<u>Investigation of Resource Adequacy Alternatives</u>
<u>Docket No. EO20030203</u>

Comments of

New Jersey Conservation Foundation

and

New Jersey Sustainable Business Council

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On March 27, 2020, the staff of the New Jersey Board of Public Utilities (BPU) issued a request for comments in the aforementioned matter. New Jersey Conservation Foundation (NJCF) and New Jersey Sustainable Business Council (NJSBC) respectfully offer the following comments addressing a number of the central issues raised by BPU staff.

I. Background.

FERC's decision to require PJM to apply its Minimum Offer Price Rule (MOPR) to all bids into its capacity market by state-supported resources, if upheld by the courts and if the MOPR is not replaced by a truly sustainable bidding rule, will materially affect New Jersey's clean energy plans and their cost. Specifically, the MOPR almost certainly would prevent New Jersey's currently contracted offshore wind from participating in the capacity market. The additional cost that exclusion would cause for New Jersey electricity consumers is relatively small and may, therefore, not warrant the risk and unknown costs of alternatives to the PJM capacity market. But larger amounts of future offshore wind could be similarly affected by the MOPR, should it remain in effect, as could future energy storage and potentially other clean energy resources. This could impose significant costs on New Jersey as it pursues its goals and the state's Global Warming Response Act's requirements to deeply decarbonize its use of energy, including electricity generated regionally but consumed in New Jersey.[1]

The MOPR will have the effect of requiring electricity consumers in New Jersey, and other states addressing the urgent need to decarbonize their energy use, to pay twice for the amount of capacity that the MOPR excludes from PJM's capacity market. The first payment would be made under contractual assurances of sufficient revenue for clean energy resources, in lieu of the capacity market revenues the affected resources forgo due to the MOPR. This first payment is not an additional cost, because it would be incurred in any event, either through PJM's capacity market or outside of it. The second payment, however, is an unambiguous increase in costs, resulting from having to also pay for the additional capacity selected by the PJM capacity market to replace the resources excluded by the MOPR.

The MOPR's impact is due to the way the Base Residual Auction (BRA) of PJM's capacity market selects winning bids. The BRA ranks the bids from capacity sellers in the ascending order of their bid prices, and selects or "clears" bids in the same order up to the amount of capacity that is sufficient to satisfy the resource adequacy requirement of the zone in which each load serving entity (LSE) sells power. Resources that bid at low price levels into the BRA are thus most likely clear in the market, while resources with very high bid levels are likely not to clear. The MOPR imposes a minimum bid level on any resource that is eligible for, and does not refuse, state

[1]Global Warming Response Act, C.26: 2C-38.

support. If this minimum bid level is too high for a resource to clear in the BRA, the resource will not be eligible to sell capacity in the auction, and its capacity will not count towards the amount the BRA selects and assigns to LSEs to pay for. Instead, the BRA will replace the capacity excluded by the MOPR, and require LSEs to pay for that replacement, despite any payments customers may already be making for the excluded capacity.

Many mature, lower cost clean energy technologies, however, may clear in the BRA despite the MOPR. This is because a bidder can choose either standard, default MOPR minimum bid levels, or a "unit-specific" minimum bid based on the actual cost of each bidder's resource, less the revenues it can expect to receive in revenues related to PJM's energy market. These "unit specific" MOPR bid floors are widely expected to be low enough to clear in the BRA for most new onshore wind and large scale solar in PJM.[2] Similarly, many existing nuclear plants are expected to clear in the BRA, even those subjected to the MOPR due to receiving state support.[3]

By contrast, new offshore wind, at least in its current, less mature stage of development in North America, is the primary example of a resource that will likely have a very high bidding floor under the MOPR.[4] This would exclude New Jersey's currently contracted for offshore wind from clearing in the BRA, and an equivalent amount of other capacity will be selected by the BRA as part of the capacity obligation for New Jersey's LSEs.[5] Because of the MOPR, the BRA will completely ignore any capacity actually provided to the region by offshore wind, and require LSEs serving New Jersey customers to purchase an equivalent amount of replacement capacity as part of their capacity obligation under the BRA.

The cost of this equivalent replacement amount of capacity for the already contracted for 1100 MW of offshore wind – about $18 million per year under the most recent PJM capacity auction parameters and prices – will be an unambiguous increase in cost to New Jersey LSEs and the electricity consumers they serve due to the MOPR. While this is a relatively small initial impact, over time, the MOPR could impose a substantial penalty on New Jersey for helping offshore wind, and potentially other promising clean energy resources in the Mid-Atlantic region, gain

[2] See, e.g., the analysis presented by Gabel and Associates and Enel as part of a webinar hosted by Advanced Energy Economy on April 7, 2020. Available at https://info.aee.net/mopr-gets-real-how-pjm-plans-to-apply-the-minimum-offer-price-rule .

[3] New resources face a MOPR based on their technology's cost of new entry, net of energy market revenues. Existing resource MOPR levels are based on lower avoidable costs, net of energy market revenues. Projected net avoidable costs for most nuclear plants in PJM are well below BRA clearing levels, and thus those plants, if subject to the MOPR, would still be very likely to clear in the BRA. See, Table 1 of *Cone and ACR Values – Preliminary.* The IMM for PJM, January 21, 2020.

[4] Id.

[5] For the purpose of the BRA, a resource's nameplate captacity is converted by PJM into a smaller amount of capacity that can reasonably be expected to be producing energy at peak load times, also known as "unforced capacity" (UCAP). For offshore wind, PJM's projected UCAP conversion factor is 26% of the nameplate capacity. This means 1100 MW of offshore wind provides about 286 MW of UCAP.

economies of scale and learning-by-doing in a competitive environment. Such a larger, longer-term penalty does, in our view, warrant the state aggressively exploring alternatives to the MOPR.

II. The Current Proceeding.

One such alternative is the PJM tariff's Fixed Revenue Requirement (FRR), which allows LSEs to elect to self-supply or self-procure a somewhat smaller capacity obligation than that of the BRA, at prices determined in its own procurement process or, in the case of LSEs not subject to restructuring and competitive power supply, their own cost-of-service. The Board of Public Utilities has invited comments on the pros and cons of the FRR, relative to remaining in the RPM capacity market.

In these comments we focus on issues related to the pros and cons of the FRR alternative, relative both to the BRA/MOPR status quo, and to the important third alternative of a revision to PJM's bidding floor rules that would allow bids at competitive levels from clean energy resources, regardless of whether they receive state support, to clear in the BRA. We characterize this third alternative as a sustainable bidding rule (SBR), since it would be sustainable both from an environmental and a market integrity perspective.[6] In particular, such a modification to the BRA rules could substantially contribute to the rapid commercial deployment of clean energy technologies across the region, while avoiding any need for sponsoring states to pay twice for their capacity.

We believe such a third alternative should be considered and pursued at this time, in parallel to the FRR alternative, for several reasons. First, it is likely that PJM and many stakeholders would prefer such an alternative to the negative impacts on their interests that will almost certainly result if any state or states, including New Jersey, select the FRR alternative. These potential impacts may create a strong interest on the part of PJM and many of its competitive stakeholders in developing and filing such a proposal under Section 205 of the Federal Power Act. Further, and independently, it appears plausible and even likely that the many legal flaws and plain errors in FERC's MOPR decisions will result in the decision being vacated or remanded, which would also open the door to a more reasoned approach that would treat competitive bids from clean energy resources comparably to those from existing resources, regardless of their eligibility or receipt of state-sponsored incentives. Finally, we believe such a third alternative would have clear benefits for New Jersey and its clean energy and regional decarbonization goals, relative to either the status quo BRA/MOPR or an FRR, and should therefore be pursued in parallel with the FRR alternative.

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[6] An SBR could, for example, closely resemble Independent Market Monitor (IMM) Joseph Bowring's proposed Sustainable Market Rule (SMR), which has consistently proposed for the last 3 years as an alternative to, and improvement on, the MOPR. In particular, Dr. Bowring argues that the SMR would result in offshore wind, onshore wind, onshore solar and most existing nuclear units bidding at competitive levels that clear in the BRA, whether or not they receive state subsidies. See, e.g., *IMM 2019 State of the Market Report, Vol. I* at p. 41.

III. Analysis and Core Recommendations.

a. Cost matters. We view the potential cost impacts of the FRR, relative to the two alternatives described above, as the fundamental threshold issue regarding whether the FRR option would be in the state's overall interest. If the FRR can be relied on to cost less than the BRA/MOPR alternative, then pursuing the FRR would be in the state's interest, unless it raised additional barriers to achieving the state's clean energy and GHG emission reduction goals. But if the FRR is likely to cost appreciably more than the BRA/MOPR, it is unlikely to be in the state's interest to pursue it, even if it were to offer some incremental advantages, beyond avoiding the MOPR, to achieving the state's clean energy and GHG emission reduction goals.

This means the added cost caused by the MOPR must be included in evaluating the cost of the FRR versus that of the status quo BRA/MOPR alternative. The likely impact of the MOPR in the first several BRAs, based on the analyses cited on page 2 above, would likely be to prevent the bids of the 1,100 MW of offshore wind New Jersey has already contracted for, from clearing in the BRA auction. This would, in turn, require New Jersey LSEs to purchase an extra 286 MW of unforced capacity in the BRA, which would cost $18.2 million per year, if purchased through the BRA at its current price levels, allocated pro-rata across New Jersey's load zones. Future costs, should the MOPR endure indefinitely, would increase with the volume of offshore wind deployed for New Jersey and the cost of buying those larger amounts of capacity twice. These costs need to be considered in the total BRA/MOPR costs in comparing them to those of the FRR and the BRA/SBR alternatives.

b. The FRR's costs are unpredictable and could range from somewhat lower to much higher than those of the BRA/MOPR. It is critical, in our view, for the BPU to recognize the current uncertainty of future prices under the FRR, which are impossible to predict at this time and which could be either higher or lower than current prices in the BRA, due to the existence of factors that are likely to push prices in both direction.

i. factors that could create downward price pressure. There are several reasons the FRR might cost less than the current BRA. First, the FRR's total capacity requirement for New Jersey LSEs would be lower under the FRR. In the 2021-2022 BRA, New Jersey's four load zones were assigned a total capacity obligation of 20,568 MW of unforced capacity. Following the latest guidance available on PJM's website, we estimate an FRR for all four load zones in New Jersey would have an FRR capacity obligation of 19716 MW, or 852 MW less than under the BRA.[7] If

[7] *FRR Alternative.* Jeff Bastian, April 10, 2019. Available at https://www.pjm.com/-/media/committees-groups/committees/mic/20190410/20190410-item-11-frr-overview.ashx . Our calculation also adds back New Jersey's net share of EMAAC's energy efficiency resources, and incorporates the Base Zonal FRR Scaling Factor identified in PJM's 2021-2022 BRA Planning Parameters worksheet, available at https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2021-2022/2021-2022-bra-planning-period-parameters.ashx?la=en .

prices stay the same, the reduced volume would unambiguously result in lower costs. Specifically, buying the FRR obligation at the last BRA's weighted average net load price for New Jersey of $174 per MW-day would save New Jersey LSEs $72.3 million per year, relative to buying the larger amount of capacity cleared in the BRA at the same price, and including in the FRR savings the avoided cost of $18.2 million due to not having to purchase a replacement for the offshore wind's UCAP in the BRA. See Table 1, below.

TABLE 1

FRR price equal to BRA price

1100 MW of offshore wind

	Alternative ->	BRA+MOPR	BRA+SMR	FRR
1	UCAP obligation	20,568	20,568	19,716
2	Offshore wind UCAP contracted	286	286	286
3	Contract impact of OSW clearing BRA	-	(286)	(286)
4	Total UCAP purchased	20,854	20,568	19,716
5	Net load UCAP price, $/ MW-day	174	174	174
6	Total cost BRA or FRR, $000 /year	1,324,438	1,306,274	1,252,163
	savings (cost) of FRR v this alternative	$72,274	$54,111	$0
	savings (cost) of SMR v this alternative	$18,164	$0	($54,111)

Table 1 also shows our assumed cost of the IMM's SMR proposal, under which the offshore wind would clear in the BRA, saving New Jersey electricity consumers the $18.2 million dollars the MOPR would otherwise cause them to spend on replacement capacity. We also assume here, conservatively, that the SMR would result in the same capacity quantity and price as the last BRA, even though as a package the IMM's entire SMR proposal may well result in lower capacity prices in the BRA. However, at the last BRA's price, the FRR would cost $54.1 million per year less than our conservative BRA/SMR assumptions, due to the lower volume of capacity required under the FRR.[8]

Another potential driver of lower costs under an FRR stems from the fact that the election of the FRR option in one or more states in eastern PJM would also reduce demand for capacity purchased through the BRA relative to the total supply needed to ensure regional reliability, which continues to recognize the FRR supply. This reduction in demand relative to supply would result in lower BRA capacity prices throughout the broader PJM zones that are capable of

[8] With 7500 MW of offshore wind, the FRR savings for New Jersey electricity consumers under Table 1's $174 per MW-day FRR price scenario would be $111.9 million per year, assuming the same quantities and parameters as in the last BRA.

supplying capacity to New Jersey. For example, the IMM has recently estimated that BRA prices in EMAAC, which is larger than New Jersey, but in which New Jersey's load zones are all either part of or embedded, would fall by 38 percent as a result of the reduction in BRA demand that would result from the FRR.[9] Similarly, the IMM's recent analysis of a potential Maryland FRR indicates that, under a number of scenarios, the RPM prices for EMAAC would fall by 19% (Scenario 1 and 2) to $134 per MW-day, or 17.9% (Scenarios 3 and 4). The combined impacts of New Jersey and Maryland FRRs on BRA prices would be even greater.

This risk of price collapse due to utilization of the FRR in one or several states has the potential to change resource owner's optimal FRR bidding strategies, despite the structural market power, as discussed below. This is because their market power will not protect them from lower prices if they stay in PJM's capacity market with its strong market power mitigation. Even the limited market power they can currently exercise under those mitigation rules would not allow them to offset their losses by increasing their bids. Accordingly, resource owners facing such a potential collapse in their BRA revenues may be willing or even eager to enter into voluntary long-term capacity supply agreements with FRR entities in New Jersey at price levels comparable to those they are currently being paid under the BRA, to protect them from the much lower revenues they would sustain if they stayed in the BRA. This dynamic could potentially result in FRR prices comparable to, or even lower than, current BRA prices, at least for those bidders located physically or electrically outside of New Jersey's most constrained zones.[10]

ii. Factors creating upward price pressure. Despite the reasons an FRR might result in lower costs for New Jersey, the BPU must also recognize the clear potential for prices under a New Jersey FRR to be substantially higher than those of the current BRA. The most compelling risk factor for higher prices is the pervasive structural concentration and market power in the regional capacity supply sector, which has consistently been highlighted by the IMM in its State of the Market and related reports over the years.[11] Such high levels of structural market power are

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[9] See, *Potential Impacts of the Creation of New Jersey FRRs.* Monitoring Analytics, May 13, 2020. Available at https://www.monitoringanalytics.com/reports/Reports/2020/IMM_Potential_Impacts_of_the_Creation_of_New_Jersey_FRRS_20200513.pdf .

[10] For example, New Jersey's nuclear capacity is electrically located in EMAAC, not in a constrained zone within New Jersey. Monitoring Analytics, *id*. at Table 1. This may result in those resources being exposed to dramatically lower capacity prices if New Jersey or Maryland require some or all of their electric distribution companies (EDCs) to elect an FRR. This exposure, in turn, may be sufficient to induce their owners to agree to FRR prices comparable to current BRA levels, since its resources' pivotal price-setting abilities may be insufficient to protect them from the collapse in EMAAC prices which would be caused by FRRs in multiple load zones in Maryland and New Jersey.

[11] The IMM's *Analysis of the 2021/2022 RPM Base Residual Auction* found, at pp. 38-39, that "…all participants in the RTO, EMAAC, PSEG, ATSI, ComED, and BGE RPM markets failed the [three pivotal supplier] test." The IMM's Table 4 in the same report shows that all the participants in the RTO, EMAAC and PSEG zones – the only zones that could supply a New Jersey FRR Entity - also failed the *one* pivotal supplier test. This extreme lack of structural competitiveness suggests that bids from any potential supplier to a New Jersey FRR entity can be expected to be higher than competitive levels. Indeed, even the current PJM offer caps, approved by FERC, allow bids well above competitive levels, which suggests the state

sufficient for resource bidders, whether acting entirely alone or in a consciously parallel manner, to bid at levels that will drive market prices above the levels that would result under competitive conditions.[12] And, while the factors that could result in downward pressure on FRR prices are undemonstrated and somewhat speculative, structural market power in PJM's capacity supply sector is a fact and has been historically demonstrated by the mitigation of numerous bids that have been above the competitive level and that would have resulted, if unmitigated, in significantly higher prices in the BRA. Accordingly, the risk of high FRR prices is, in our view, the most substantial potential challenge to overcome before the state should elect the FRR alternative.

As shown in Table 2, below, a $10 per MW-day increase in prices above those of the last BRA is sufficient for the FRR to completely lose its volume-based cost advantage over the BRA/MOPR. This $184 "break even" price would hardly even count as an exercise of market power, since it is still well below the offer caps in the BRA and is even substantially below the $204 per MW-day price the last BRA produced in the constrained PSEG zone.[13] As FRR prices move above the break-even level, the BRA/MOPR alternative quickly starts to cost less, even with the double payment for offshore wind capacity. By avoiding the risk of higher prices and costs under the FRR, the status quo may offer a better prospect of achieving the state's GHG emission reduction goals, despite paying twice for the capacity of any resources prevented from clearing by the MOPR.

TABLE 2
FRR "break even" price
1100 MW of offshore wind

	Alternative ->	BRA+MOPR	BRA+SMR	FRR
1	UCAP obligation	20,568	20,568	19,716
2	Offshore wind UCAP contracted	286	286	286
3	Contract impact of OSW clearing BRA	-	(286)	(286)
4	Total UCAP purchased	20,854	20,568	19,716
5	Net load UCAP price, $/ MW-day	174	174	184
6	Total cost BRA or FRR, $000 /year	1,324,438	1,306,274	1,324,438
	savings (cost) of FRR v this alternative	$0	($18,164)	$0
	savings (cost) of SMR v this alternative	$18,164	$0	$18,164

To illustrate how even a marginal exercise of market power could impact FRR costs, Table 3

may be unable to mitigate bids to the lower levels needed for the FRR to be cost-competitive with the BRA/MOPR alternative.

[12] The large number of bids historically mitigated in the PJM BRA supports the IMM's analysis to a substantial degree.

[13] The break-even FRR price, assuming 3500 MW of offshore wind is about $190 per MW-day, and is about $199 assuming 7500 MW of offshore wind.

shows the relative cost of these three alternatives if the FRR price were $203 per MW-day, just below the level of the BRA's cleared $204 price in the PSEG zone. This price is, incidentally, equal to 95% of the weighted average of the most recent BRA's offer cap in the four New Jersey zones.[14]

TABLE 3

FRR prices at 95% of '21-'22 offer cap

1100 MW of offshore wind

	Alternative ->	BRA+MOPR	BRA+SMR	FRR
1	UCAP obligation	20,568	20,568	19,716
2	Offshore wind UCAP contracted	286	286	286
3	Contract impact of OSW clearing BRA	-	(286)	(286)
4	Total UCAP purchased	20,854	20,568	19,716
5	Net load UCAP price, $/ MW-day	174	174	203
6	Total cost BRA or FRR, $000 /year	1,324,438	1,306,274	1,460,857
	savings (cost) of FRR v this alternative	($136,419)	($154,583)	$0
	savings (cost) of SMR v this alternative	$18,164	$0	$154,583

Even this relatively modest use of market power would result in FRR costs of $136.4 million more per year relative to the BRA/MOPR. And, as can be seen, the BRA/SBR alternative would offer even greater savings – $154.6 million – relative to the FRR, due it is ability to avoid the double purchase of offshore wind capacity plus its ability to better mitigate market power than the FRR is assumed to in this example.

Finally, to illustrate how even a slightly more aggressive exercise of market power could dramatically increase costs under the FRR, Table 4 shows the cost impact of bids at $215 per MW-day, which is 80 percent of the net CONE value identified in PJM's most recent planning parameters for the 2022-2023 BRA, and thus is a possible proxy for default offer caps in the next BRA.[15]

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[14] With 7500 MW of offshore wind, the FRR under the $203 per MW-day FRR price assumption of Table 3 would cost $30.7 million per year more than the BRA/MOPR.

[15] Available at https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2022-2023/2022-2023-bra-planning-period-parameters.ashx?la=en .

TABLE 4
FRR prices at 80% of '22-'23 net CONE
1100 MW of offshore wind

	Alternative ->	BRA+MOPR	BRA+SMR	FRR
1	UCAP obligation	20,568	20,568	19,716
2	Offshore wind UCAP contracted	286	286	286
3	Contract impact of OSW clearing BRA	-	(286)	(286)
4	Total UCAP purchased	20,854	20,568	19,716
5	Net load UCAP price, $/ MW-day	174	174	215
6	Total cost BRA or FRR, $000 /year	1,324,438	1,306,274	1,547,213
	savings (cost) of FRR v this alternative	($222,776)	($240,939)	$0
	savings (cost) of SMR v this alternative	$18,164	$0	$240,939

As can be seen by comparing Table 3 and Table 4, all suppliers need to do is raise their bids by $12 per MW-day to extract an additional $86 million from New Jersey electricity consumers, raising the total annual cost of the FRR alternative to $222.8 million above that of the BRA/MOPR.

Even though FRR costs could be even higher, even this level of extra costs would be anything trivial. They would comprise roughly 2.2 percent of total New Jersey electricity costs billed to customers. This is significant, especially in light of the legislature's concerns over the total cost of clean energy to electricity consumers. For example, the legislature imposed a long-term cap of 7 percent of total billed electricity costs on expenditures for non-offshore wind renewable energy used to meet the state's 50 percent renewable energy mandate. While not specifically subject to the RPS spending limits, FRR costs of roughly one-third of the capped amount could put legislative support for the state's overall clean energy and emission reduction goals at risk.

Accordingly, we recommend the BPU take all appropriate steps to avoid FRR cost increases. In particular, it should avoid blind trust in the potential cost reducing factors, which may be plausible, but are not as yet demonstrated. And it should not discount the reality of market power, which is an established fact in the same zones that would need to supply any New Jersey FRR and whose exercise is well demonstrated by actual bidding history in PJM's capacity market. Nor should the BPU simply assume that its efforts to mitigate FRR bids would be effective in preventing higher prices, especially since that would require mitigating voluntarily-made bids to levels below the offer caps in PJM's tariff that FERC has already found to be consistent with just and reasonable market prices.

Instead, we recommend a completely different approach to evaluating and avoiding market power risks, one based on using competitive solicitation before the FRR decision, rather than after it.

d. A different potential approach to avoiding market power and ensuring fair and affordable FRR costs. As the examples above show, the biggest challenge for New Jersey in adopting an FRR alternative is the uncertainty about what FRR price levels will actually be, which normally would only be knowable after the FRR election. This uncertainty is made even worse by the fact that any transition to an FRR is likely to require considerable changes to current regulatory constructs such as the BGS auction, and that once made, the FRR election may be difficult to withdraw from before the required five-year term is completed. Rolling the dice in this manner may be fine for a thrilling evening at the local casino, but it is not attractive in terms of procuring the resources needed for reliability in a market rife with structural market power. For such a serious and consequential investment, New Jersey should be able to see and evaluate the FRR prices before committing to the FRR.

i. An ex-ante RFP could discover mutually beneficial capacity prices, for both New Jersey and capacity sellers facing future BRA price risks. Just such an up-front, ex-ante evaluation may be viable at this time. This is because a forward-looking competitive solicitation, made before the FRR decision is final, could create a two-sided safe harbor -- one side would protect New Jersey from higher costs, while at the same time, the other side would protect competitive capacity suppliers in EMAAC from the risk of collapsing prices in future BRA rounds due to one or several states electing the FRR. We recommend the BPU explore this two-sided safe harbor approach as a possible antecedent to making the actual decision of whether to commit to the FRR alternative.

For example, well before the deadline for the intended FRR applications to be made to PJM, the BPU could issue an RFP for five-year FRR capacity pricing agreements from PJM capacity suppliers.[16] The RFP would clearly state all relevant conditions, e.g. the bids must be sealed, the bidders must post a suitable bid bond to assure performance if the bid is accepted, suitable credit and contractual default provisions on the part of both sellers and buyers, and bids that are accepted would be honored at the as-bid price for the full five years, regardless of lower or higher BRA clearing prices during that period. However, there would also be this important, crystal-

[16] The logistics of carrying out this RFP process in time to make the FRR election and for selected supply resources to opt out of the BRA could be challenging, especially given PJM's proposed compressed "catch up" schedule for carrying out the next three BRAs and the uncertainty regarding when FERC may approve PJM's compliance filings. The likely compressed time frame may require New Jersey, if it decides to pursue this ex-ante RFP approach to an FRR, to implement the FRR in the second or third auction in this catch-up sequence. Whether such a schedule would avoid some or all of the estimated $18 million additional cost of the MOPR in any earlier auction depends, in part, on the actual completion of the offshore wind resources and the dates on which they would be able to bid into the BRA. See, e.g., PJM's proposal to its stakeholder Market Implementation Committee of March 12, 2020 in the Appendix and available at https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200312-special-capacity-mopr/20200312-item-02-proposed-auction-schedule.ashx .

clear caveat: bid acceptance would be conditioned on a sufficient number of the bids falling below a threshold bid ceiling, set at a level that would guarantee a specific amount of savings to New Jersey electricity customers under the FRR. Such an approach would allow the BPU to know, before electing the FRR alternative, whether doing so would save money for state electricity consumers or not.

ii. This RFP approach may support a single-EDC FRR that could provide most of the benefits of the FRR, at less cost. Such an RFP could also create opportunities for zone-specific FRRs for just a part of New Jersey, which could be sufficient to shield offshore wind and potentially other affected resources from the MOPR, with less risk of excessive costs. For example, if there were enough low FRR bids to ensure costs savings for just one zone, the state could elect to require only the EDC associated with that zone to elect the FRR and to include the offshore wind UCAP in its supply portfolio, thus realizing all the benefits of shielding the offshore wind from the MOPR while incurring none of the risks of higher costs for electricity consumers in other LDC zones.

This single EDC FRR could be especially attractive if the single New Jersey load zone were part of EMAAC, rather than a more constrained sub-LDA within New Jersey. An unconstrained EMAAC load zone in New Jersey would face a broader, less costly supply market, potentially with less market power risk than may be encountered in other, more concentrated and constrained New Jersey load zones. Further, due to the lack of transmission constraints between it and the rest of EMAAC, its potential supply of capacity would include more generation that would be motivated to bid at lower levels by the risk of the EMAAC price collapsing due to FRRs in Maryland, New Jersey, or both. Indeed, even a single EDC FRR in New Jersey would cause substantial prices reductions in EMAAC, which could make reasonable FRR bids to serve that FRR a dominant strategy for many EMAAC bidders.[17] If, however, the RFP produced insufficient reasonably priced bids to ensure at least one New Jersey FRR entity a cost-effective FRR, relative to continuing participation in the BRA, the state could decide not to allow or require any EDC to elect the FRR alternative.

iii. BRA auction schedule compression may require an extended process, which may have additional benefits. Such a process would need to be carried out over a long-enough time to ensure that the bidding suppliers would be able to meet their own deadlines for bidding into the BRA, if they choose to or if New Jersey does not accept their FRR supply bids, and for any EDCs to timely notify PJM of their FRR election, if the state finds that there are sufficient low-cost long-term bids to make an FRR the preferred option for the state. While this could take time and potentially delay the FRR decision beyond the next BRA round, it could still be worthwhile by identifying the wisest and most beneficial choice, based on commercially binding bids and solid

[17] The IMM estimates that a JCPL-only FRR would reduce prices in EMAAC by $18.31 per MW-day. See IMM, *op. cit.* fn. 9, at p.3.

evidence, rather than placing a risky bet too soon on the basis of either exuberant optimism or discomfort with unknown but potentially large risks.[18]

As a further benefit, even of a somewhat lengthy process, the state would have the opportunity during the entire period to intercede with PJM management and stakeholders, in a full-court press to replace the MOPR with an efficient and clean-energy friendly SBR. The same risks of negative price impacts from one or more FRRs that could induce reasonable bids in an RFP could also induce reasonable key PJM stakeholders to agree to replace the MOPR with a fully sustainable bidding rule. This would be especially true if that bidding rule would provide better and more attractive capacity revenues to them than the FRR alternative, while supporting and encouraging the more rapid deployment of clean energy resources that states need in order to not exercise the FRR alternative.

IV. Responses to specific topics suggested by staff.

We appreciate the importance of many of the staff's policy questions, beyond the simple pros and cons of the FRR, but we view most of them as necessary issues to be met regardless of the choice between the FRR and the RPM alternatives. For example, there are only slight differences between the capacity obligation under the FRR and under the BRA, and both are largely determined by PJM and its ICAP to UCAP conversion methodologies, which in our view will make the two approaches largely similar in terms of suitability for supporting the state's clean energy goals, outside of the primary issues of costs and the MOPR's impact.

Similarly, the state's approach to the RPS will likely need to evolve to a clean electricity standard (CES), potentially with dynamic energy credits, regardless of whether the state meets its resource adequacy needs through the RPM or the FRR.[19] Likewise, the state may wish to explore incremental approaches to competitive procurement of certain types of resources, regardless of whether those resources achieve compensation for their resource adequacy requirements through the BRA or through an FRR. Further, we have not focused on a number of important questions regarding statutory and regulatory changes that might be needed to pursue the FRR, since we think many of those questions may have different answers depending on the nature of the FRR implementation, e.g., ex-ante procurement, such as we suggest, or the "FRR first, prices later" approach we caution against.

Accordingly, we address here only specific staff questions directly related to the merits of the

[18] See PJM's proposed BRA schedule for the next three auctions in the Appendix.

[19] We recognize that FERC's potentially unworkable but apparently continuing requirement that resources selling capacity to standard offer services, such as New Jersey's BGS, be subject to the MOPR, could jeopardize the BGS process itself, and create a deeper chasm between the state's RPS or a CES and PJM's capacity market. We hope for some additional clarification on this issue in PJM's upcoming compliance filings and intend to address it in additional comments to the BPU.

choice between FRR and BRA. We look forward to engaging with the other issues in subsequent comments.

a. Discussion of the FRR requirements under the PJM Tariff and how they may be applied to a restructured state, New Jersey specifically.

The PJM Tariff explicitly allows for eligible utilities in restructured states to use the FRR alternative to meet PJM's resource adequacy requirement, instead of doing so by participating in the RPM. PJM's Reliability Assurance Agreement (RAA) provides eligibility criteria that must be met for a utility to become the FRR Entity responsible for ensuring the FRR capacity obligation for its zone is met, and provides several alternative means for competitive LSEs to meet or pay for their share of this obligation.[20]

PJM's tariff identifies the requirements for an entity to qualify as an FRR Entity. First, it must be either an Investor Owned Utility (IOU), a Public Power Entity (PPE), or an Electric Cooperative (EC). Further, for the purpose of eligibility to become an FRR Entity, an IOU must be engaged in at least two of the three activities of electricity generation, transmission and distribution, while a PPE or EC must be engaged in at least one of these activities.

An additional requirement is that the proposed FRR entity "demonstrate that it is capable of satisfying PJM's Unforced Capacity obligation for all load in its FRR service area, including all expected load growth." While the criteria for this demonstration are not spelled out in the PJM tariff, it is reasonable to expect PJM to require that the FRR Entity must have both the financial and the management capability to develop and operate power facilities, as needed to meet current and projected load growth, either directly in the case of cost-regulated states, or under a power purchase agreement or similar contract, in the case of restructured states.

Such financial capability would require a considerable level of creditworthiness, resulting either from a strong balance sheet with relatively low levels of debt and sufficient liquidity, or from a substantial letter of credit, to ensure the FRR Entity's ability to cover the full liquidated damages to project developers, in the case of the FRR Entity's default on the contract. Such credit-worthiness is necessary for competitive resource developers to be able to secure debt financing for their projects, and typically requires enough credit on the buyer's part to cover the full cost of the project, in the event of buyer's default. Any candidate FRR entity that lacks this level of creditworthiness, in our view, is unlikely to be approved by PJM as an FRR entity in New Jersey.[21] Ensuring such creditworthiness in any FRR entity will be doubly important if New

[20] PJM Reliability Assurance Agreement, Section 8. 1.

[21] This level of credit, in our view, is likely to significantly exceed the creditworthiness requirements of New Jersey's standard form BGS contract. The BGS credit requirements are for $2.4 million per nominal 100 MW tranche of full requirements service, or about $2,400 per MW, or $24 per kW. Financeable PPAs for new power projects typically require

Jersey were to rely on the FRR entities carry out some or all of the procurement of the clean energy resources envisioned in the state's EMP.

The approach most likely to meet both requirements would be for one, several or all of the state's electric distribution service providers to elect to become FRR Entities. Under this approach, the four IOU electric distribution companies (EDCs) that were restructured subject to EDECA would allocate their FRR UCO procurement costs to competitive LSEs on a load ratio share, with the possibility, as envisioned by the PJM tariff, that competitive LSEs could also procure or develop unforced capacity resources on their own, and be credited for them by the FRR entity. The state's municipal utilities and electric cooperative could also apply to be FRR Entities severally or collectively, but unlike EDCs whose customers are entitled by state law to competitive choice of energy supplier, these public or consumer-owned EDCs could directly procure their pro-rata share of the FRR UCAP obligation.

However, as discussed further below, this EDC approach raises potential problems of self-dealing, since New Jersey's EDCs can own significant amounts of generation in affiliated competitive generation companies. The incentives for an EDC to buy the FRR obligation from its affiliate, at elevated prices that are favorable to shareholders, could combine with the structural lack of competition in the regional capacity supply sector, to create a serious risk of prices being set far above the prices that would otherwise result from the BRA. These problems could be further compounded by the need to substantially revamp or replace the BGS auction process through which LSEs serving as BGS suppliers currently satisfy their capacity obligations. These challenges, if they cannot be addressed in a manner that fully addresses the public interest in effective competition for electric supplies, could easily render the FRR an unsatisfactory alternative to the PJM capacity market.

b. Discussion of any practical limits presented as a result of New Jersey's geographic location along the Atlantic Ocean and along the NYISO Seam.

We see two primary practical implications of New Jersey's location in the far northeast corner of PJM: First, there are very few capacity imports available from or through New York's grid, and none currently available from the east, other than the potential future development of additional offshore wind.[22] New Jersey's situation in an electrical corner of the PJM grid contributes to the structural lack of effective competition in the capacity supply available to New Jersey, which is the primary driver of concerns about the significant risks of market power. The high level of

buyers' collateral sufficient to cover a significant share of the capital costs of the project, which typically are on the order of $1000 per kW or higher, depending on the technology.

[22] At a UCAP conversion rate of 26%, it takes 3.85 MW of wind to provide 1 MW of UCAP. Further, offshore wind is currently not competitive in cost with other forms of capacity, and thus would not be able to constrain other suppliers to bid at competitive levels. We do not see offshore wind as providing competitive pressure to help moderate capacity costs under an FRR.

concentration and the ubiquity of pivotal suppliers in the entire region could easily allow very small numbers of resources to corner the capacity supply market through economic or physical withholding. This problem is exacerbated by the transmission topology of the eastern PJM region, which has insufficient transmission to allow a number of load zones in the eastern region to access sufficient capacity to be able to meet PJM's resource adequacy requirements. As a result, many these load zones are required by PJM to meet a substantial portion of their resource adequacy requirement from capacity resources located within the zone.

One such zone is EMAAC, in which New Jersey is fully located, but which also includes eastern Pennsylvania, Delaware and parts of Maryland. New Jersey is the single largest consumer of capacity resources in EMAAC; in the most recent BRA, New Jersey customers were responsible for roughly 59% of EMAAC's total capacity requirement.[23] Due to transmission limitations between EMAAC and the broader mid-Atlantic zone MAAC, EMAAC must satisfy 83% of its reliability requirement with capacity resources located within the region.[24] These minimum locational percentage requirements would apply under the FRR alternative, as well, with all of New Jersey's load zones facing their own pro-rata share of these limitations on how much of their capacity requirement could be purchased from suppliers outside of EMAAC. This restriction dramatically reduces competition in the supply of capacity from outside of EMAAC, and contributes to the structural lack of effective competition that a New Jersey FRR Entity would face in attempting to procure its UCAP obligation outside of the RPM auction.

The structural lack of competition for capacity is made even worse within New Jersey, since several of its load zones have transmission constraints between them and the rest of EMAAC. These constraints impose minimum locational resource requirements on them, as well. Specifically, the Public Service zone is required to source 45% of its capacity requirement internally, inclusive of the 53% of the capacity required to be internally sourced within its PS-North load zone.[25] These locational resource adequacy requirements further reduce the number of competitors that could supply the FRR requirement within New Jersey's most densely populated zones. This physically constrained situation helps explain why PJM's Independent Market Monitor (IMM) has found that all of PJM, including all of EMAAC and all of New Jersey, and each of the capacity suppliers in those regions, fail the standard three pivotal supplier test and, even more ominously, the one pivotal supplier test for market power. We address specific market power concerns and potential remedies for use in the FRR alternative below.

c. Discussion of the pricing and/or rate implications associated with FRR.
Please see the discussion above in part III, a. to c. on pages 3-7.

[23] PJM 2021-2022 BRA report.
[24] PJM 2021-2022 BRA parameters worksheet, *op. cit.* at fn. 7.
[25] *Id*.

d. Discussion of related issues

i. The potential for higher FRR prices due market power. As noted above, the IMM's analysis of the most recent BRA auction shows that every participant tested for market power in the RTO region, EMAAC, PSEG as well as those in ATSI, ComEd and BGE, failed the "Three Pivotal Supplier" (TPS) test, and indeed, failed the one pivotal supplier test.[26] Given the constraints discussed above, this means every seller that could supply capacity to meet a New Jersey FRR has, acting on their own or in parallel with others, the ability to economically withhold enough capacity to fail to meet the reliability requirements in EMAAC and PSEG, which mean in all of New Jersey. This ability to set prices at whatever a single or several sellers please could easily result in the FRR's cost dramatically exceeding that of the BRA.

However, even FRR bids at levels that would be considered competitive under the mitigation rules in PJM's tariff for the last BRA could result in higher prices in a New Jersey FRR than in the BRA itself. PJM's capacity market bid mitigation rules under the Capacity Performance (CP) regime have allowed CP resources with a low avoidable cost rate to bid up to a default offer cap of net CONE times the CP's balancing ratio of 79%. This resulted in default offer caps of $216 per MW-day in the PS zone, and of $210 the other zones. The weighted average of these offer caps is $213 per MW-day. As shown above, FRR prices at or near such levels would cost New Jersey's electricity consumers over $200 million per year more than the BRA, with the MOPR's added costs of buying offshore wind capacity twice.

It is not clear that, if FRR sellers do offer at prices somewhat below the FERC-jurisdictional offer cap, the state would have the authority to mitigate those bids, and in particular to mitigate them to a level below the offer caps FERC has already found to be just and reasonable. This is especially problematic since competitive wholesale generators could not, to our knowledge, be required to offer into the FRR. It is clear, though, that if enough FRR sellers bid into an FRR procurement auction at such levels, the FRR procurement would clear at prices reflecting those bids, with cost impacts that could be unacceptable to New Jersey electricity consumers and that could erode widespread support for the state's clean energy goals. The basic problem is the threshold for evidence of market power abuse may be significantly above the current BRA market clearing prices, and thus at levels that would make the FRR economically unattractive to the state. Hence we suggest an alternative, ex-ante approach to FRR procurement that could either induce more competitive and acceptable bid levels, or allow the state to reduce, delay or avoid the FRR choice if enough such bids do not materialize. Please see our discussion above at III. d., pp. 9-11.

[26] See reference at fn. 11, above.

Appendix.

I. PJM's proposed BRA schedule for the next three auctions. Source: MIC agenda for March 12, 2020. Available at https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200312-special-capacity-mopr/20200312-item-02-proposed-auction-schedule.ashx