
**Scaling up offshore wind power in New England:
East Coast Update and CAPEX Opportunity to
Build America's New Offshore Wind Power Market**

**New England Electricity Restructuring Roundtable
September 27, 2019
Boston, MA**

Stephanie McClellan, Ph.D.

Director

Special Initiative on Offshore Wind

University of Delaware

January 2019

U.S. OFFSHORE WIND	
Economies of Scale-o-Meter	
– 15 GWs & Counting –	
STATE	OSW Approved or Committed
Connecticut	0.300 GW
Maryland	0.368 GW
Massachusetts	1.600 GW
New Jersey	3.500 GW
New York	9.000 GW
Rhode Island	0.430 GW
Total (January 2019)	15.20 GW
<i>Special Initiative on Offshore Wind (SIOW)</i> College of Earth, Ocean & Environment at University of Delaware	

September 2019

U.S. OFFSHORE WIND	
Economies of Scale-o-Meter	
– 22 GWs & Counting –	
STATE	OSW Approved or Committed
Connecticut	2.300 GW
Maine	0.012 GW
Maryland	1.568 GW
Massachusetts	3.200 GW
New Jersey	3.500 GW
New York	9.000 GW
Rhode Island	0.430 GW
Virginia	2.512 GW
Total (Sept 2019)	22.52 GW
<i>Special Initiative on Offshore Wind (SIOW)</i> College of Earth, Ocean & Environment at University of Delaware	

Offshore Wind Power Contracts Forecast by Category (2016-2035)

Category	State	Megawatts
Contracted Total = 1,652 MW	Connecticut	300
	Maine	12
	Maryland	368
	Massachusetts	800
	New York	130
	Rhode Island	30
	Virginia	12
In negotiation Total = 3,196 MW	New Jersey	1,100
	New York	1,696
	Rhode Island	400
Bids under evaluation Total = 800 MW	Massachusetts	800
Solicitation in progress Total = 4,600 MW	Connecticut	2,000
	Virginia*	2,600
Solicitations required by state policy Total = 12,374 MW	Maryland	1,200
	Massachusetts	1,600
	New Jersey	2,400
	New York	7,174
Expected future state policy requirement Total = 600 MW	Rhode Island	600

*Dominion Energy, a regulated utility, announced it will seek approval for a 2,600MW offshore wind farm from the Commonwealth of Virginia's State Corporation Commission.



Supply Chain Contracting Forecast for U.S. Offshore Wind Power

Stephanie A. McClellan, Ph.D.
Special Initiative on Offshore Wind

White Paper

March 2019

UNIVERSITY OF
DELAWARE

College of Earth, Ocean,
& Environment

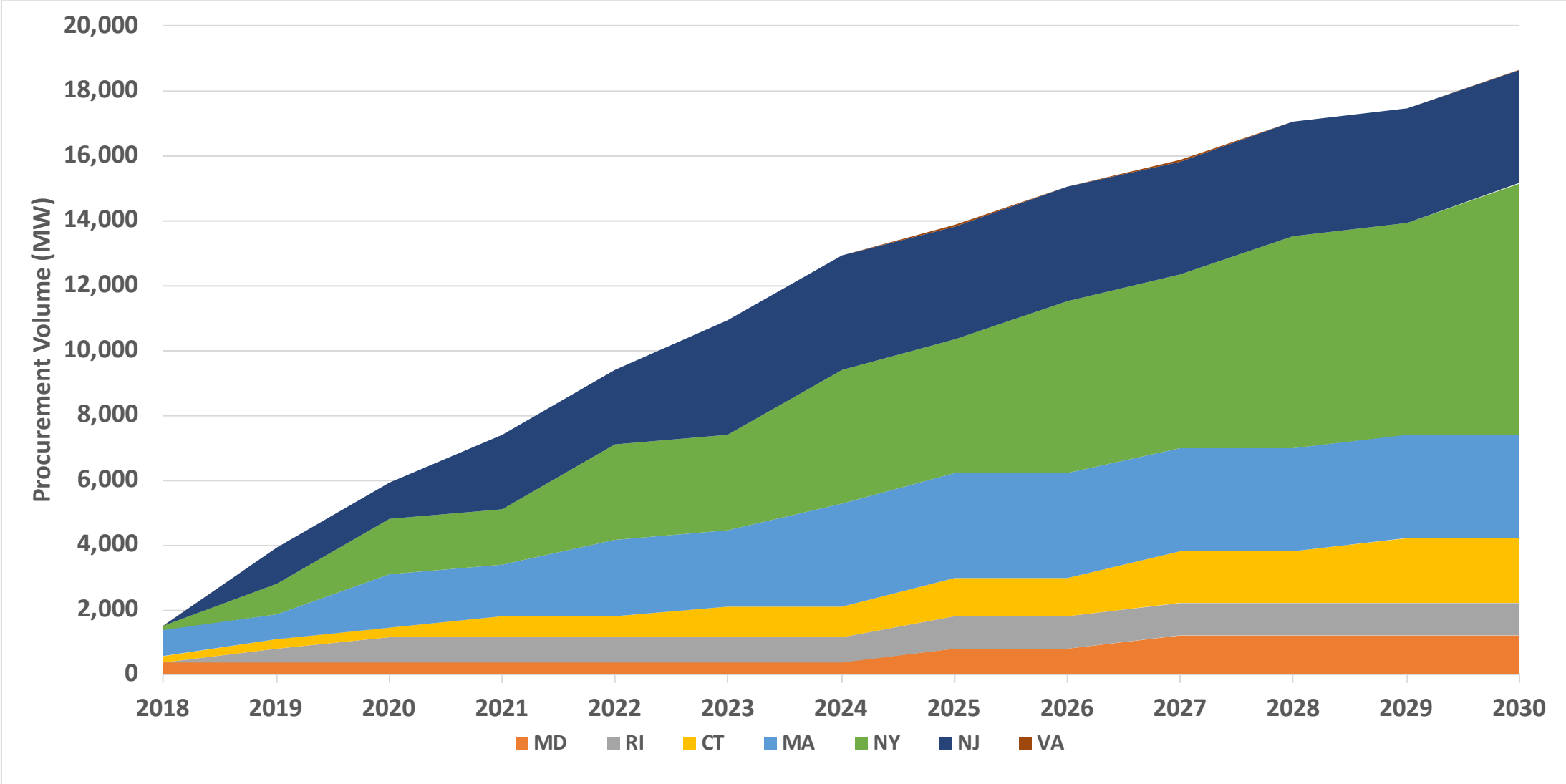
SPECIAL INITIATIVE ON OFFSHORE WIND



Renewables
Consulting
Group



Offshore Wind Power Contracts Forecast 2018 - 2030*



Source: Analysis by The Renewables Consulting Group (RCG), 2018

* Data for Virginia included in this chart is not visible due to the small size of the contract (12 MW) compared with the overall scale of procurements.

Estimated Quantities of Components Required by 2030*

Component	Quantity
Onshore substation (count)	17
Upland cable (km)	457-512
Offshore substation (count)	46
Export cable (km)	3,496-3,771 **
Array cable (km)	3,883-4,535
Foundation (count)	1,759***
WTG (count)	1,713

*Due to uncertainty in the timing of the procurement and build out across both project and state targets, the component quantity numbers presented here are subject to a reasonable level of uncertainty, but a full sensitivity analysis is beyond the scope of this assessment.

** Ranges are provided for cable lengths given the uncertainty around site characteristics (depth, landfall location, cable route etc.) but in such cases the median value has been plotted in the figures below.

***The number of foundations includes those for WTG's and for offshore substations. For simplicity, only one foundation is counted per substation, although some designs may have four per substation.

Estimated Cumulative CAPEX by Component Type

Component	Cumulative CAPEX by 2030
Onshore substation EPCI	\$2.1 bn
Upland cable EPCI	\$0.7 bn
Offshore substation EPCI	\$4.7 bn
Export cable	\$5.5 bn
Array cable EPCI	\$4.1 bn
Foundation EPCI	\$16.2 bn
WTG EPCI	\$29.6 bn
Other (marine support, insurance, PM)	\$5.3 bn
Total	\$68.2 bn

Offshore Wind Supply Chain Contracts: Cumulative and Annual CAPEX Forecast

