

US Electric Utilities & IPPs

Re-Thinking the Capacity Downside Case in PJM

Equities

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New gas generation additions could limit price appreciation, yet again

We're incrementally more negative on the outlook for PJM's capacity auction, emphasizing the growing case for more new gas-fired generation supply to once again spoil prices. With ~11GW having already received MOPR exemptions from PJM (vs. ~13GW last year), we see real risk for downside surprise heading into the RPM auction. Following the latest run up in power prices, we see only greater viability to many projects previously doubted. In fact, we see new supply heading westwards, with gas additions likely in Eastern Ohio (FE/AEP service territory). Assuming ~13GW of capacity seeking MOPR exemptions translating to 5.5GW of new capacity/uprates (on ~7GW that ultimately sought to bid), the potential for another ~4-5GW of new entry this year (yet again). Further, it's important to recognize that capacity receiving a MOPR exemption last year doesn't need to seek a waiver again, making the 11GW this year incremental to the ~8GW of capacity that didn't clear last year. This would suggest that marginal pricing of new entrants could yet prove to be a major driver of clearing prices.

Under assumption of more supply, our model suggests flat or negative prices

Flexing our model with ~5GW of new supply, as well as limited net impact from transmission rules (only slight drop from CMS falling out with its partial commitment of Dearborn, ~200 MW), along with an assumption for DR to have only half as much of a price impact as expected by DR, could result in prices in RTO as low as \$50/MW-day. Meanwhile, assuming ~3GW of this capacity is in the MAAC zone and similar shock to DR sensitivities (-\$6/MW-day), we find a similar outcome, down substantially from last year. Additionally, new supply is the key input behind whether the PEPCO region will clear as a separate zone, with both St Charles and Panda's Mattawoman site seeking to bid.

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What's our Point Here?

We thought we would write up a follow up note to our update from last Tuesday to highlight what appears to be a growing difference between Street expectations, and our latest downside view on where the capacity prices could be headed. We see real risk around the impact of new generation entering the market to depress pricing, particularly with substantial uncleared capacity from last year still likely evaluating bids. Under a best case, we see results as in-line with Street expectations of a range of \$80-100/MW-day as recently articulated by AEP management for RTO, but rather see downside across the board, with disproportionate downside to the MAAC region, which cleared at \$119/MW-day last year.

We don't necessarily see upside to capacity prices in subsequent auctions either, despite contemplated reforms. Rather, we believe the upside to PJM remains firmly on the energy market side (the better these get, the more capacity will seek to enter).

Where is the upside in capacity? We continue to emphasize that operating in constrained regions remains the key to this- and future auctions. With PJM separately modeling out LDAs, companies can seek bid in their 'true' marginal costs of capacity, rather than simply being price takers. We're not changing our formal RPM estimate (of \$80/MW-day) ahead of further datapoints on how new entrants intend to bid, as well as uncertainty around the impact of collateral requirements and limited ability to buyback commitments in future auctions under proposed reforms. It remains unclear if FERC will approve these reforms in time, particularly as it relates to collateral requirements for the auction, providing participants just days notice to raise 2.5x more collateral to participate.

Total new supply: climbing ever higher

We include two tables below, contrasting the total MOPR-exempted capacity in both the 2017/18 and 2016/17 auctions. While many had thought last year would prove an ephemeral datapoint with much of the capacity not coming to fruition, we see the latest MOPR applications as only confirming that more is coming. Rather, the key question is how much more is coming?

Figure 1: Comparison of 2017/18 and 2016/17 MOPR Exemptions

Minimum Offer Price Rule (MOPR) Exemption Requests for 2017/2018 BRA		
Exemption Type (ICAP MW)	Requested Quantity	Granted Quantity
Competitive Entry	13,090	10,454
Self-Supply	940	940
Total	14,030	11,394
Minimum Offer Price Rule (MOPR) Exemption Requests for 2016/17 BRA		
Exemption Type (ICAP MW)	Requested Quantity	Granted Quantity
Competitive Entry	11,821	11,821
Self-Supply	1,433	1,433
Total	13,253	13,253

Source: PJM

What else could disappoint? Demand Response could prove resilient to rules

While many continue to hail a substantial re-entrenchment of Demand Response (DR) as a function of the latest rules, we caution many that the sensitivities released by PJM were based simply on the coupled offers provided last year. Rather, given the success seen this winter of voluntary DR products, we see real impetus for much of the volume to remain in the market (mostly as Extended Summer products). Moreover, with the '16/'17 auction actually seeing a decline in coupled bids versus prior years, this only lends support to our belief to expect a meaningful response in bidding strategies this year from DR to keep much of the volume in the market. Rather, the question is how much more 'expensive' this product will be, particularly when reflecting the Replacement Capacity Adjustment Charge (RCAC) [incremental auction rule changes] as well as potential for significantly higher collateral requirements. Who will not be able to deliver a broader product, beyond the 'limited DR' bucket? DR providers filling state mandated programs, which have a specific definition, and some other providers are simply uncomfortable committing beyond June-Sept, especially schools. We also note the potential for higher levels of "coupled bids" for limited and extended/annual DR, which could have the effect of suppressing annual product pricing with higher volumes of DR supply.

DR is likely more nimble than many think

Import rule could drive limited changes from status quo

Meanwhile, we read the recently approved rules by FERC restricting imports to more narrow criteria as having the effect to effectively cap imports at their current limits, in contrast to initial expectations that imports would actually decline materially YoY. The only known decline in imports YoY are from comments by CMS suggesting it may not continue to bid part of its Dearborn plant into PJM as a slight reduction (~200 MW). Ultimately, the story on imports is not over, with revisions of who and how exemptions are crafted likely to be debated once more. Our bottom line is that resources do not necessarily need to pay more under the new rules to qualify their capacity; simply put, they need to commit their capacity for a longer-period than just one-year. With PJM prices likely to consistently outpace MISO (almost by definition), we see little reason to expect MISO generators to shift their policy away from committing more resources. Rather, the big question for next year will be to what extent DYN is successful in pursuing yet further exports into PJM from its IL MISO fleet (Joppa and Hennepin). Our \$80/MW-day RTO price assumption embeds a 500 MW reduction in imports -removing this reduction would reduce our price by about \$4/MW-day.

Import rule doesn't really change anything versus today

Even then, the question of who qualifies for an exemption remains a moving target

What was the impact of import's from last year's auction? Big.

According to the PJM IMM report on the 2016/17 capacity auction, the impact of capacity imports from resources external to PJM (i.e., MISO) varies by region, although RTO is the most sensitive to changes in imports because all imports enter RTO. Of the 7,493.7 MW offered for external generation resources in the 2016/17 RPM Base Residual Auction, 2,694.7 MW or 36% did not have firm transmission at the time of the auction. For RTO, a 25% reduction in total imports would result in an \$18.45/MW-day increase in the clearing price for extended summer and annual resources. This is closely consistent with our (UBSe) sensitivity of RTO outcomes of ~\$4/MW-day for a 500 MW reduction (our assumption for this year's auction is a reduction of imports by 500 MW). The IMM goes further to calculate the impact if all imports without firm transmission were excluded – the clearing price would increase \$35 to \$95/MW-day.

Analyzing imports from last year's auction, the impact was ~\$30/MW-day

Defining the PJM Downside Case: Could be Quite Low.

We include below the downside tables for both RTO and MAAC. Under this low case, we believe it is ever-clearer that MAAC and RTO prices will converge.

Figure 2: RTO assumptions – downside case

RTO Supply Assumptions (MW)	
Retirements	-1,425
CPV Buying Back	+0
Quad Cities	-1,800
Generation	+5,000
DR MW (Annual)	-89
DR Strategy Offset+Price Uplift	-500
DR MW (Extended Summer)	+5,361
DR MW (Limited)	-6,387
Imports	-200
Energy efficiency	+195
Total	+155
Outcome 2017/18 UBSe	\$51.31
Outcome 2016/17	\$59.37

Source: PJM

Figure 3: MAAC assumptions – downside case

MAAC Supply Assumptions (MW)	
Retirements	-1,300
CPV Buying Back	+0
Generation	+3,138
DR MW (Annual)	-33
DR Strategy Offset	+300
DR MW (Extended Summer)	+2,530
DR MW (Limited)	-3,005
Intra-ISO Imports	+1,698
Energy efficiency	+88
Total	+3,416
Outcome 2017/18 UBSe	\$45.38
Outcome 2016/17	\$119.13

Source: PJM

FES dispute with PJM Market Monitor could lead to higher RPM pricing

On April 7, First Energy Solutions (FES) filed a complaint with FERC over the way the PJM market monitor (MM) has been calculating its "Market Seller Offer Cap", or the highest price it is allowed to bid its generation capacity into the RPM auction. The formula is Avoided Cost Rate (ACR; the annual costs that would be avoidable assuming the unit would otherwise retire) minus the net energy profits (energy revenues minus daily marginal cost to produce energy).

FES argues that the MM effectively limits FES' ability to submit high-priced offers into RPM for its units by calculating the last part of the formula (daily marginal cost to produce energy) as the lower of either cost-based offers submitted in the hourly energy markets or the non-zero market-based offers that are submitted in the day-ahead energy market. From FES' point of view, the problem with this is that often, a market-based day-ahead energy offer is lower than actual cost (or zero) to ensure the unit clears for the day and receives some energy revenue.

This method results in a net energy profit that is simply the full energy revenue without much marginal cost to offset it. Using this high number then results in a low Market Seller Offer Cap. Notably, PJM supports FES' complaint against the MM and both argue that only the hourly "true" cost-based offer can be used, as "clearly stated" in the PJM tariff.

For its part, the MM states that the tariff explicitly requires the use of "net marginal costs" and not true cost-based offers, although it acknowledges that a reference to costs allowed under cost-based offers is parenthesized for further explanation in the tariff. The MM's somewhat legalistic reading of the parenthesis is that the use of "i.e." instead of "e.g." means that while the use of elements of a cost based offer are mandatory in determining "marginal cost", the use of all elements is specifically NOT required. Thus, the MM is free to use its own interpretation of marginal cost as long as it uses just some elements of a cost based offer - and the result can be lower than a true hourly market cost-based offer. Furthermore, the MM goes on to say that a non-zero marginal offer in the day ahead market is a true representation of marginal costs and not a bidding strategy, as a zero-bid would plainly be.

If PJM and FES' complaint is received favorably by FERC, we believe that FES would be allowed to submit higher offers into RPM instead of being forced into a price taking position. This could have the effect of lifting pricing in ATSI, either through the market power of FE to lift the whole offer stack, or through the ability of FE to get more capacity uncleared with high bids, reducing supply.

It is unclear at this time whether the complaint will be heard in time to change the rules for the auction to be held next month, despite the request for expedited action. FE believes there is a chance of a fast FERC ruling, but in our opinion, the MM has been making this calculation this way for all 7 PJM auctions, so it's perhaps unlikely that FERC would see a need to act on it with a short few-weeks timeframe. We would also view the request itself as indicative of FES' intention to pursue a new more aggressive bidding strategy that acknowledges that being a price-taker is no longer tenable under the current circumstances in ATSI. *The broader question we ask is as plant operators largely 'use up' the bidding flexibility afforded by EPA retirements, generators are seeking greater latitude in bidding in their un-impacted units with greater latitude.*

Dispute on bidding strategies remains a possible upside for constrained regions

Exact impact remains quite tricky to determine, but observers suggest outcome could be material.

Discussions with parties suggest this could enable greater bidding latitude for non-coal units

It's not just EPA regs that drove ATSI to clear separately- it's the basic costs of operating coal too (as defined through ACR)

Recommendations & Observations from the Market Monitor's View on 16/17 Auction

The PJM IMM report on the outcome of the 2016/17 base residual auction (BRA) for capacity resources makes some particularly bold observations and recommendations. The first is that by sheer unavoidable design, structural market power issues are both endemic and virtually inevitable "in the absence of a substantial and unlikely structural change that results in much greater diversity of ownership". Nevertheless, the market monitoring unit (MMU) concludes that the results of the auction were "competitive."

Removal of 2.5% is among chief recommendations – would be upside

However, some recommendations were made to deal with issues that were identified with significant consequences. In particular, the MMU recommends the elimination of the 2.5% Short-Term Resource Procurement Target, which reduces clearing prices by artificially reducing actual demand by 2.5% heading into the auction. The justification for doing so is that 2.5% of future capacity needs can always be met on "short notice" within the 4-year auction term (with suppliers entering their bids in the follow-on incremental auctions for each term). The MMU describes this adjustment as "not supportable... [with]... no basis in economics", leading to price suppression that is a barrier to the entry of all new resources, either new generation or demand resources. Without the 2.5% demand reduction, the RTO clearing price would have increased from \$59.37 to \$85.71/MW-day. The MAAC clearing price would have increased from \$119.13 to \$130.00/MW-day. ATSI would have increased from \$114.23 to \$122.97/MW-day, while PSEG would have increased from \$219.00 to \$239.00/MW-day.

Another significant recommendation made is that both the Limited and Extended Summer demand response resource types should be eliminated so that DR is always annual and capable of being a "full substitute" for generation resources. With annual resources only, the IMM estimates that the RTO clearing price would increase from \$59.37 to \$153.74/MW-day; MAAC from \$119.13 to \$175.00; PSEG from \$219.00 to \$277.10; and ATSI from \$114.23 to \$153.74.

Several other recommendations were made as well:

- All resources should be physical at the time of the auction as well as in the delivery year. Furthermore, the requirement to be a physical resource should be applied to all resource types, including planned generation, demand resources and imports.
- The net revenue calculation used to determine cost of new entry (CONE) should more precisely reflect the actual flexibility of units to respond to market dynamics and price signals rather than the current fixed operating blocks (i.e., higher net revenues and lower CONE should be used).
- All power uprates should be fully subject to offer capping instead of being exempted as planned increases.
- All minimum offer price rule (MOPR) reviews should be based on standard models in order to ensure projects compete on the basis of actual costs rather than unit-specific modelling assumptions.

Some recent observations from the Market Monitor on how to improve the market structure

We see this as eventually being on the table – this is the major wildcard down the line to drive price recovery

We don't necessarily expect this reform to be adopted – it's not pending before FERC

Our Latest Formal PJM Forecast: Unchanged.

A Little Lower in MAAC, but a Little Higher in RTO

We include a breakdown of our price forecast by Zone in PJM. We see \$80/MW-day permeating across the region, a YoY increase for RTO, but a decline for MAAC. We also tentatively estimate PSEG is down to ~\$200/MW-day YoY, symbolically illustrating direction rather than magnitude in our view. Meanwhile, we also estimate ATSI continues to clear lower YoY, at ~\$100/MW-day, also to show the potential for further pricing pressure/added transmission interconnection.

Our latest estimates:

- RTO: \$80/MW-day
- MAAC: \$80/MW-day
- PSEG: \$200/MW-day
- ATSI: \$100/MW-day

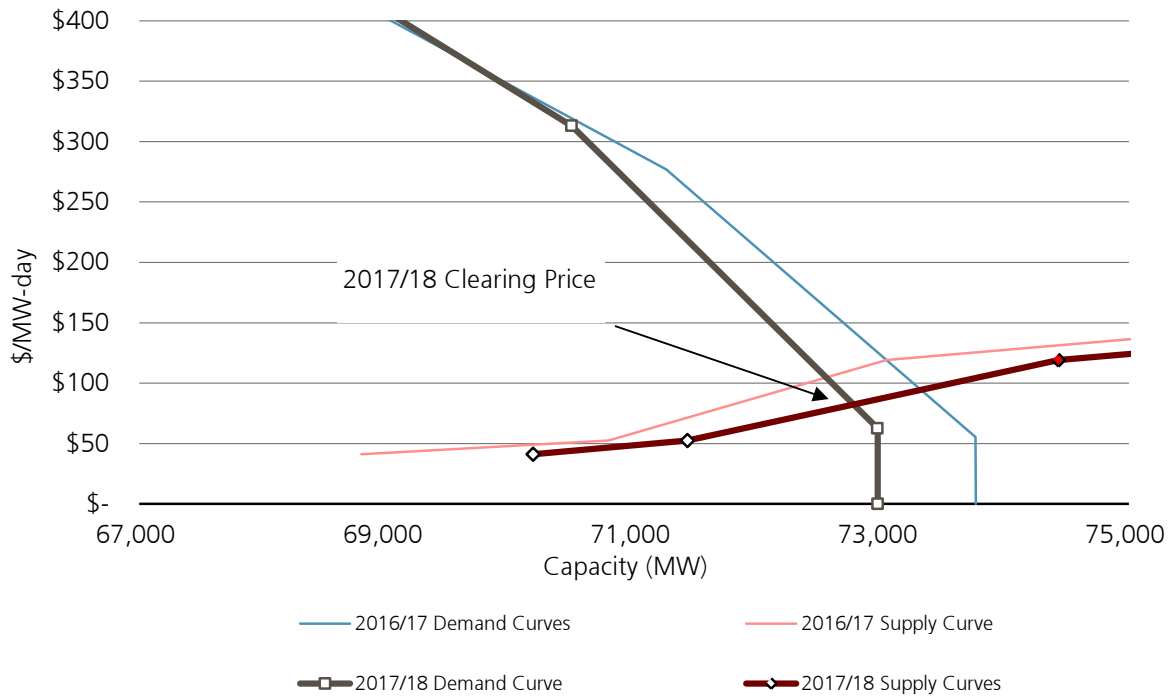
Figure 4: PJM Capacity Price Forecast, by year and zone (\$/MW-day)

	2013/14	2014/15	2015/16	2016/17	UBSe 2017/18
Resource Clearing Prices (\$/MW-day)					
RTO	\$27.73	\$125.99	\$136.00	\$59.37	\$80.00
EMAAC	\$245.00	\$136.50	\$167.46	\$119.13	\$80.00
SWMAAC	\$226.15	\$136.50	\$167.46	\$119.13	\$80.00
MAAC	\$226.15	\$136.50	\$167.46	\$119.13	\$80.00
DPL-S	\$245.00	\$136.50	\$167.46	\$119.13	\$80.00
PS-N	\$245.00	\$225.00	\$167.46	\$219.00	\$200.00
PSEG	\$245.00	\$136.50	\$167.46	\$219.00	\$200.00
PEPCO	\$247.14	\$136.50	\$167.46	\$119.13	\$80.00
ATSI			\$357.00	\$114.23	\$100.00
Reserve Margin	20.2%	19.6%	20.2%	21.1%	

Source: PJM and UBSe estimates

RPM Model Charts

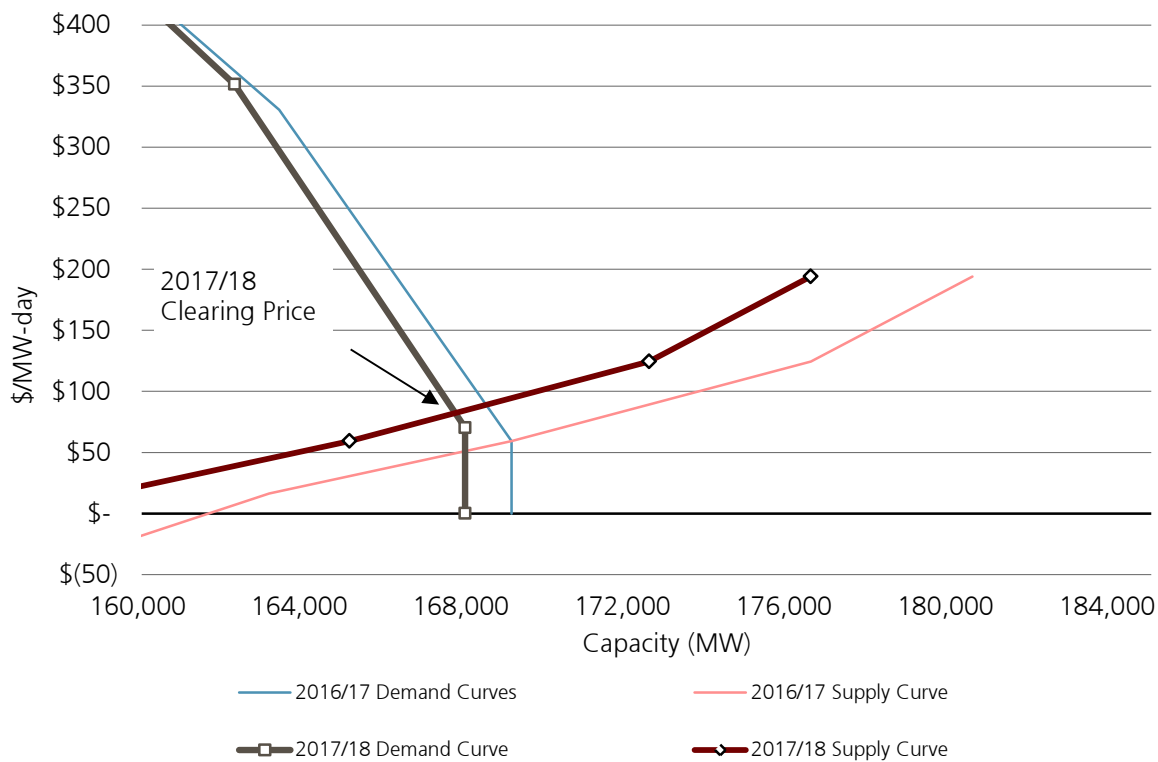
Figure 5: PJM: MAAC Projected Clearing Price (2017/18)



MAAC Supply Assumptions (MW)	
Retirements	-1,300
CPV Buying Back	-725
Generation	+2,138
DR MW (Annual)	-33
DR Strategy Offset	+0
DR MW (Extended Summer)	+2,530
DR MW (Limited)	-3,005
Intra-ISO Imports	+1,698
Energy efficiency	+88
Total	+1,391
Outcome 2017/18 UBSe	\$82.30
Outcome 2016/17	\$119.13

Source: PJM and UBS estimates

Figure 6: PJM: RTO Projected Clearing Price (2017/18)



RTO Supply Assumptions (MW)	
Retirements	-1,425
CPV Buying Back	+0
Quad Cities	-1,800
Generation	+2,838
DR MW (Annual)	-89
DR Strategy Offset+Price Uplift	-2,200
DR MW (Extended Summer)	+5,361
DR MW (Limited)	-6,387
Imports	-500
Energy efficiency	+195
Total	-4,007
Outcome 2017/18 UBSe	\$82.36
Outcome 2016/17	\$59.37

Source: PJM and UBS estimates

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Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
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Calpine Corporation ^{2, 4, 6a, 16}	CPN.N	Neutral	N/A	US\$22.36	25 Apr 2014
Duke Energy ^{2, 4, 5, 6a, 16}	DUK.N	Buy	N/A	US\$74.00	25 Apr 2014
Exelon Corp. ^{2, 4, 5, 6a, 6b, 6c, 7, 16, 22}	EXC.N	Neutral	N/A	US\$36.26	25 Apr 2014
FirstEnergy Corp. ^{4, 6a, 16, 22}	FE.N	Neutral	N/A	US\$34.65	25 Apr 2014
NRG Energy Inc. ¹⁶	NRG.N	Buy	N/A	US\$33.16	25 Apr 2014
PPL Corporation ^{2, 3, 4, 5, 6a, 6c, 7, 16}	PPL.N	Neutral	N/A	US\$33.55	25 Apr 2014
Public Service Enterprise Group ^{6b, 6c, 7, 16}	PEG.N	Neutral	N/A	US\$40.24	25 Apr 2014

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