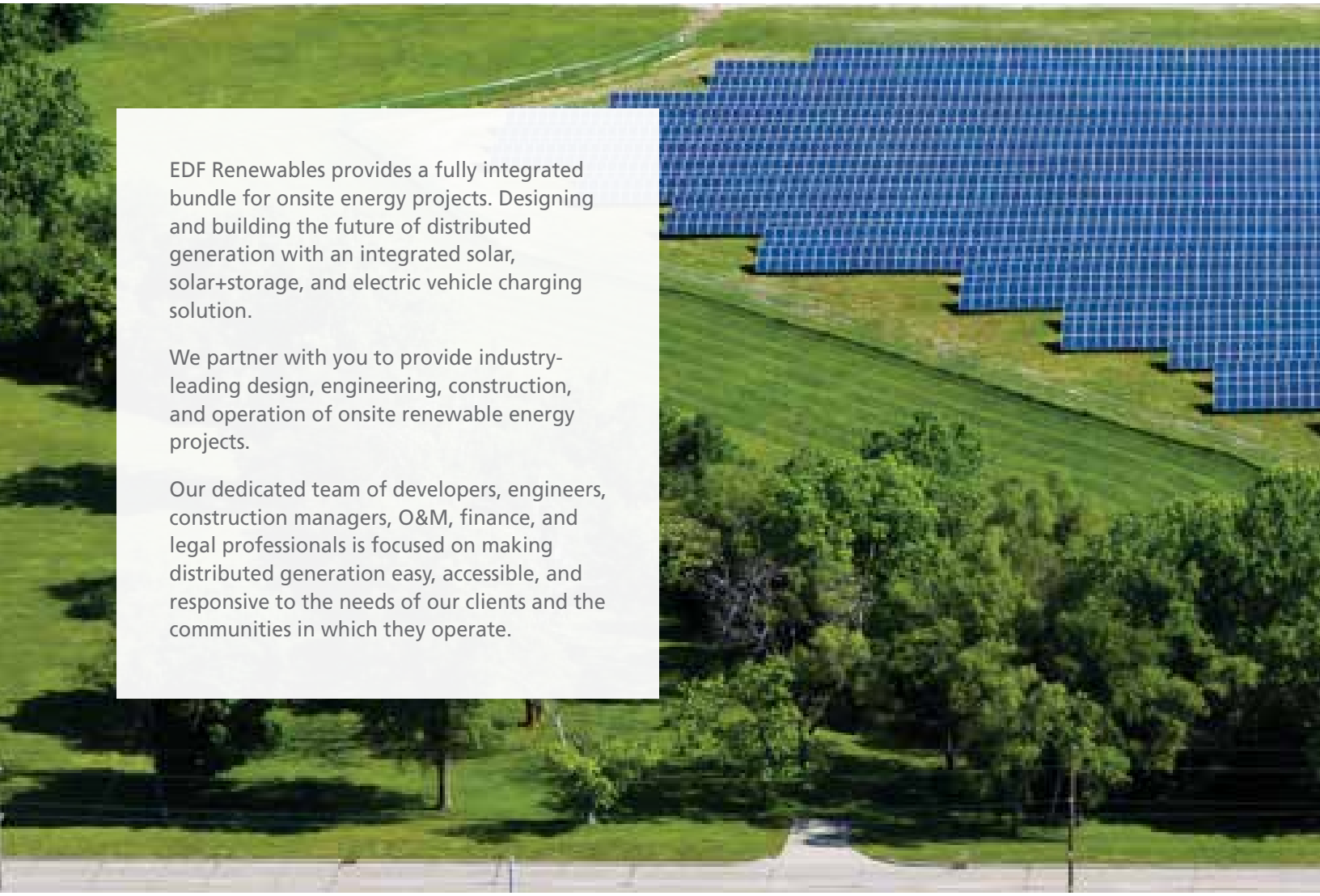
UK

- Teesside offshore wind project (62 MW) in operation since 2013
- Blyth offshore wind project (41 MW) in operation since 2017

Germany

- Maintenance of a 400 MW offshore wind project

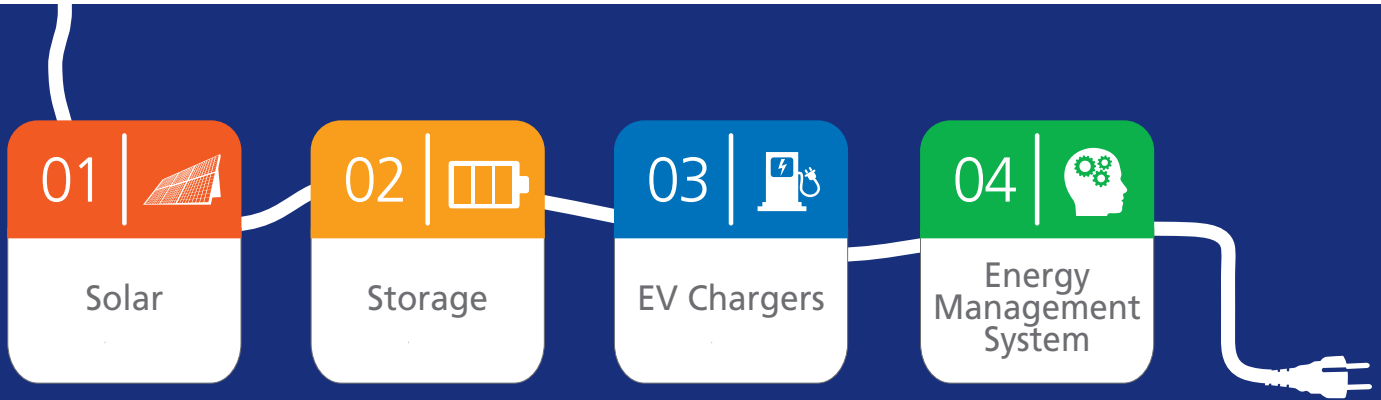
DISTRIBUTED SOLUTIONS



EDF Renewables provides a fully integrated bundle for onsite energy projects. Designing and building the future of distributed generation with an integrated solar, solar+storage, and electric vehicle charging solution.

We partner with you to provide industry-leading design, engineering, construction, and operation of onsite renewable energy projects.

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




350 MW
DEVELOPED
OR
CONSTRUCTED

ASSET OPTIMIZATION

Maximizing performance and profitability throughout the project lifecycle

14 GW OPERATIONS & MAINTENANCE

8.5 GW UNDER OCC MONITORING

6.9 GW ASSET MANAGEMENT

Asset Management / Asset Administration

- Manage Cash and Debt Equity
- Ensure Contractual Compliance
- Monitor and Limit Market Risk
- Manage Power Purchase Agreements
- Identify and Remedy Underperforming Assets

24/7/365 Remote Monitoring

- 24/7/365 Remote Monitoring
- Performance Reporting
- Fault Reset and Notification
- Curtailment
- SCADA and NERC Compliance Support

Blade Services and Enhancement

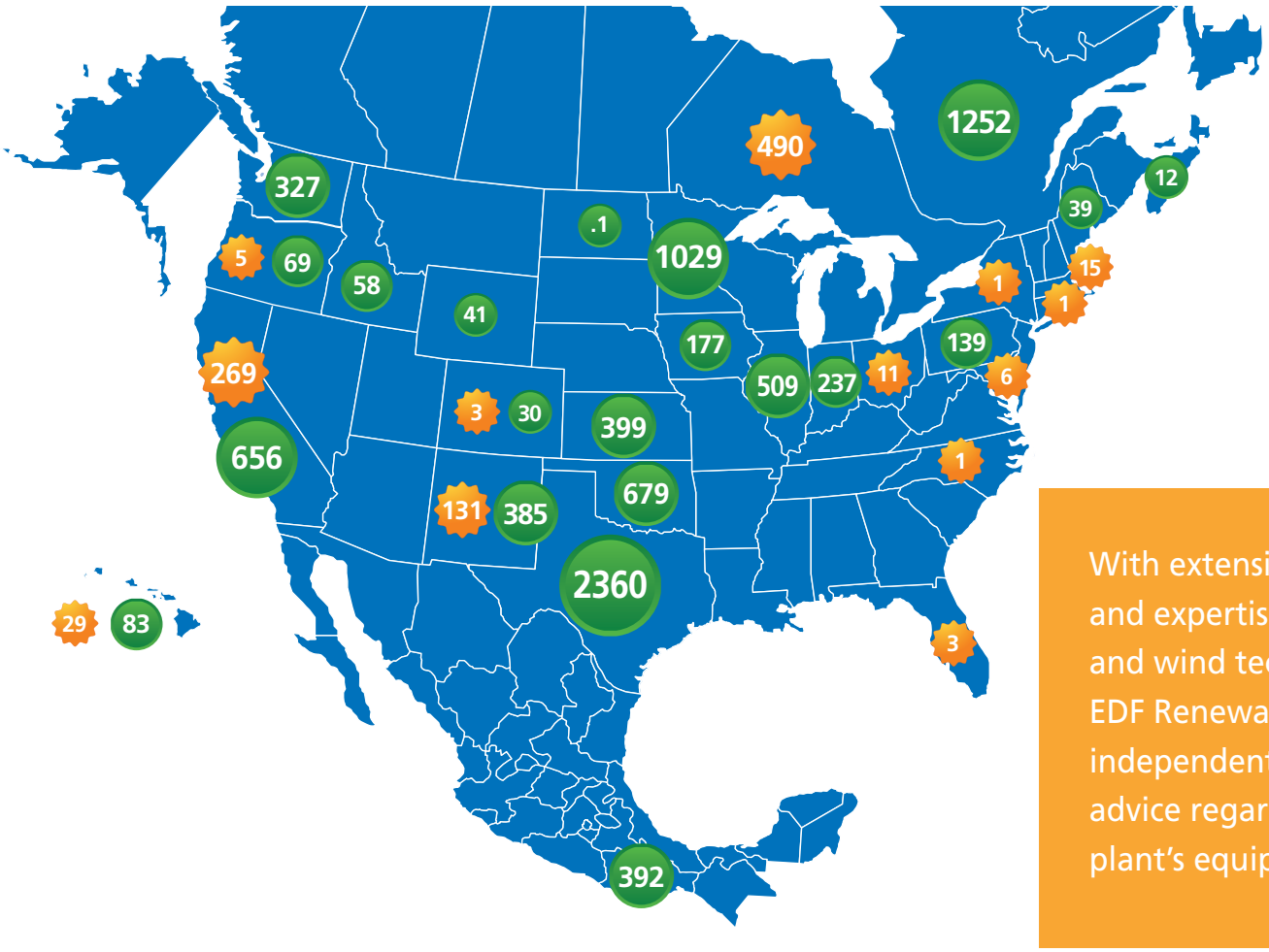
- Blade Inspections
- Blade Repairs
- 3M Vortex Generators
- Leading Edge Protection

Operations and Maintenance

- Onsite Preventative Maintenance
- Balance of Plant (BOP) Management
- Major Component Repair and Replacement
- Unscheduled Maintenance
- Diagnose Underperforming Assets

WIND AND SOLAR MEGAWATTS UNDER O&M CONTRACT

By state/province Wind MW Solar MW



With extensive experience and expertise across solar and wind technologies, EDF Renewables provides independent, objective advice regarding your plant's equipment.

TURBINE MANUFACTURERS we service today

OPERATIONAL TECHNOLOGIES

Integrating monitoring and control with innovative service offerings

OPERATIONS CONTROL CENTER

During onboarding, EDF Renewables designs an exceptions-based interface with alarms to alert our trained operators whenever your plant experiences operating conditions or events outside of your guidelines.

OCC Services

- 24/7/365 remote monitoring
- Fault notification & remote resets
- Technician/EMS dispatch notification
- Curtailment management
- Plant level monitoring
- Voltage management
- Performance monitoring

SCADA Support

- OEM SCADA support and maintenance
- Pre-COD SCADA services
- Customer application development
- Meteorological tower data interfacing
- Interface and data infrastructure creation
- AGC and AVR control logic implementation
- Virtualization

NERC Compliance Services

- Development and implementation assistance for robust and sustainable compliance programs
- Complete documentation development
- Training on NERC procedures to support consistent performance
- Audit preparation support including documentation evaluation, GAP analysis and mock audits
- Design and implementation of programs to achieve, monitor and document CIP compliance
- NERC and GADS Compliance Support

EDF Renewables' $4M state-of-the-art NERC compliant medium-impact Operations Control Center.

BLADE OPTIMIZATION AND EFFICIENCY SOLUTIONS

Minimize downtime, maximize power production

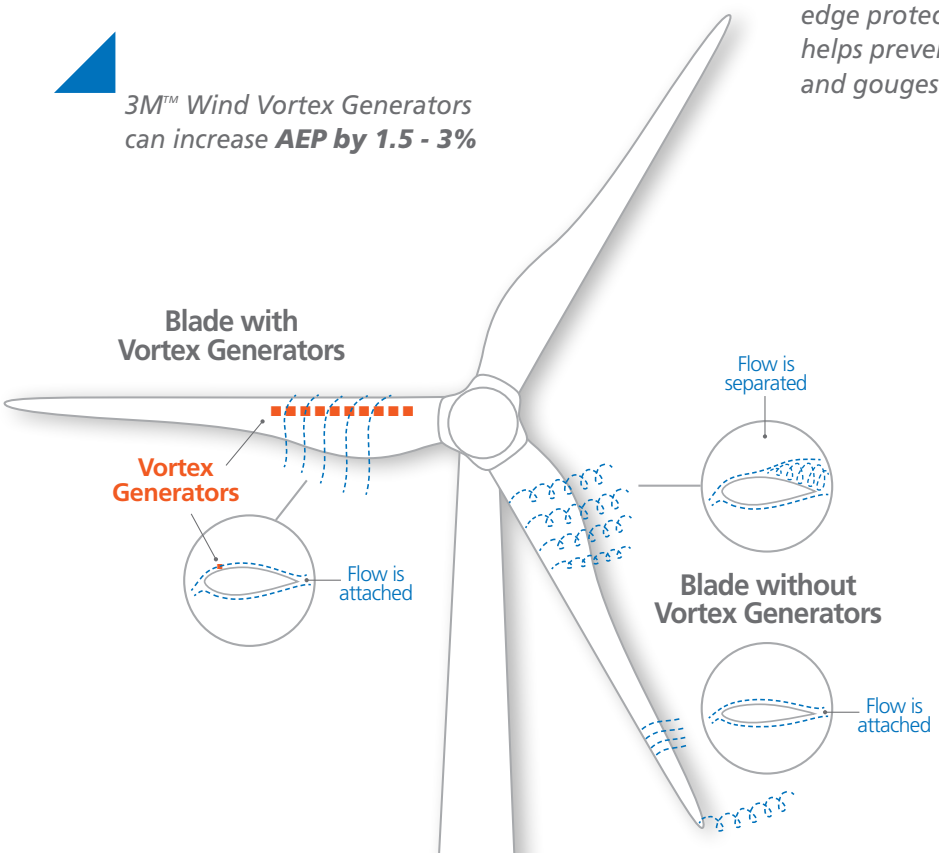
Taking good care of your blades goes a long way towards maintaining the optimum performance of your turbines. With an owner-operator perspective, EDF Renewables works within your budget to design a blade maintenance program that includes inspections and repairs, adding protection to prevent damage, and upgrades like vortex generators to increase Annual Energy Production (AEP).

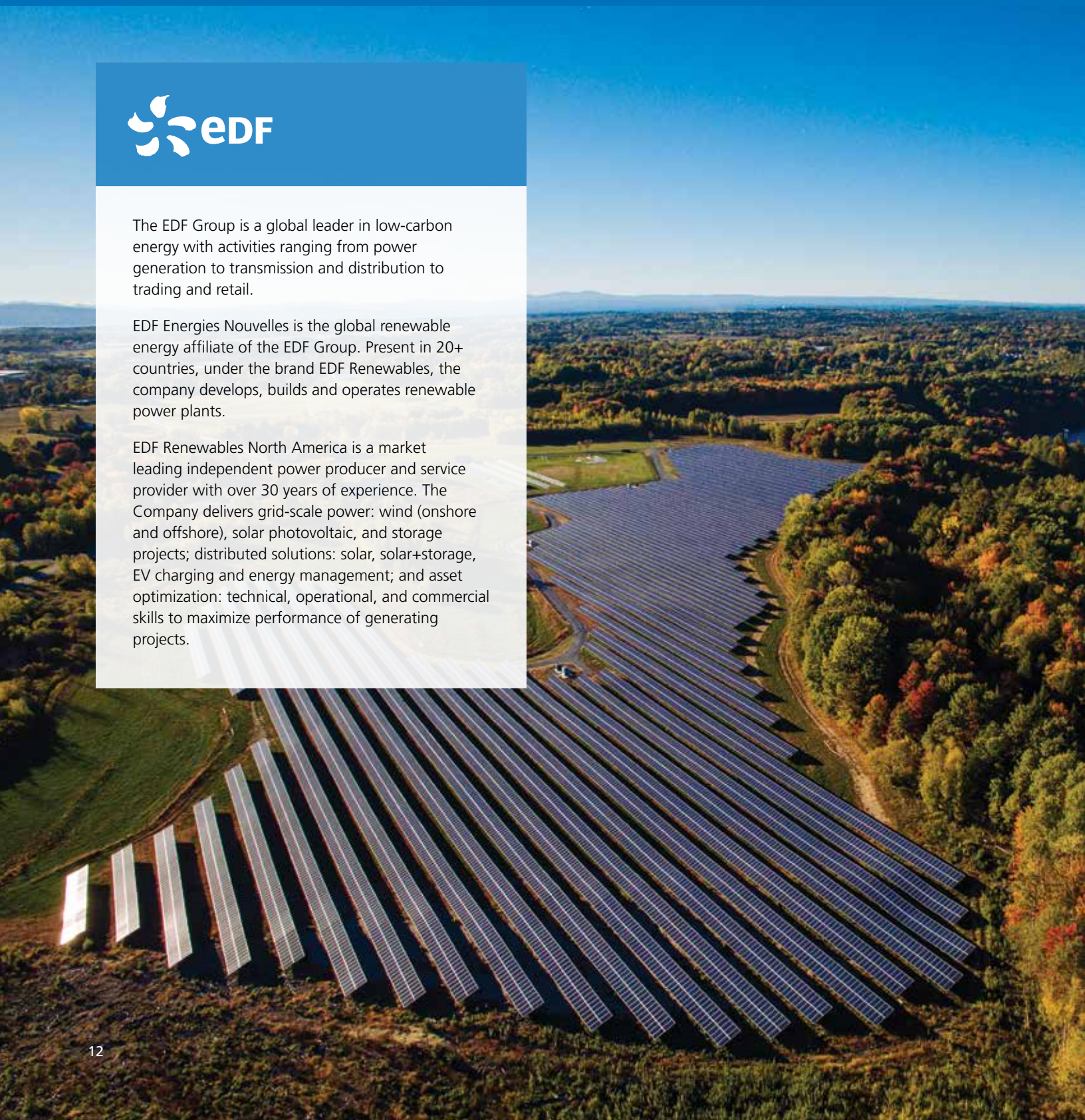
EDF Renewables' advanced blade inspection processes use state-of-the-art technology. Our technicians inspect and grade each blade then formulate a plan to remedy problems.

*Repairing leading edge damage can **increase AEP by as much as 20%**.*

Installing leading edge protection helps prevent pits and gouges.

*3M™ Wind Vortex Generators can increase **AEP by 1.5 - 3%***





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

EDF Renewables North America is a market leading independent power producer and service provider with over 30 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.

DIRECTORY OF OFFICES

CORPORATE HEADQUARTERS

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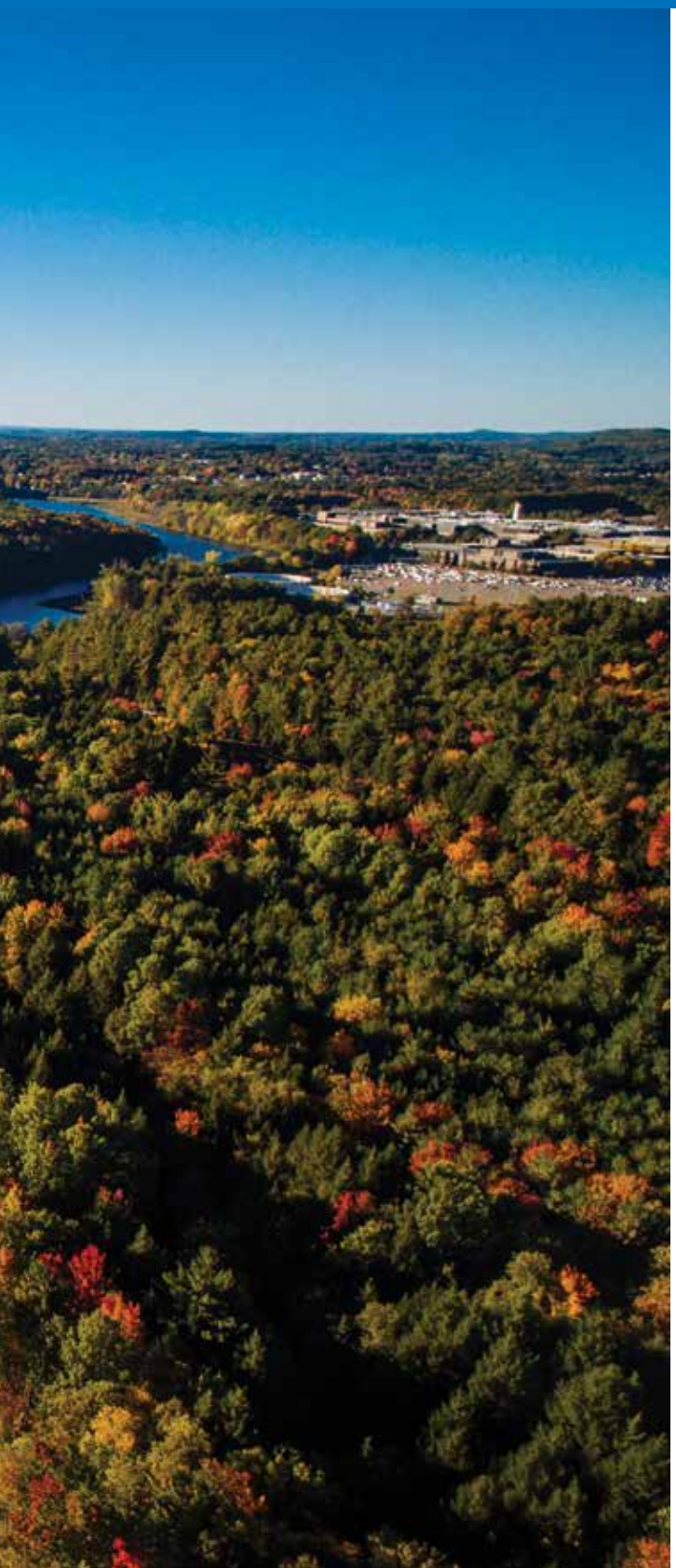

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Oakland, CA 94612
510.457.2150

WEST - PORTLAND
1000 SW Broadway, Ste 1880
Portland, OR 97205
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NORTH - DENVER
1600 Stout Street, Ste 1510
Denver, CO 80202
303.825.0460

NORTH - MINNEAPOLIS
10 Second Street NE, Ste 400
Minneapolis, MN 55413
612.746.0770

SOUTH CENTRAL
601 Travis, STE 1700
Houston, TX 77002
281.781.0333

EAST - BROOKLYN
195 Montague Street, 14th Floor
Brooklyn, NY 11201
646.898.3690

EAST - PHILADELPHIA
40 W. Evergreen Street, Ste 104
Philadelphia, PA 19118
215.381.2940

EAST - COLUMBIA
9175 Guilford Road, Ste 202
Columbia, MD 21046
802.359.6516

EAST - WEST LEBANON
5 Commerce Ave
W Lebanon, NH 03784
802.295.4415

CANADA – ALBERTA
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Oaxaca C.P. 7000
+52 (97) 1712 1350 x5002

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209.855.8955

CENTRAL
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Loveland, CO 80537
970.797.2690, Ext 306

MIDWEST / EAST
605 East J Street, Ste 400
Forest City, IA 50436
641.585.1623

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Photo credits: Mark LaBoyteaux, Frederic Neema, Daniel Peters, Joan Sullivan, Laurent Critot, Jakob Lerche

04-18

EDF renewables

POWERING PROGRESS

Offshore Wind

OUR MISSION

Turning innovative renewable energy ideas and long-term relationships into ethical, high value sustainable business.

INNOVATION STARTS HERE

CLEAN ENERGY FOR A BETTER FUTURE

For over 30 years, EDF Renewables has dedicated its efforts to creating a green energy economy through the deployment of renewable energy resources.

We are experts in all areas of project development, operations, and management including:

- wind energy
- solar energy
- hydro
- battery storage
- distributed energy
- resource assessment
- project design
- interconnection
- procurement of equipment
- financing
- permitting
- construction
- long-term management
- operations and maintenance
- project de-commissioning
- repowering

EXPERTISE BUILDING LARGE-SCALE INSTALLATIONS

DESIGNING SUCCESSFUL RENEWABLE ENERGY PROJECTS

We are involved in **every phase of the project**, from development and engineering to construction, production and operations and maintenance. In this way, we ensure the quality of our installations and guarantee a high level of reliability and performance.

We have proven our **technical skills in marine engineering** through successfully installing fixed-bottom, monopile, jacket, and gravity based foundations on offshore wind projects.

Designed, built and maintained by EDF Energy Renewables, jointly owned by EDF Energy and EDF Energies Nouvelles, the Teesside offshore wind project, located off the coast of North East England, comprises 27 turbines, each with a capacity of 2.3 MW for a total of 62 MW installed capacity. It was commissioned in 2013.

The General Electric factory in Saint-Nazaire, France, inaugurated in December 2014, will provide generators and nacelles for Haliade offshore wind turbines.

PARTNERING TO DEVELOP AN INDUSTRIAL SECTOR

Fixed-bottom offshore wind power: General Electric is our partner for producing wind turbines for our three projects in France. The industrial plan for the projects includes the creation of 7,000 jobs.

MANAGING OPERATIONS AND MAINTENANCE AT SEA

We are also taking advantage of our many years experience from onshore projects in order to guarantee an optimal level of operation for our offshore facilities.

Since April 2015, we have provided the operations and maintenance service for a 400 MW offshore wind project in German waters through our subsidiaries REETEC and Offshore Wind Solutions GmbH (OWS). REETEC and OWS have more than 350 experts specializing in both on and offshore wind operations and maintenance. The Operations Control Center for offshore wind is located in Emden, Germany, in direct proximity to numerous North Sea offshore wind farms.

FIXED-BOTTOM WIND TURBINES

As a fully established technology, offshore wind turbines that are fixed to the seabed allow large-scale projects to take advantage of strong, consistent winds.

SUPPORT
Developing exemplary projects, for the future of local communities

RESPONDING TO LOCAL ISSUES

Our goal is to understand local issues and to design projects that are suitable, well organized and respectful of the many uses of the marine environment.

- Our projects are designed around shared use, the result of several years of in-depth technical and socioeconomic studies and dialogue with all local stakeholders and sea users.
- Going beyond legal requirements, we engage in large consultations, bringing together the general public and all stakeholders in a constructive listening process.

Working groups and informational meetings enable everyone to communicate directly with the teams in charge of the projects.

CREATING ECONOMIC OPPORTUNITIES

Before construction, we engage with local economic stakeholders to identify local workers with the relevant skills and qualifications by activating a network of subject matter experts and large companies.

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- We incorporate the many activities in each project area and adapt the wind turbine layout to minimize impacts.

PROGRESS

Innovations in marine energy: our concrete answers

MEETING THE CHALLENGES IN MARINE RENEWABLE ENERGY

Producing electricity in the marine environment with complex conditions is a new industrial and technological challenge. While developing our projects, we test and establish solutions that improve these large-scale projects and reduce costs:

- Working with digital measuring and modeling tools during the development phase enables us to better understand the specific nature of each site.
- Reducing costs of marine operations by using innovative solutions such as crane-free gravity based foundations.

FLEXIBLE, COMPETITIVE SOLUTIONS

We identify the concerns linked to the development of renewable marine energy sources in order to offer more flexible and competitive solutions.

The floating Lidar (bottom right) is a simple, flexible solution that improves our knowledge of wind resources in project areas.

CRANE-FREE GRAVITY BASED FOUNDATION

REDUCING THE INSTALLATION COST OF A HEAVY STRUCTURE

Unlike traditional gravity based foundations (GBFs), whose transportation and installation require significant marine equipment (barge or ship equipped with specific high capacity cranes), the five GBFs were installed at the Blythe Offshore Wind Project using a new "float and submerge" process – the first time this method has been used for offshore wind turbines.

Designed and built by Royal BAM Group in the Neptune dry dock on the Tyne, the GBFs were floated into position off the coast of Northumberland and submerged onto the seabed and further ballasted to provide the support structures that act as the foundations for the turbines. This is a major innovation, facilitating installation and reducing associated costs.

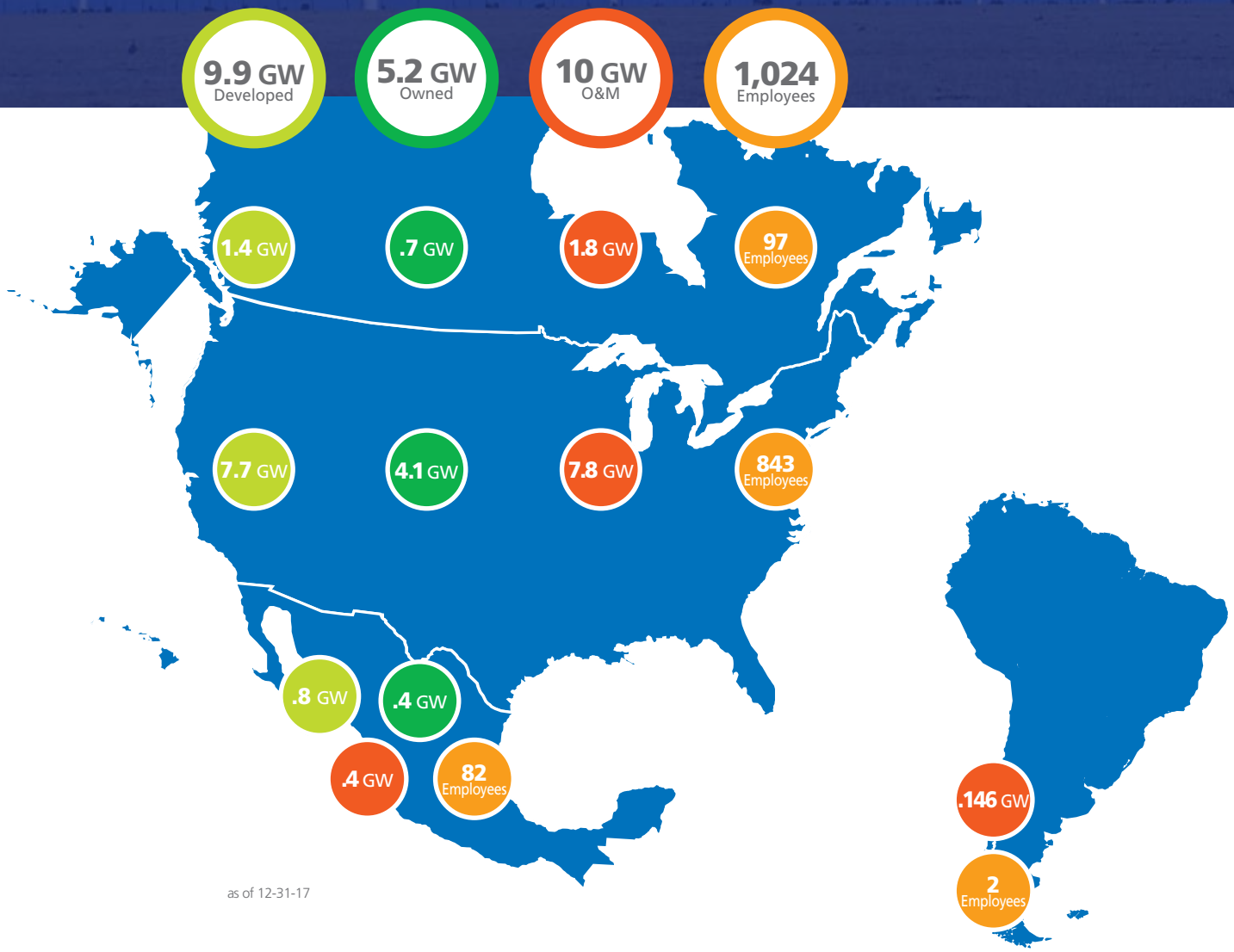
FLOATING WIND TURBINES

New Horizons for Offshore Wind Power

Floating offshore wind turbines are one of the most promising innovations that will increase the potential to harness offshore wind. For several years now, we have supported the development of this technology with the Provence Grand Large project, a pilot project in the Mediterranean Sea.

Using floats specifically designed to withstand sea conditions, we can develop projects at sites where the water is too deep to install fixed-bottom foundations.

ONSHORE PRESENCE IN THE AMERICAS



as of 12-31-17

CREATING VALUE
from Origination through Commercial Operation

ORIGINATION

Comprehensive analysis, identification and evaluation of prospective sites and matching those sites with our customers' needs.

DEVELOPMENT

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

A LEADER IN MARINE RENEWABLE ENERGY

OFFSHORE PROJECTS IN EUROPE

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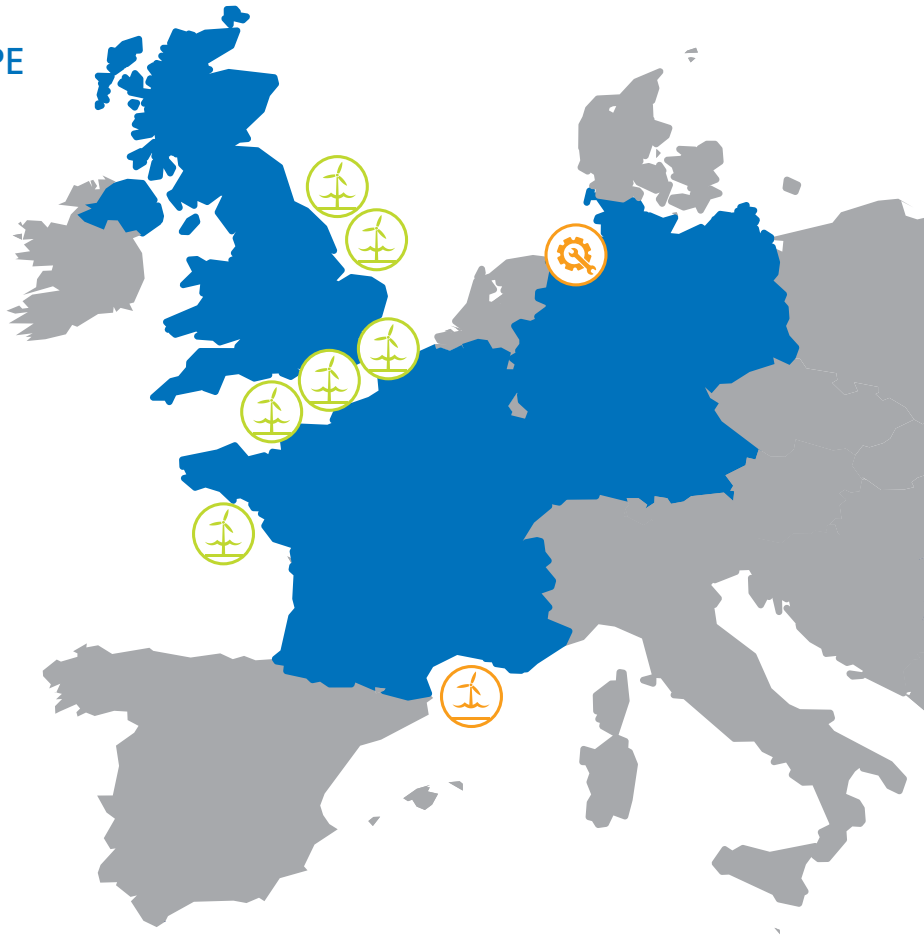

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EDF renewable energy

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