

PJM REC Market Report October 2018

Report 1.0 October 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.

Current Price Conditions

After finding support during Q4 '17 and Q1 '18 in the \$4 - \$5 range, the PJM REC market (vintages 2018-2021) spent the Spring of '18 trading in a fairly orderly \$5 - \$7 range. Reflecting material near term surplus, trading dynamics were largely limited to generation following Sellers and discriminating Buyers. With supply concerns largely pushed out until 2020-2022 in most analyses, Buyers who had deferred procurement were rewarded, and Sellers who didn't hedge found liquidity scarce, and prices soft.

However, late in Q2 '18 New Jersey's lawmakers increased the Class 1 RPS target to 50% by 2030. The market reacted quickly to the demand increase with incremental gains that took the market into a \$7 - \$10 range. The most likely impact from the NJ RPS increase will come in Vintages 2020 and beyond, where supply and demand are more challenged than in the deeply surplus front Vintages. As a result, market prices escalated further in the back Vintages ('20-'21) than they did in the front Vintages ('18-'19).

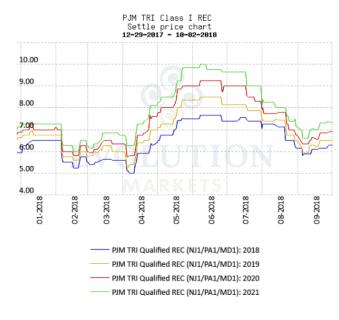
That said, as delivery deadlines approached for NJ and PA RY18, the nearterm surplus conditions seemed to predominate as the price gains from the NJ RPS increase were all but entirely

PJM				
Product	Term	Bid	Ask	Mid
PJM TRI Class I REC	2017	\$5.50	\$6.00	\$5.75
PJM TRI Class I REC	2018	\$6.10	\$6.45	\$6.28
PJM TRI Class I REC	2019	\$6.20	\$6.80	\$6.50
PJM TRI Class I REC	2020	\$6.55	\$7.25	\$6.90
PJM TRI Class I REC	2021	\$7.10	\$7.30	\$7.20
PJM TRI Class I REC	2022	\$7.25	\$8.00	\$7.63
PJM TRI Class I REC	2023	\$7.40	\$8.30	\$7.85
NJ Class I REC	2017	\$5.25	\$6.00	\$5.63
NJ Class I REC	2018	\$5.75	\$6.50	\$6.13
NJ Class I REC	2019	\$6.00	\$6.75	\$6.38
NJ Class I REC	2020	\$6.50	\$7.00	\$6.75
NJ Class I REC	2021	\$7.00	\$7.20	\$7.10
NJ Class I REC	2022	\$7.00	\$8.00	\$7.50
PA Tier I REC	2017	\$5.00	\$6.00	\$5.50
PA Tier I REC	2018	\$5.40	\$6.40	\$5.90
PA Tier I REC	2019	\$5.75	\$6.50	\$6.13
PA Tier I REC	2020	\$6.10	\$7.00	\$6.55
PA Tier I REC	2021	\$6.60	\$7.10	\$6.85
MD Tier I REC	2017	\$5.25	\$5.75	\$5.50
MD Tier I REC	2018	\$5.85	\$6.35	\$6.10
MD Tier I REC	2019	\$5.75	\$6.25	\$6.00
MD Tier I REC	2020	\$6.20	\$7.20	\$6.70
MD Tier I REC	2021	\$6.60	\$7.10	\$6.85
OH Non Solar REC	2017	\$4.00	\$4.75	\$4.38
OH Non Solar REC	2018	\$4.25	\$5.00	\$4.63
OH Non Solar REC	2019	\$4.50	\$5.00	\$4.75
OH Non Solar REC	2020	\$4.75	\$5.75	\$5.25
NJ Class II REC	2018	\$3.50	\$4.00	\$3.75
NJ Class II REC	2019	\$3.50	\$4.50	\$4.00
NJ Class II REC	2020	\$4.00	\$5.00	\$4.50
NJ Class II REC	2021	\$4.50	\$7.00	\$5.75
PA Tier II REC	2017	\$0.03	\$0.07	\$0.05
PA Tier II REC	2018	\$0.07	\$0.12	\$0.10
PA Tier II REC	2019	\$0.08	\$0.17	\$0.13
MD Tier II REC	2017	\$0.25	\$0.45	\$0.35
MD Tier II REC	2018	\$0.30	\$0.60	\$0.45

reversed. Somewhat notably, the expanding price spread between vintages '18-'19 and '20-'21 that occurred during the NJ policy pop reversed as well. As the price conditions for '18-'19 compressed, so did the spread between '18-'19 and '20-'21.

The start of RY '19 has brought increased liquidity. Trading was mainly focused on outer year ('20-'21) Vintages, and the market has moved incrementally higher on significant volume. As we approach Fall load auctions, and as market participants start to consider the impacts of the BGS load auction (EY '20-EY 22') in February, it will be interesting to see how the market treats the range of variables affecting future price outcomes in the PJM REC market.

Year over year PJM wind generation data indicates a nominal amount of new generation. Wholesale energy prices exist largely below the Levelized Cost of Energy for new Wind. And, there is ongoing dysfunction between the three to five year tenor in the regulated energy market versus the ten to twelve year financeable revenue requirements of Tax Equity investors. New renewable asset outcomes in PJM continue to largely center around retail Corporate PPAs.



Ongoing uncertainty over the fate of the RECs in these retail Corporate PPAs looms large in supply and demand forecasts. Additionally, future variables affecting the future prices of PJM include:

- Will energy prices and a limited amount of financial hedges support enough new build in PJM?
- Will off-shore efforts by New Jersey materialize quickly enough to impact the next few years of PJM RECs market?
- Will Maryland's legislature succeed in raising its RPS to 50%?
- Will Virginia's aggressive renewable deployment goals impact the PJM compliance market?
- How will Illinois' RPS procurement impact, if at all, the pipeline of available projects for PJM?
- How will the potential end of the Tax Credit program change Project economics in PJM?

In sum, PJM REC market conditions seem to be heading into a period of heightened potential change. While far from determinative for the future, the next three to four months may provide meaningful clues as to how market participants view and manage the shifting landscape.

PJM and Transource have proposed a high-voltage transmission line running through Pennsylvania into Maryland. The goal of the power line is to improve efficient flow in order to lower costs for those in Maryland, Northern Virginia and Washington D.C, who've been forced



to pay substantially higher rates due to the lack of flow to their regions. The proposal is receiving push back from residents of Franklin County and other parts of Pennsylvania where the line would travel through. The residents in this area will not be receiving any power from these lines, leading to the belief that the project is not worth the inconvenience.

- DC Councilmember Mary Cheh has introduced the Clean Energy DC Omnibus Act, an aggressive bill that would propel Washington D.C's clean energy future. The bill increases the RPS to 100% by 2032, establishes a solar energy standard post 2032, and establishes standards electricity suppliers must meet regarding purchasing a percentage of their energy from long-term purchase agreements with renewable generators.
- The Clean Energy Act of 2018 (Maryland House Bill 1453), in spite of seemingly sufficient legislative support, did not make it out of the House Economic Matters Committee. The Act would have raised Maryland's RPS to 50% renewable energy by 2030 and a 14.5% solar carve-out by 2028.
- PJM has received approval to delay the next <u>capacity auction</u> from May 2019 to August 2019. The ruling comes after PJM was unable to redesign their market rules, which the FERC recently invalidated after ruling that current state subsidies artificially lowering energy market prices.
- Patrick McDonnell, Secretary of the Pennsylvania Department of Energy Protection, believes
 that solar energy should play a vital role in the future energy landscape of the state. With
 the possibility of replacing the Alternative Energy Portfolio Standards' current 0.5%, policy
 makers will have to choose between whether to include 90% utility-scale solar or 35%
 distributed solar. There is an overall goal to create a solar carve-out of 10% by 2030.
- Governor Northam of Virginia has released the state's <u>2018 Energy Plan</u>. The plan includes adding 3,000MW of onshore wind and 2,000MW of offshore wind in the state by 2022. The plan also includes an annual investment of \$115 million from Virginia utilities in energy efficiency programs.

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