



REVIEW OF MASSACHUSETTS CLEAN ENERGY GENERATION RFP (83D) PROPOSALS

August 16, 2017

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To: Clients and Colleagues

From: John Dalton, President & Carson Robers, Consultant, Power Advisory LLC

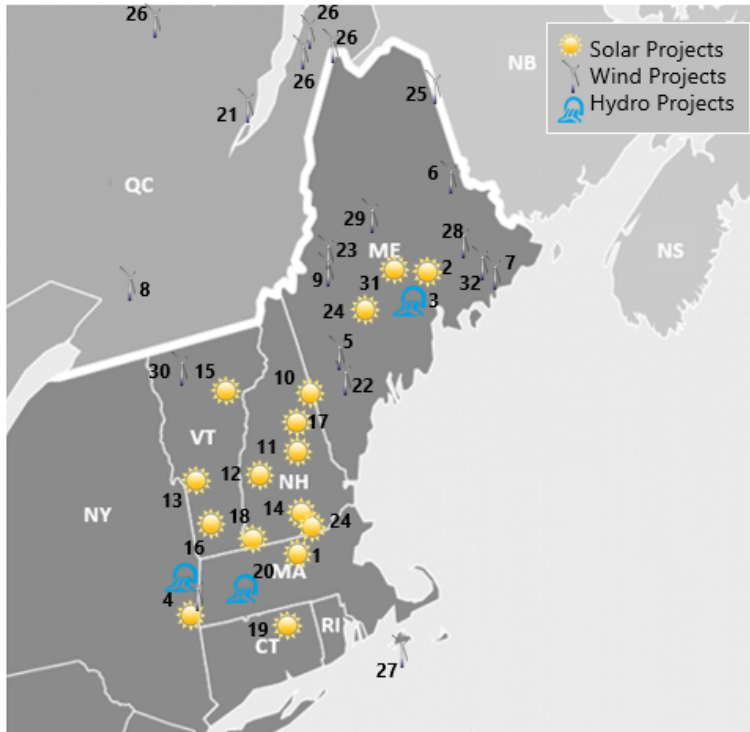
On July 27th the Massachusetts investor-owned electric distribution companies in coordination with the Department of Energy Resources (DOER), received 46 proposals for clean energy generation, submitted pursuant to the Request for Proposals (RFP) that they issued for approximately 9,450,000 MWh of clean energy under long-term contracts. According to the schedule outlined in the RFP, proponents will be notified whether their proposals have been selected for negotiation of long-term contracts no later than January 27th, 2018.

Under the RFP Clean Energy Generation is defined as: (1) firm service incremental hydroelectric generation; (2) new Class I RPS eligible renewable resources or standalone; or (3) firmed up with firm service hydroelectric generation. The RFP also allowed these resources to be delivered to the ISO-New England control area via a transmission project that provides for payment through a FERC approved tariff. The minimum project size is 20 MW.

The RFP provides that proposals will be evaluated on both direct costs and benefits, which include: (1) the value of Clean Energy Generation assessed on mark-to-market basis (e.g., forecast of LMPs at the delivery point with and without the project); (2) the value of Class I eligible RECs relative to their projected market price; and (3) for transmission proposals the costs of the transmission including interconnection and upgrade costs. Other costs and benefits are likely to include: (1) impacts of changes in LMPs (price suppression effects) and impacts on production costs; (2) the value of environmental attributes based on their contribution to Global Warming Solutions Act (GWSA) requirements; (3) economic impacts associated with the resource firmness; and (4) indirect impacts on capacity or ancillary service market prices from the proposed project.

The table and figures below summarize the key aspects of transmission and generation proposals received.

Map of Proposed Generation Projects



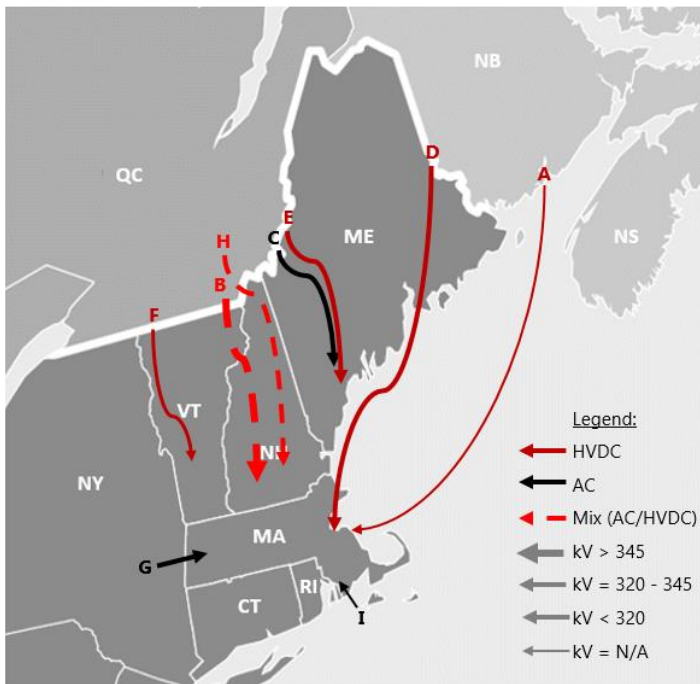
1. Ash Solar – Allico Finance Limited
2. Blue Falcon Solar – Torch Clean Energy
3. Brookfield Hydro Conversion Project - Brookfield
4. Brookfield, Avangrid* – Northeast Renewable Power Partners (NRPP)
5. Bryant Mountain Wind Farm – EverPower Maine
6. County Line Wind – NRG
7. Downeast Wind – Apex
8. EDF - GridAmerica Granite State Power Link Wind Bids II and IV
9. EDF – Maine Clean Power Connection (MCPC)
10. FPS Berlin Solar – Freepoint and SunEast
11. FPS Campton Solar, 1&2 – Freepoint and SunEas
12. FPS Claremont Solar – Freepoint and SunEast
13. FPS Fair Haven Solar – Freepoint and SunEast
14. FPS Peterborough Solar – Freepoint and SunEast
15. FPS Plainfield Solar – Freepoint and SunEast
16. FPS Shaftsbury Solar – Freepoint and SunEast
17. FPS Thornton Solar – Freepoint and SunEast
18. FPS Vernon Solar – Freepoint and SunEast
19. Gravel Pit Solar Park – PowerBridge
20. Great River Hydro** – ArLight Capital
21. Hydro Quebec, Gaz Metro, Boralex – New England Clean Power Link (NECPL) Hydro and Wind
22. Long Mountain – Calpine Wind
23. NextEra CMP – NextEra, Penobscot Wind, Moose Wind
24. NextEra Solar*** – NextEra
25. Nine Kings Wind (350MW & 1200MW) – EDP
26. RES Canada - GridAmerica Granite State Power Link Bids II and IV
27. Revolution Wind - Deepwater
28. Silver Maple Wind – WEB WindEnergie
29. Somerset Wind – NRG
30. Swanton Wind – VERA
31. Three Corners Solar – Longroad Energy Partners
32. Weaver Wind – Longroad Energy Partners

*NRPP: Bids include hydro, solar, and wind; exact locations redacted

**Great River Hydro: 13 locations on the Connecticut & Deerfield Rivers

***NextEra Solar: 5 locations in bid, map reflects public information

Map of Proposed Transmission Projects



- A. Atlantic Link (AL) - Emera
- B. Granite State Power Link (GSPL) - National Grid
- C. Maine Clean Power Connection (MCPC) - Central Maine Power
- D. Maine Power Express (MPX) - MPX, LLC and Con Edison Transmission
- E. New England Clean Energy Connect (NECEC) - Central Maine Power
- F. New England Clean Power Link (NECPL) - TDI New England
- G. Northeast Renewable Link (NRL) - National Grid
- H. Northern Pass Transmission (NPT) - Eversource, HQP
- I. Revolution Wind – Deepwater

Legend:

- ← HVDC
- ← AC
- ← Mix (AC/HVDC)
- ← kV > 345
- ← kV = 320 - 345
- ← kV < 320
- ← kV = N/A



Table 1: Summary of Generation Proposals

Project Name	Proponent(s)	Type of Clean Generation	Project Size		In-Service Date	Location	Affiliated Projects	Notes
			MW	GWh				
Generation								
Brookfield Hydro Conversion Project	Brookfield Energy Marketing LP (Brookfield Renewable/Brookfield Asset Management)	Hydro	20.8	60	December, 2019	Penobscot River, ME		Repowering/converting five generators from 40Hz to 60Hz, had been mothballed since 2014
Great River Hydro - Firm Hydro	Great River Hydro, LLC (ArLight Capital Partners)	Hydro	25	219	January, 2019	Connecticut and Deerfield Rivers		Plans to run at full capacity 24/7/365 and is able to replace any generation that goes down for maintenance, already operational
Ash Solar Project	Allico Finance Limited	Solar	20	Redacted	December, 2020	Ashburnham, MA		
Blue Falcon Solar	Torch Clean Energy, LLC (Torch Energy Advisors, Inc.)	Solar	50	Redacted	December, 2020	Greenbush, ME		
FPS Berlin Solar FPS Crampton 1 Solar FPS Crampton 2 Solar FPS Claremont Solar FPS Fair Haven Solar FPS Peterborough Solar FPS Plainfield Solar FPS Shaftsbury Solar FPS Thorton Solar FPS Vernon Solar	Freepoint Solar, LLC and SunEast Development, LLC	Solar	20 (individual), 200 (total)*	Redacted	Redacted	Berlin, NH Crampton, NH Crampton, NH Claremont, NH Fair Haven, VT Peterborough, NH Plainfield, NH Shaftsbury, VT Thorton, VT Vernon, VT		10 bids for 20 MW
Gravel Pit Solar Park	PowerBridge LLC	Solar	26	Redacted	December, 2019	East Windsor, CT		
NextEra Solar	NextEra and affiliates: Chariot Solar, Dawn Land Solar, Farmington Solar, Kennebec Solar, Lone Pine Solar	Solar	320 (between 5 projects)	Redacted	All components by late 2020	Hinsdale, NH (Chariot Solar); redacted (Dawn Land Solar), Farmington, ME (Farmington Solar), redacted (Kennebec Solar), redacted (Lone Pine Solar)		
Three Corners Solar	Longroad Energy Partners, LLC (Infratil and New Zealand Superannuation Fund)	Solar	122.5	Redacted	Redacted	Maine		
EDF 1 Maine Clean Power Connection Joint Bid EDF 1 (MCPC)	EDF Renewable Energy	Storage and wind	450 of wind, 20 of storage	Redacted	Redacted	Quebec and Maine	Maine Clean Power Connection Transmission (MCPC)	One of three potential generation components to the Maine Clean Power Connection
NextEra Maine Clean Power Connection	Penobscot Wind, LLC, Moose Wind, LLC, Wintergreen Solar	Solar, storage, and wind	150 solar, 90 storage (50 from wind, 40 from solar), wind unlisted/redacted	1463.8 (just from wind), others unlisted/ redacted	2021	Skinner, ME and Alder Stream, ME	Maine Clean Power Connection Transmission (MCPC)	One of three potential generation components to the Maine Clean Power Connection
Northeast Renewable Power Partners Bid A (NRPP)	Brookfield Power U.S. Holding America (Brookfield Renewable US), Avangrid, and GridAmerica (National Grid)	Wind and solar (new), hydro (existing)	600 (transmission) ≈600 MW Wind 691 MW Existing hydro	Redacted	December, 2021	Nassau, NY to Hinsdale, MA (transmission line), parallel to existing line	Northeast Renewable Power Partners Bid B (NRPP), Northeast Renewable Power Partners Bid C (NRPP), Northeast Renewable Power Partners Bid D (NRPP)	Class 1 facilities developed by Avangrid, Brookfield Renewable US to operate firming hydro, GridAmerica will develop transmission line, one of four mutually exclusive offers
Northeast Renewable Power Partners Bid B (NRPP)	Brookfield Power U.S. Holding America (Brookfield Renewable US) and Avangrid	Wind, Solar & Incremental Firming Hydro	306	Redacted	Redacted	New York	Northeast Renewable Power Partners Bid A, Bid C, Bid D	One of four mutually exclusive NRPP bids, but using existing AC transmission
Northeast Renewable Power Partners Bid C (NRPP)	Brookfield Power U.S. Holding America (Brookfield Renewable US) and Avangrid	Wind, Solar, Incremental Firming Hydro (including Bear Swamp Pumped Storage) & Battery Storage	Redacted	Redacted	Redacted	New York	Northeast Renewable Power Partners Bid A, Bid B, Bid D	One of four mutually exclusive NRPP bids, but using existing AC transmission
Northeast Renewable Power Partners Bid D (NRPP)	Brookfield Power U.S. Holding America (Brookfield Renewable US) and Avangrid	Wind, Solar & Incremental Firming Hydro	190 MW	Redacted	Redacted	New York	Northeast Renewable Power Partners Bid A, Bid B, Bid C	One of four mutually exclusive NRPP bids, but using existing AC transmission
GridAmerica Granite State Power Link Wind Bid II (GSPIL EDF RE)	GridAmerica (National Grid), EDF Renewable Energy, Citizens Energy	Wind	804 (generation), 1,200 (transmission)	Redacted	December, 2022	Bellefeuille, QC and another redacted location in QC	GridAmerica Granite State Power Link Wind Bid IV (GSPIL EDF RE)	
Long Mountain	Calpine Wind Holdings, LLC	Wind	44.85 of wind, option for 20 of 2hr storage	Redacted	December, 2020	Greenwood, ME		Wind is the main component, storage described as an optional add-on
Nine Kings Wind 350MW	Nine Kings Wind Farm, LLC (EDP Renewables North America and Pattern Development)	Wind	350	Redacted	Redacted	Presque Isle, ME		Nine Kings appears to be combination of King Pine (Pattern) and Number 9 (EDPR) wind farms
Nine Kings Wind 1200MW	Nine Kings Wind Farm, LLC (EDP Renewables North America)	Wind	1,200	Redacted	Redacted	Presque Isle, ME		Appear to have acquired rights to the Maine Renewable Energy Interconnect transmission project
Silver Maple Wind Project	SWEB Development USA, LLC (WEB WindEnergie AG)	Wind	20	Redacted	November, 2020	Clifton, ME		
Somerset Wind	Somerset Wind, LLC (NRG Energy, Inc.)	Wind	93.6	Redacted	Redacted	Somerset County, ME	Maine Clean Power Connection Transmission (MCPC)	One of three potential generation components to the Maine Clean Power Connection, two different timelines given (both redacted), suggests COD around 2020
Swanton Wind	Swanton Wind, LLC and Vermont Environmental Research Associates (VERA)	Wind	20	53.7	December, 2020	Swanton, VT		
Weaver Wind	Longroad Energy Partners, LLC (Infratil and New Zealand Superannuation Fund)	Wind	Redacted	Redacted	Redacted	Osborn and Eastbrook, ME		



Table 2: Summary of Transmission Proposals

Project Name	Proponent(s)	Type of Clean Generation	Project Size		In-Service Date	Location	Affiliated Projects	Notes
			MW	GWh				
Transmission								
Atlantic Link	Clean Power Northeast Development Inc. (Emera Inc.)	73% Wind, 27% hydro	1,000	5,690 4,140 Wind 1,550 Hydro	December, 2022	HVDC from Coleson Cove, New Brunswick, to Plymouth, MA		
County Line Wind Project	GreenMountain Wind, LLC (NRG Renew, LLC), Maine Power Express, LCC, Con Edison Transmission, Inc.	Wind	630 (generation) 1040 (transmission)	Redacted	2022	Aroostook and Penobscot County, ME (generation) HVDC from Southern Aroostook County, ME to Searsport, ME, to K Street, Boston, MA (transmission)	Joint bid includes Maine Power Express (MPX) transmission line	MPX transmission project. Searsport-Boston section is subsea.
GridAmerica GSPL- EDF RE Wind (Granite State Power Link)	GridAmerica (National Grid), Citizens Energy, Vermont Electric Power Company, EDF Renewable Energy	Wind	804 Wind 1,200 Transmission	Redacted	Redacted	Transmission HVDC: Norton, VT, to Monroe, NH HVAC: Monroe, NH to Londerry, NH Generation Two sites in Quebec	EDF RE Submitted two proposals: Category II (under Section 2.2.1.3.i) which provides a fixed delivered price & Category IV (under S. 2.2.1.3.iv) with fixed price for energy & RECs and tariff for transmission costs	EDF RE sells energy in Monroe, NH, relying on Hydro Quebec transmission and prospective GSPL line
GridAmerica GSPL- RES Canada Wind (Granite State Power Link)	GridAmerica (National Grid), Citizens Energy, Vermont Electric Power Company, RES Canada	Wind	500.4 Wind 1,200 Transmission	Redacted	December, 2022	Transmission: HVDC: Norton, VT, to Monroe, NH HVAC: Monroe, NH to Londerry, NH Generation: Mistissini, Saint-Joseph-de-Kamouraska, Saint-Athanase, and Saint-Antoine, QC	RES Canada Submitted two proposals: Category II (under Section 2.2.1.3.i) which provides a fixed delivered price & Category IV (under S. 2.2.1.3.iv) with fixed price for energy & RECs and tariff for transmission costs	RES Canada sells energy in Monroe, NH, relying on Hydro Quebec transmission and prospective GSPL line
Maine Clean Power Connection Transmission (MCPC)	Central Maine Power (Avangrid)	Wind, solar, storage	Up to 1,200; Three options offered	Redacted	Redacted	HVAC: Skinner, ME to Larrabee Substation in Lewiston, ME	Bid EDF 1 (447 MW wind & 20 MW storage), NextEra Maine Clean Power Connection (CMP), Somerset Wind	Generation: Section 2.2.1.3.iv of the RFP (Clean Energy Generation via transmission under FERC tariff)
New England Clean Energy Connect Hydro (NECEC)	Central Maine Power (Avangrid), Hydro Quebec	Hydro	1,200 (transmission), generation redacted, but up to 1,200 based on other bids by generators?	Range of Energy offered with amount to be determined by EDCs	Redacted	HVDC: Quebec to Lewiston, ME, US portion from Beattie, ME to Larrabee Substation, plus various AC upgrades	Alternative to the NECEC Hydro Wind bid Section 2.2.1.3.iv bid (transmission with FERC tariff)	HVDC solution, with AC reinforcements; claims to increase Surowiec South interface by 1,000 MW
New England Clean Energy Connect Hydro Wind (NECEC)	Central Maine Power (Avangrid), Hydro Quebec, Boralex, and Gaz Metro	Hydro and wind	1,200 (transmission) generation redacted, but up to 1,200 based on other bids by generators?	Range of Energy offered with amount to be determined by EDCs	Redacted	HVDC: Quebec to Lewiston, ME, US portion from Beattie, ME to Larrabee Substation, plus various AC upgrades	Alternative to NECEC Hydro bid: Boralex and Gaz Metro SBx Project (300 MW) firmed by hydro, transmission with FERC tariff	Tx solution same as NECEC hydro bid; Boralex and Gaz Metro SBx project 300 MW in other bids
New England Clean Power Link Hydro (NECPL)	TDI New England (Blackstone), Hydro Quebec	Hydro	1,000 (hydro) and 1,000 transmission	8,300	January, 2022	Quebec* (generation, Canadian border to Ludlow, VT (transmission))		Sources from throughout Hydro Quebec's system
New England Clean Power Link Hydro and Wind (NECPL)	TDI New England, Hydro Quebec, Gaz Metro, Boralex,	Hydro and wind	700 hydro and 300 wind (generation), 1,000 transmission	8,300	January, 2022	Seigneurie de Beaupré, QC (wind), Canadian border to Ludlow, VT (transmission)		Hydro sources from throughout Hydro Quebec's system
Northeast Renewable Link (NERL)	GridAmerica (National Grid) Brookfield Power U.S. Holding America (Brookfield Renewable US), Avangrid	Wind and solar (new), hydro (existing)	600 (transmission)	Redacted	December, 2021	HVAC: Nassau, NY to Hinsdale, MA (transmission line), parallel to existing line	Northeast Renewable Power Partners Bid A (NRPP)	GridAmerica will develop transmission line with fixed price offer
Northern Pass Transmission Hydro (NPT)	Eversource and Hydro Quebec	Hydro	1,090	9,400	2020	HVDC: Quebec border to Franklin NH HVAC: Franklin, NH to Deerfield, NH		
Northern Pass Transmission Hydro Wind (NPT)	Eversource, Hydro Quebec, Boralex, and Gaz Metro	Wind and hydro	1090 Hydro 790 MW 300 MW Wind firmed by Hydro	9,400	2020 Transmission Wind December 2021	HVDC: Quebec border to Franklin NH HVAC: Franklin, NH to Deerfield, NH		
Revolution Wind	Deepwater Wind (D.E. Shaw Group)	Offshore wind (backed with battery storage)	144 (base offer), w/redacted increments	Redacted (wind), 0.04 (storage)	Unlisted/ redacted	Ri-MA WEA to New Bedford, MA		

Power Advisory has distilled a number of competitive insights based on our review of proposals and would welcome the opportunity to review these with clients.