



NEPOOL REC Market Report September 2018

Evolution Markets is excited to announce the launch of a monthly report covering NEPOOL REC markets. The report will include the latest market prices, fundamental industry developments and regulatory developments. We will also be sending out a separate report dedicated to ongoing solar development in NEPOOL. To be included on that report as well please reach out to us at recsinfo@evomarkets.com. The first issue is below.

The report is part of our ongoing support of the US REC trading markets. We encourage you to provide feedback by reaching out to our [REC brokerage team](#).

You are receiving this report because of your interest in REC markets. Should you wish to discontinue receiving the report, reply to this email with UNSUBSCRIBE in the subject line.

Report 1.0 September 2018

You can find us at these upcoming events:

- **Environmental Markets Association (EMA) Annual Meeting New Orleans, LA Oct. 3-5**
[More information here.](#)
- **Renewable Energy Markets (REM) Conference Houston, TX Oct. 9-11** [More information here.](#)

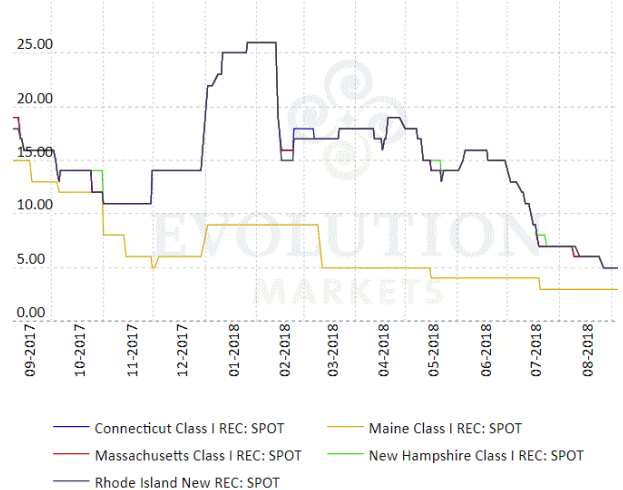
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Current Price Conditions

The NEPOOL Class 1 market reacted to the passage of the MA Omnibus Energy Bill with mixed trading, but mostly continued downside price movement. Some responded to the increased RPS targets and promise of further increases with buying, and some viewed the passage of the weaker House version (over the stronger Senate version) as reason to sell. While 2018 Vintages appear to most to be materially oversupplied, market conditions in 2019 and beyond present more uncertainty as the market continues to grapple with divergent load projections, questions about material new build in the near term, potential for increased imports from adjacent control regions and uncertainty regarding the impact of the MA CES. Developments in the NY RPS for existing renewables that are coming off long term REC contracts, and transmission line permitting

NEPOOL				
Product	Term	Bid	Ask	Mid
MA Class I REC	2018	\$4.25	\$5.00	\$4.63
MA Class I REC	2019	\$8.00	\$9.00	\$8.50
MA Class I REC	2020	\$13.50	\$16.00	\$16.50
MA Class I REC	2021	\$20.00	\$23.00	\$22.50
CT Class I REC	2018	\$4.25	\$5.00	\$4.63
CT Class I REC	2019	\$8.00	\$9.00	\$8.50
CT Class I REC	2020	\$14.00	\$18.00	\$16.00
CT Class I REC	2021	\$18.75	\$23.75	\$21.25
ME Class I REC	2018	\$2.00	\$4.00	\$3.00
NH Class I REC	2018	\$4.25	\$5.00	\$4.63
RI New REC	2018	\$4.25	\$5.00	\$4.63
MA Class II REC	2018	\$24.50	\$27.50	\$26.00
MA Class II WTE REC	2018	\$4.50	\$5.50	\$5.00
CT Class II REC	2018	\$1.50	\$3.25	\$2.38
CT Class III REC	2018	\$23.00	\$25.00	\$24.00
ME Class II REC	2018	\$0.75	\$1.30	\$1.03
MA APS REC	2018	\$14.25	\$17.00	\$15.63
RI Existing REC	2018	\$1.00	\$2.00	\$1.50
NH Class II REC	2018	\$5.00	\$20.00	\$12.50
NH Class II REC	2019	\$10.00	\$30.00	\$20.00
NH Class III REC	2018	\$7.00	\$17.00	\$12.00
NH Class IV REC	2018	\$20.00	\$25.00	\$22.50

issues impacting the ability to import large hydro from Canada in future years to meet increased MA CES requirements can have a significant impact on supply side fundamentals. Another thing to keep an eye on is the ability for fuel and variable cost-based renewables such as LFG and biomass to survive in a lower energy and REC price environment or will there be a decrease in the annual production of these facilities that have real fuel costs and higher variable operating costs. Lastly, with limited banking in NEPOOL Class 1 REC markets (LSE's ability to bank 30% of current year requirements into the two subsequent compliance years), how efficiently will the surplus RECs in NEPOOL be utilized in the future years when requirements ramp up at an accelerated rate.



Market Developments

Renewable Fuel Generation Q1 2018 vs. Q1 2017

From Vintage	To Vintage	Fuel Type	Certificates Total	Imported Certificates	ISO-NE Settlement	Behind the Meter
Jan-18	Mar-18	Biogas	1,754	0	5	1,749
Jan-18	Mar-18	Biomass	672,918	47,193	416,871	208,854
Jan-18	Mar-18	Digester gas	20,462	0	5,049	15,413
Jan-18	Mar-18	Fuel cell	78,078	0	42,896	35,182
Jan-18	Mar-18	Landfill gas	298,509	153,548	117,049	27,912
Jan-18	Mar-18	Photovoltaic	506,293	0	19,340	486,953
Jan-18	Mar-18	Wind	1,660,977	586,069	1,044,472	30,436
Jan-18	Mar-18	Wood	597,315	124,901	418,430	53,984
TOTAL			3,836,306	911,711	2,064,112	860,483
From Vintage	To Vintage	Fuel Type	Certificates Total	Imported Certificates	ISO-NE Settlement	Behind the Meter
Jan-17	Mar-17	Biomass	601,258	0	408,641	192,617
Jan-17	Mar-17	Digester gas	20,457	16	3,963	16,478
Jan-17	Mar-17	Fuel cell	73,111	0	41,661	31,450
Jan-17	Mar-17	Landfill gas	313,484	162,670	120,582	30,232
Jan-17	Mar-17	Photovoltaic	398,142	0	12,479	385,663
Jan-17	Mar-17	Wind	1,588,019	571,290	981,303	35,426
Jan-17	Mar-17	Wood	593,952	124,291	425,025	44,636
TOTAL			3,588,423	858,267	1,993,654	736,502

The NEPOOL GIS REC tracking system releases production data in discrete quarterly periods 3.5 months after the quarter of production closes. As such, the most recent production data available is Q1 2018 which was released on 7/15/18. Looking at Q1 2018 REC production to the same period last year, we can compare generation of what is generally recognized as Class 1 REC resources by renewable fuel type (see below).

A review of Q1 year on year, indicates an approximate increase in Class 1 renewable fuel eligible production of roughly 7%. Biogas, Wind and Biomass/Wood generation are up from 4.5 – 7% and LFG is down almost 5%. We assume that class 1 eligible hydro is largely unchanged as using hydro data from GIS would include generation that is not class 1 eligible. The largest increase by sector is solar PV which should not be surprising given the rapid build out of the SREC2 program in MA and

continued solar deployment in other New England states. The decrease in LFG generation is explained by a decrease in imported LFG generation from regions adjacent to New England and also the conversion of some LFG facilities to gas pipeline injection in order to sell RINS and LCFS credits into the currently more lucrative renewable fuels markets.

2017 Retail Sales New England (MWh) vs. 2018 Retail Sales New England (MWh)

2017		2018	
CT	16,718,532	CT	16,889,976
MA	31,515,638	MA	32,266,264
RI	4,546,907	RI	4,567,919
NH	6,129,458	NH	6,312,369
ME	5,700,339	ME	5,090,926

*data as of 7/31 of each year

Data from NE-ISO 2017 & 2018 SMD Reports

Retail electric load as reported by ISO New England for the period Jan-July 2018 reflects an increase in 2018 year to date sales of roughly 1% for CT and 2.3% for MA and 3% for NH over sales for the same period in 2017. RI sales came in flat to last year and ME significantly lower. While ISO reported electric sales do not necessarily match actual load subject to the RPS in the individual states due to certain exemptions, etc., this data seems to indicate that for several New England states, 2018 could reverse or temper the trend of steadily declining load over the past several years.

Regulatory Developments

- Rhode Island has approved National Grid's modernization plan, which will allow the utility to increase residential electricity rates by 3.5%. The additional funds will go towards investments in modernizing the grid, the development of electric vehicle and energy storage programs, and a new performance incentive mechanism that will help increase system efficiency and measurement metrics.
- Former Rhode Island Secretary of State and current candidate for Governor Matt Brown has laid out his plan of transitioning Rhode Island to 100% renewable energy by 2035. His plan includes over doubling the amount of solar and wind energy in the state and selling excess energy to neighboring states.
- New Hampshire wood and solar energy producers are fighting to reverse Governor Sununu's decision in June to veto two bills, SB 365 and SB 446. [SB 365](#) would require utilities to pay above-market rates to biomass plants. [SB 446](#) would expand New Hampshire's net metering program, which would cause utilities to buy electricity from solar generators at above wholesale rates. It would also raise qualifying net meter solar projects from 1 MW to 5 MW. Sununu believes the two bills would cost ratepayers approximately \$100 million over the next three years.
- Washington D.C. Circuit Court of Appeals upheld ISO-NE's market rule that allows renewable resources to bid below the market capacity price floor. This rule was being challenged by gas generators who aren't receiving the same advantage as renewable generators.
- Massachusetts has reached a compromise on Senate's original Clean Energy Bill, which would have raised the state RPS by 3% annually until 2030 as well as remove the net metering cap. House Bill 4756 was signed into law on July 12, 2018 and will raise the state's MA Class 1 RPS requirements by an additional 2% annually (up from the previous 1% annual increases) beginning in 2020, in an effort to reach an RPS goal of 40% by 2030. The new bill also establishes an energy storage target of 1,000 MWh by 2026. Below is a chart compares MA Class 1 REC requirements under the previous RPS and the new annual RPS percentages under this recently passed Bill. Also shown are the requirements under the separate MA

Clean Energy Standard (CES) which was passed in August 2017. Until resources that can meet the CES requirements are developed, it will also have the effect of increasing MA Class 1 requirements. It should be noted that incremental requirements under the CES are subject to a lower Alternative Compliance Payment (ACP) than MA Class 1 as indicated below. More information about the bill can be found [here](#).

Massachusetts RPS

	Old MA1 Reqt	New H4756 Reqt	CES Reqt	CES ACP
2017	12.00%			
2018	13.00%	13.00%	16.00%	75% of MA1
2019	14.00%	14.00%	18.00%	75% of MA1
2020	15.00%	16.00%	20.00%	50% of MA1
2021	16.00%	18.00%	22.00%	50% of MA1
2022	17.00%	20.00%	24.00%	50% of MA1
2023	18.00%	22.00%	26.00%	50% of MA1
2024	19.00%	24.00%	28.00%	50% of MA1
2025	20.00%	26.00%	30.00%	50% of MA1

Data from DSIRE Clean Energy Technology Center

- The Massachusetts Department of Energy Resources has endorsed a set of PPA's state utilities are attempting to enter into with the Vineyard Wind Project. The agreement includes the development of an 800 megawatt offshore wind farm. Final prices for the award remain unclear as reports seem to confuse starting prices and escalation rates with levelized measures. [Read more here](#)

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About Evolution Markets Inc. Evolution Markets Inc. provides strategic financial and industry-leading transactional services to participants in global environmental markets and the clean energy sector. Formed in 2000, the company has become the green markets leader, leveraging its unrivaled experience and knowledge on behalf of participants in the global carbon, U.S. emissions, renewable energy, weather derivative, and over the counter (OTC) coal, power, natural gas, oil, nuclear fuel, biomass, and biofuels markets. Evolution Markets is actively involved in the emerging compliance REC markets in NEPOOL, PJM, NY, CA, Texas, and the Midwest. In addition Evolution Markets also serves the nationwide voluntary REC market. Evolution Markets' Renewable Energy Markets team was voted "Best Broker" for U.S. Renewable Energy Certificate Markets by Environmental Finance magazine from 2003 to 2017.

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