In the Matter of Investigation of Resource Adequacy Alternatives
Docket No. EO20030203

INITIAL COMMENTS OF PUBLIC INTEREST ORGANIZATIONS REGARDING RESOURCE ADEQUACY ALTERNATIVES

On March 27, 2020, the New Jersey Board of Public Utilities ("Board") initiated this proceeding to investigate "whether New Jersey can achieve its long-term clean energy and environmental objectives under the current resource adequacy procurement paradigm and, if not, recommend how best to meet New Jersey's resource adequacy needs in a manner consistent with the State's clean energy and environmental objectives, while considering costs to utility customers."[1]

The Natural Resources Defense Council ("NRDC") and the Sierra Club (collectively, "Public Interest Organizations" or "PIOs") appreciate the opportunity to submit these comments.[2] In our view, PJM Interconnection, L.L.C.'s ("PJM") current approach to resource adequacy is incompatible with, and will not support, the rapid decarbonization needed to avoid the worst impacts of climate change. More specifically, PJM's resource adequacy construct will hamper achievement of the goals set out in New Jersey's Energy Master Plan as well as New Jersey's statutory mandates regarding clean energy and emission reduction.

The expanded minimum offer price rule ("MOPR")[3] is the most recent and certainly the most egregious instance of PJM's market rules thwarting efforts by states to achieve their preferred resource mix in an affordable manner. The Board has played a leading role among states in advocating against the expansion of the MOPR in order to protect state policies and consumers from excessive rate impacts. And yet the Federal Energy Regulatory Commission has shown no indication that it is open to solutions that will accommodate or facilitate state policies. The urgent need for decarbonization does not allow time for states to wait and hope for changes in FERC policy. Instead, New Jersey must be proactive and take control of its resource mix in order to achieve state goals and avoid large increases in the cost of electricity. While New Jersey must use all the tools available to reform PJM's markets, the Fixed Resource

[1] Order Initiating Proceeding, Docket No. EO20030203 (Mar. 27, 2020). On April 17, 2020 the Board issued a Supplemental Notice extending the deadline for filing initial comments to May 20, 2020.
[2] PIOs have responded only to Questions 1 and 2 stated in the Board's Request for Written Comments, but anticipate providing input regarding Questions 3 and 4 after reviewing other submissions to this proceeding.
[3] PJM's minimum offer price rule was recently expanded by the Federal Energy Regulatory Commission (FERC) as part of Consolidated Docket Nos. EL 16-49-002 and EL 18-178-002. *See Order Establishing Just and Reasonable Rate*, 169 FERC ¶ 61,239 (Dec. 19, 2019) and *Order on Rehearing and Clarification*, 171 FERC ¶ 61,035 (Apr. 16, 2020). PJM's *Compliance Filing Concerning the Minimum Offer Price Rule, Request for Waiver of RPM Auction Deadlines, and Request for an Extended Comment Period of at Least 35 Days* filed on March 18, 2020, in that docket sets forth the specific application of the expanded MOPR in the PJM market.

Requirement ("FRR"), possibly implemented by a state power authority, is the best near-term means within the state's unilateral control to avoid the harms of the MOPR.

I. PJM Capacity Markets in Their Current Form are Incompatible with New Jersey's Energy Future

New Jersey's *Energy Master Plan* ("EMP") articulates a bold but achievable vision to meet Governor Murphy's goal of 100% clean energy by 2050 and the Global Warming Response Act goal to reduce state greenhouse gas emissions 80% by 2050. The EMP proposes to accomplish those goals by electrifying the transportation and building sectors while transitioning to 100% carbon-neutral electricity supply.

New Jersey's wholesale power grid is overseen by PJM Interconnection, a federally-regulated entity that, among many other things, is responsible for ensuring there is sufficient supply of electricity at nearly all times. It does this through an auction-based mechanism known as the Reliability Pricing Model ("RPM"), which contracts for capacity with generation owners and demand response providers three years in advance of the delivery date. RPM's rules thus serve as the mechanism for ensuring future resource adequacy in a deregulated market, replacing the integrated resource planning and similar approaches used under traditional regulation.

Unfortunately, RPM's rules are poorly matched to the approach to decarbonization set forth in the EMP. Perhaps the most egregious of these mismatches is 2019's MOPR, which largely excludes state-supported resources from reliability planning. However, the conflicts between RPM and the New Jersey EMP are more fundamental than this recent decision. As detailed in our response to Question 1.i, RPM's approach to resource adequacy is based on the characteristics of traditional power plants and undervalues many of the strategies envisioned in the EMP, leading to continued procurement of fossil-fired generation even as New Jersey decarbonizes.

Outside of RPM, PJM brings enormous benefits to New Jersey. Continued participation in organized markets provides efficient access to out-of-state resources, creates opportunities for New Jersey's energy resources when they exceed in-state demand, eases reliability with high renewables through geographic diversity and access to a much larger pool of balancing resources, and, at least potentially, provides a forum for large-scale transmission planning to support national decarbonization efforts.

In an effort to preserve the benefits of organized power markets while resolving the conflicts between New Jersey's goals and PJM's capacity market, PIOs recommend that New Jersey:

1. Begin work to move most utility service areas within the state out of PJM's capacity market into one or more FRR plans, with a goal of leaving RPM as early as the 2024

delivery year, when large offshore wind developments are scheduled to come on line. This action will allow New Jersey to continue implementation of the EMP while avoiding the worst effects of RPM's shortcomings.

2. Develop and present to PJM reforms to their resource adequacy approach that would support New Jersey's energy goals.

The FRR offers many advantages over RPM for a state seeking to increase its reliance on clean energy. Most obviously, it allows consumers to receive value for the capacity from state-supported resources that are likely to be excluded from RPM as a result of the MOPR. But FRR also allows consumers to buy less capacity than is foisted upon them by RPM, and enables resource performance to be assessed on a portfolio basis, which is more compatible with a resource mix containing high levels of demand-side, storage, and renewable energy capacity resources. Ultimately, FRR allows New Jersey to take more control of its resource mix, and ensures that the clean energy procured by consumers actually displaces fossil-fuel generation, rather than requiring consumers to pay higher prices for both.

New Jersey is well situated to manage its own capacity needs through an FRR plan. As discussed in depth below, the primary challenge New Jersey will face in exiting RPM is mitigating generation owner market power sufficiently well to avoid paying excessive rates for capacity. While FRR has rarely been used by utilities in restructured states, there is a clear legal obligation on FERC to protect consumers against market power, and several tools within the state's authority as well.

II. Response to Board Questions

Question 1. Can New Jersey Utilize the Fixed Resource Requirement ("FRR") Alternative to Satisfy the State's Resource Adequacy Needs? Staff seeks written comments to discuss the feasibility of establishing a ("FRR") service area or areas in New Jersey. Suggested topics for inclusion in the comments are as follows:

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

The FRR Alternative was included as part of PJM's rules for the RPM as part of the settlement agreement reached by parties in 2006.[4] While the FRR was intended to specifically address the preference by vertically integrated utilities to continue their traditional business model rather than purchasing capacity through RPM, its terms do not restrict participation to

[4] Reliability Assurance Agreement ("RAA") at Schedule 8.1 contains the rules for the FRR.

vertically integrated utilities. Investor-owned utilities, electric cooperatives and public power entities can all elect the FRR.[5] The FRR allows a utility to opt out of RPM, and instead demonstrate to PJM that it can satisfy its capacity obligation through resources that it owns or has contracted for. The initial FRR election is for five years, to be continued on a year-by-year basis thereafter.

There is reasonable flexibility in setting the area that would fall under an FRR election. FRR Service Areas[6] may simply be the service territory of the FRR Entity. An FRR Service Area may also be a geographic area bounded by appropriate wholesale metering, so long as the FRR Entity has the obligation to provide capacity for all load in the area. Our understanding is that these geographic areas have been historically used when only a portion of a multi-state utility used the FRR option.

However, there seems to be no reason that New Jersey could not use the geographic area provision to create a state-wide FRR Service Area, provided an entity was designated to take responsibility for the state's capacity obligations. PJM rules are silent on how transmission constraints within an FRR Service Area are handled, but any resource adequacy approach must respect the physical transmission constraints into the PSEG service area. New Jersey has approximately 14 transmission connections with other PJM states,[7] making appropriate wholesale metering feasible. Similarly, with appropriate metering, public power service areas could be treated independently from IOU territories.

The FRR Entity must elect the FRR option at least four months prior to the Base Residual Auction ("BRA"), and one month before that BRA must submit an FRR Capacity Plan, which identifies and commits sufficient capacity resources to meet its daily unforced capacity obligation for the delivery year corresponding to the next BRA.[8] For an FRR Service Area that encompasses an entire PJM load zone, the unforced capacity ("UCAP") obligation of the utility is equal to its forecast peak load times PJM's Forecast Pool Requirement[9]. For FRR Service Areas

[5] Collectively, "FRR Entities". RAA at Schedule 8.1.B(1).
[6] Defined in RAA Article 1.
[7] As shown at https://gis.pjm.com/esm/default.html, available on request to authors.
[8] RAA at Schedule 8.1.C(1).
[9] The Forecast Pool Requirement increases capacity requirements to allow for reserve margins and generation outage rates. The most recent FPR is 108.67% for the 2022/23 Delivery Year. *See* PJM, *2019 PJM Reserve Requirement Study* at 8 (Oct. 17, 2019), https://www.pjm.com/-/media/planning/res-adeq/2019-pjm-reserve-requirement-study.ashx?la=en.

smaller than a PJM load zone, capacity obligations are allocated between the FRR and non-FRR portions of the zone as determined by state regulators.[10]

The capacity resources that are part of the FRR Capacity Plan are subject to the same eligibility rules as resources offering into RPM.[11] But, FRR offers options for managing performance obligations that reduce supplier risk compared to RPM. The FRR Entity may elect one of two different means of accountability for the performance of resources in its plan. The first option is simply to have each individual resource evaluated as if it was a stand-alone resource participating in RPM.

But, the FRR Entity may instead elect an option known as "physical non-performance assessments"[12] which brings significant advantages. Under this option, performance of capacity resources during a performance assessment interval is measured in aggregate across the entire portfolio (rather than on a unit-specific level). Performance can include contributions by resources that do not have capacity obligations, allowing resources that do not qualify as capacity resources to nevertheless reduce performance risk.

These risk management improvements are significant. The combination of unavoidable weather risk, performance rules designed for traditional generators, and high penalties has led many renewable resources to simply avoid RPM in the interest of cash flow predictability. This prevents them from displacing fossil generators, undermining clean energy goals. A state-wide approach to maximizing ratepayer benefits from a large portfolio will get more capacity value from a renewable fleet than individual developers whose first priority is managing commitments to investors.

Under the physical option, rather than paying penalties for aggregate underperformance, the FRR entity must add supply to the FRR Capacity Plan for the following delivery year[13] at the rate of 1MW of additional capacity for each 60MWh of underperformance. This appears to be a good match to the EMP's proposed approach of using storage and firm capacity to "fill in the gaps" of a high renewable power system: as PJM's performance assessment identifies a need for more capacity, New Jersey can add dispatchable resources. Rather than the punitive penalty

[10] Through their authority to approve how Electric Distribution Companies allocate the summer peak to retail customers. Those allocations, commonly known as PLCs, determine the Base Obligation Peak Load of a sub-zonal FRR Service Area. *See* PJM Manual 18, Section 11.2.1.
[11] RAA at Schedule 8.1.D.4 ("Capacity Resources identified and committed in an FRR Capacity Plan shall meet all requirements under this Agreement, the PJM Tariff, and the PJM Operating Agreement applicable to Capacity Resources, including, as applicable, requirements and milestones for Planned Generation Capacity Resources and Planned Demand Resources.").
[12] Cite M18
[13] RAA at Schedule 8.1.G.2.

structure featured in RPM, the FRR physical assessment option provides feedback to fine-tune the resource mix over time.

The FRR rules specifically address how the FRR may work in states with retail choice, while leaving states considerable flexibility:

> In a state regulatory jurisdiction that has implemented retail choice, the FRR Entity must include in its FRR Capacity Plan all load, including expected load growth, in the FRR Service Area, notwithstanding the loss of any such load to or among alternative retail LSEs. In the case of load reflected in the FRR Capacity Plan that switches to an alternative retail LSE, where the state regulatory jurisdiction requires switching customers or the LSE to compensate the FRR Entity for its FRR capacity obligations, such state compensation mechanism will prevail.[14]

In lieu of payments to the FRR entity, the "alternative retail LSE" may instead provide the FRR entity with "Capacity Resources sufficient to meet the capacity obligation described in paragraph D.2 for the switched load."[15] In such a case, the alternative retail LSE is responsible for performance charges or compliance penalties associated with the capacity resource it has provided. Such activity could be disruptive in the context of a New Jersey FRR plan, as customer switching could result in stranded assets if the retail LSE elects to supply new capacity when it acquires a new customer. As discussed below, a better option may be to offer retail LSEs self-supply options in a state-run capacity procurement.

Finally, the state may designate one or more load-serving entities to "be responsible for the capacity obligation for all load in one or more FRR Service Areas within such state."[16] In short, a restructured state that has implemented retail choice has several options to preserve robust retail competition and avoid potentially problematic affiliate preferences by utilities.

Aside from the provision about state compensation mechanisms for payments by retail suppliers to utilities, PJM's FRR rules are silent as to how capacity committed through an FRR

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[14] *Id.* at Schedule 8.1.D.8 ("In the absence of a state compensation mechanism, the applicable alternative retail LSE shall compensate the FRR Entity at the capacity price in the unconstrained portions of the PJM Region, as determined in accordance with Attachment DD to the PJM Tariff, provided that the FRR Entity may, at any time, make a filing with FERC under Sections 205 of the Federal Power Act proposing to change the basis for compensation to a method based on the FRR Entity's cost or such other basis shown to be just and reasonable, and a retail LSE may at any time exercise its rights under Section 206 of the FPA.").

[15] *Id.* at Schedule 8.1.D.9.

[16] *Id.* at Schedule 8.1.I.

Capacity Plan can be compensated. We are not aware of any FERC or judicial precedent on this exact question.

To our knowledge, the FRR has been used twice by load-serving entities in restructured states. In both cases, the FRR was used as a transitional mechanism when a transmission owner joined PJM, in order to meet reliability requirements for delivery years immediately following PJM integration and for which the Base Residual Auction had already been conducted. In 2009, Duquesne Light Company and other parties filed with the Commission a settlement agreement in which Duquesne withdrew an application to leave PJM and set out procedures for Duquesne's re-integration into PJM.[17] The settlement called for load-serving entities in the Duquesne zone to employ the FRR to meet capacity obligations for the 2011-2012 delivery years. The Commission approved this plan, including allowing Duquesne to submit an out-of-time FRR plan, and allowing individual Duquesne LSEs to opt-out of Duquesne's FRR plan. The settlement provided that "PJM may, at the request of Duquesne or other LSEs in the Duquesne zone, hold a special incremental auction for Duquesne or other LSEs in the Duquesne zone to obtain capacity to meet all or part of the 2011-12 delivery year capacity obligations."[18]

The Duquesne Settlement's use of the FRR as a transitional mechanism served as the template when American Transmission Systems, Inc. ("ATSI"), sought to transfer from MISO to PJM in 2009. The ATSI zone load-serving entities needed a mechanism to satisfy their PJM UCAP obligations for the first two years of its PJM integration, since the Base Residual Auctions for those first two years had already been conducted. ATSI proposed, and the Commission accepted as reasonable, that the FRR capacity would be obtained through special integration auctions run according to PJM's rules and supervised by the market monitor:[19]

> Under the FRR procedure, the ATSI zone load serving entities would be required to obtain sufficient capacity during the first two years of the integration period to meet their reliability requirement. While the FRR requirement ordinarily requires that this requirement be met through bilateral agreements, ATSI proposes that the ATSI zone load serving entities be required to acquire this capacity through special auctions, which will utilize a vertical demand curve, rather than the downward sloping demand curve generally used in PJM auctions.

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[17] *Duquesne Light Co. Midwest Indep. Transmission Sys. Operator, Inc. & Duquesne Light Co. Midwest Indep. Transmission Sys. Operator, Inc. & Duquesne Light Co. Pjm Interconnection, L.L.C. Pjm Interconnection, L.L.C. Midwest Indep. Transmission Sys. Operator, Inc. & Duquesne Light Co.*, 126 FERC ¶ 61,074, 61,508 (Jan. 29, 2009).
[18] *Id.* at P 10.
[19] *Am. Transmission Sys., Inc. Firstenergy Serv. Co.*, 129 FERC ¶ 61,249, at P 60 (Dec. 17, 2009).

A subsequent FERC order confirms that the ATSI FRR integration auctions were successful in procuring the entire amount of the capacity requirement for those years.[20]

The ATSI special integration auction approach is best viewed as a special incremental auction, run in close compliance with PJM's typical rules for such auctions. While this structure has the benefit of RPM's market power mitigation measures and PJM's existing structure, we do not recommend it for New Jersey because it would almost certainly be required to employ the MOPR for state-supported resources, thus thwarting New Jersey's intention in considering the FRR. We also note that simply because the Commission previously approved the use of a PJM-supervised special integration auction as reasonable does not mean that a utility in a restructured state would be required to use such an auction. It does not appear that such an auction mechanism was used in the Duquesne reintegration FRR, for example.

The various options for FRR cost allocation give New Jersey great flexibility to design a method that works best for the state. Among other options, it allows existing capacity cost allocation methods to be carried over to an FRR plan almost unchanged. Currently, New Jersey's EDCs determine a daily Obligation Peak Load for every LSE operating in their territory and report that to PJM. PJM then uses those Obligation Peak Loads to assign each LSE a pro-rata share of that day's capacity costs. This mechanism could be carried over to an FRR plan, with the only change needed being to assign an entity other than PJM responsibility for calculating and billing the daily capacity share.

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.

New Jersey's geographic location influences its FRR plan through transmission constraints and the opportunity for imports from outside PJM. If an FRR Service Area has limited import capability due to transmission constraints, the FRR Capacity Plan must include a minimum percentage of internal resources (MIRR).[21] The MIRR is set based on transmission

[20] *Am. Transmission Sys., Inc.*, 132 FERC ¶ 61,056, at P 5 (July 19, 2010).
[21] RAA at Schedule 8.1.D.5 ("For each LDA for which the Office of the Interconnection is required to establish a separate Variable Resource Requirement Curve for any Delivery Year addressed by such FRR Capacity Plan, the plan must include a Percentage Internal Resources Required, subject to subsections D.1.1 and D.2 of this Schedule. The Percentage Internal Resources Required will be calculated as the LDA Reliability Requirement less the CETL for the Delivery Year, as determined by the RTEP process as set forth in the PJM Manuals.").

constraints so that the FRR area has a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency.[22]

Four transmission constraints are potentially relevant for a New Jersey FRR plan.

1. The north east part of the PSEG service area is occasionally transmission constrained. At the moment, PSEG-North would not have a separate MIRR, but it potentially could if conditions change.[23] If PSEG-North were to have an MIRR, it would likely be around 45% based on published transmission limits.

2. PSEG as a whole is transmission constrained, and must acquire at least 40.2% of its capacity obligation from resources within PSEG.

3. All of New Jersey is within a larger PJM region called EMAAC. At least 81.5% of New Jersey's capacity must come from within EMAAC, which includes New Jersey, the Philadelphia region, and the Delmarva peninsula.

4. Finally, all of New Jersey's capacity must come from within the MAAC region, which encompasses EMAAC plus Maryland, Washington DC, and most of Pennsylvania.

Summarized, these constraints are, in MW of unforced capacity and based on data for the 2022/23 delivery year:

	PSEG	JCPL	AECO	RECO	NJ Total
FRR Obligation	10,225.1	6,134.8	2,509.5	415.9	19,285.3
Within Zone	4,110.5				
Within EMAAC	8,333.5	4,999.9	2,045.2	338.9	15,717.5

The internal resource requirements limit New Jersey's options to purchase capacity. Because there is little excess supply of capacity within both the PSEG zone and EMAAC as a whole, the internal resource requirements create potential seller market power, which has been identified as the factor creating a risk that a New Jersey FRR plan raises capacity prices. This issue is discussed extensively below.

[22] *See* definition of CETO in PJM Manual 18, Attach. A. Note that this results in less than the regions entire CETL being available for an FRR Plan.
[23] Personal communication with PJM staff (May 1, 2020).

These internal resource requirements can be reduced to the extent transmission projects that increase import capability.[24] Although it is outside the scope of these comments, we note that New Jersey utilities have invested large sums in so-called "supplemental" transmission projects that some have criticized as lacking sufficient oversight[25]. As part of a process of designing an FRR Plan, the NJ BPU may wish to review IOU transmission investment plans in light of the potential value of redirecting some of this investment to projects that would reduce transmission constraints.

New Jersey's location at the edge of PJM also creates opportunity to import capacity from outside PJM. These imports are particularly attractive because they can help mitigate market power created by the MIRR. The transmission limits that the MIRR is based on only capture constraints within PJM. Capacity imported from outside PJM requires firm transmission service, and thus should count as "internal" for FRR purposes.

PJM planning documents note that firm capacity imports are treated as internal capacity[26], but market rules are unclear on how this specific case is to be treated. This is likely partially due to most imports entering PJM from the west and south, where transmission constraints are less acute, and that there have been few FRR entities facing internal transmission constraints. We are currently seeking clarification on this issue with PJM staff, but as of filing have not resolved how capacity imports into New Jersey would be treated under FRR.

c. Discussion of the pricing and/or rate implications associated with FRR.

Under FRR and RPM, New Jersey acquires the same product with the same constraints, but under FRR acquires less of it from suppliers who may face less risk. On fundamentals alone, this suggests that FRR should reduce capacity costs. The challenge facing a would-be FRR entity is realizing this potential.

The rate implications of FRR must be considered in their full context, rather than in isolation. The FRR is a mechanism for procuring capacity outside of PJM's capacity market, so the costs of FRR must be compared to the prices likely to be available through RPM over the term of the minimum five-year FRR commitment. As the Board and BPU Staff are well aware, FERC has required RPM to include a broad MOPR intended to increase costs for capacity purchased through RPM. Prices are likely to increase not only through FERC's intended

[24] RAA at Schedule 8.1.D.6 ("An FRR Entity may reduce the Percentage Internal Resources Required as to any LDA to the extent the FRR Entity commits to a transmission upgrade that increases the CETL for such LDA.").
[25] *See* American Municipal Power, *Supplemental Transmission*, https://www.amppartners.org/services/legislative-regulatory-legal/supplemental-transmission.

mechanism (administratively repricing otherwise low-cost state-supported resources so that they do not clear or directly set a higher clearing price), but also by increasing the ability for market participants to exercise market power.[27] The impact of the MOPR on RPM prices will depend significantly on how FERC rules on PJM's compliance filing, which includes relatively low default offer price floors for multi-unit nuclear facilities and a resource-specific offer price floor methodology that could allow some new renewable energy resources to obtain price floors that are low enough to clear the auction.[28]

While the precise impact on prices is impossible to know, one recent estimate pins the costs at between $1 and $2.6 billion annually, depending on whether multi-unit nuclear facilities clear the auction.[29] The impact of the MOPR will be steadily increasing capacity prices relative to what those prices would otherwise be without the MOPR. For example, when New Jersey's offshore wind projects begin to come online in 2024, FERC's rules will prevent those projects from clearing the auction, and prices will be higher relative to a scenario in which the offshore wind is able to displace more expensive resources from the supply curve. The energy storage projects required pursuant to New Jersey law will face similar barriers.

The detrimental effects of the MOPR operate on top of an RPM structure that already inflates prices and cleared quantities, while limiting competition from resources that could lower those prices. For example, RPM is widely recognized to be structurally non-competitive, and the independent market monitor has asserted that the current market power mitigation mechanism—the market seller offer cap—is inadequate to control for market power.[30] The BRA demand curve is much higher than it should be to incent the right level of new entry, requiring consumers to buy unneeded capacity at higher prices than they would if the demand curve was based on

[27] *See, e.g.*, Comments of the Institute for Policy Integrity at New York University School of Law, at 13–16, Docket Nos. EL16-49; Illinois Attorney General Reh'g Req. at 3.
[28] The capacity price increase directly attributable to the MOPR may be hard to discern even after an auction is held due to a wide variety of factors that affect prices, such as significant new entry and exit, changes to transmission facilities, changes in forecasted energy revenues, and FERC's 2019 approval of new variable resource requirement parameters that are likely to have some downward pressure on the clearing price.
[29] Michael Goggin & Rob Gramlich, *A Moving Target: An Update on the Consumer Impacts of FERC Interference with State Policies in the PJM Region*, (May 2020), https://gridprogress.files.wordpress.com/2020/05/a-moving-target-paper.pdf.
[30] Compl. of the Independent Market Monitor for PJM, at 2, Docket No. EL19-47 (Feb. 21, 2019).

more accurate Net CONE values.[31] Variable energy resources are disproportionately deterred from offering their full capacity value into RPM by punitive capacity performance rules.[32]

While not all problems with RPM can be avoided through FRR, because resources committing capacity through an FRR plan are subject to the same requirements as those in RPM, the ability of an FRR entity to avoid several significant RPM flaws points to opportunities for lower rates through FRR.

First and most obviously, the FRR can reduce rates paid for capacity because the utility (or other FRR procurement entity) can buy capacity from resources that would otherwise be subject to the MOPR at the price those state-supported entities are willing to accept in exchange for taking on a capacity obligation.[33] That price will be lower not only than the administrative floor price PJM would impose, but also likely lower than recent BRA clearing prices given that unmitigated capacity offers from state-supported resources were presumed to be suppressing those clearing prices. We estimate that by 2030, even without further policy interventions to affect where new clean energy resources are built, a PSEG FRR could comprise entirely resources supported by state policies, a JCPL could comprise 25% such resources, and an AECO FRR could include 75%.[34]

Second, FRR entities need only procure enough capacity to meet PJM's installed reserve margin exactly, rather than procuring enough to meet the much higher margin that the BRA tends to clear as a result of the inflated demand curve. PJM's installed reserve margin target is typically 15-16%, whereas the BRA has cleared reserve margins of 22%. Even if a slight premium were to be paid for capacity through an FRR plan, the utility could still end up paying less overall because of the lower quantity. The Independent Market Monitor and other parties have suggested that this long-standing rule should be revisited, so as to require FRR plans to include the same reserve margin as the BRA.[35] This is both impractical, since FRR plans need to be developed before the reserve margin cleared by the BRA is known, and unjustified since it would require FRR plans to include a reserve margin target considerably higher that PJM's planners deem optimal. The Board and Staff should be vigilant against efforts to undermine this long-standing rule regarding reserve margin requirements for FRR, since it would not only

[31] *See* James F. Wilson, *Over-Procurement of Generating Capacity in PJM: Causes and Consequences* (Feb. 2020).
[32] *See* Direct Test. of Michael Goggin on Behalf of the Sierra Club, at 18–20 (Jan. 2, 2019), https://dis.puc.state.oh.us/TiffToPDf/A1001001A19A02B65906J00350.pdf ("Goggin Test.").
[33] This is related to another benefit of FRR, which is that the FRR entity does not need to pay the same price to different capacity sellers (or to those within the same zone), as occurs in the BRA. The FRR entity can instead pay capacity resources on an as-bid basis, which will allow consumers to pay less for capacity in proportion to revenues paid for environmental attributes under state law.
[34] *See* Attachment A.
[35] *See* Monitoring Analytics, Potential Impacts of the Creation of New Jersey FRRs, at n. 30.

diminish the potential benefits of New Jersey utilities electing FRR, but would also increase capacity prices across the RTO as existing FRR plans are suddenly required to include significantly high quantities.

Third, the FRR can allow utilities in New Jersey to benefit from a slightly higher capacity contribution from variable renewable energy resources. PJM's capacity performance rules impose steep penalties on resources that do not perform as required during specific capacity performance intervals that PJM may declare when a portion of the system is stressed. These penalties can be especially harsh for variable renewable energy resources, which cannot take steps to improve their availability in the same way that a thermal unit would be able to. To mitigate the risk of these penalties, renewable energy resources will sometimes bid less capacity into the market than would otherwise be permitted under PJM's rules. As a result, renewable energy resources do not earn as much capacity revenue as they might otherwise, and displace fewer carbon-emitting resources than would be ideal for state policy purposes.[36]

The physical option for FRR plans, described above, provides a means for the utility to reduce renewable energy resources' exposure to capacity performance penalties, which can in turn allow those resources to offer into the FRR plan at a higher capacity quantity than they might otherwise. Under the FRR physical option, the performance of the FRR capacity plan during performance assessment intervals is judged in the aggregate, allowing resources that over-perform to compensate for those under-perform. This aggregate assessment effectively allows a pooling of performance risk and therefore, a form of insurance for variable energy resources. Such pooling of risk makes sense for resources that cannot take steps to increase their availability, such as variable energy resources. However, it may not be advantageous from a policy perspective for thermal resources that can improve availability through maintenance and upgrades. If an FRR utility elected the physical option, it would likely need to establish via contracting mechanisms which resources would benefit from this risk pooling and to what extent. For instance, if the portfolio is deemed to have underperformed in the aggregate, and the utility is required to add capacity in subsequent years, the utility may choose to impose a larger portion of the costs of those replacement measures on units that could, but did not, take steps to improve their availability.

Fourth, the FRR entity may be able to obtain lower prices for capacity under an FRR plan by offering a price lock for a minimum number of years. Capacity sellers may be willing to offer slightly lower prices in exchange for the certainty regarding this revenue stream, rather than having capacity revenues change unpredictably as they often do with RPM. A five-year contract may make sense for some resources in an FRR entity's portfolio, given the five-year commitment the FRR entity must make when first electing FRR.

[36] *See* Goggin Test. *supra* note 32.

The factors described above will tend to decrease prices in an FRR plan relative to RPM. One factor that could tend to increase prices in an FRR plan is the exercise of market power, to the extent that available mechanisms to control for such market power are not effective. However, there is no reason to assume that market power will be unmitigated and affect the prices paid to every seller (even those without market power). Monitoring Analytics, the independent market monitor for PJM, recently released an evaluation of the possible prices associated with various possible New Jersey FRRs. While this analysis contains useful information about how the FRR might apply in New Jersey, it includes an unexplained assumption that prices paid to all FRR capacity could be as high as the PJM market seller offer cap, even though not all sellers to New Jersey FRRs would have market power, mitigation could protect consumers from sales affected by market power, and clearing prices in New Jersey have been consistently below the market seller offer cap.[37] The Monitoring Analytics evaluation also assumes that one or more New Jersey FRRs would import capacity from outside the state or zone only to the extent the UCAP obligation could not be satisfied with internal capacity, an assumption that worsens market power, and ignores that a rational buyer would purchase as much lower-cost external capacity as permitted by the applicable transmission limits.[38] While Monitoring Analytics is right to flag market power as a concern for states considering FRR, the evaluation overstates the possible costs associated with exercise of market power appear in several important ways.

Finally, we observe that the price and rate impacts of FRR are not limited to changes in price to be paid for capacity. Because FRR can allow utilities to pay state-supported resources for capacity, it can reduce the costs of compliance with state clean energy statutes. For example, an offshore wind project deprived of capacity revenues through RPM will likely require a higher OREC payment instead. New Jersey ratepayers would then have to pay for those more expensive OREC payments while also paying higher capacity prices. By allowing payments for capacity to contribute to the financing for resources required under state law, the FRR makes achievement of state law mandates and goals more affordable. These savings should be considered alongside savings for the actual capacity purchases.

d. Discussion of whether and how the State could pursue an FRR construct under existing legislative and regulatory provisions.

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[37] Miles Farmer & Rob Gramlich, *Whether to FRRExit: Information States Need on the Costs and Benefits of Departing the PJM Capacity Construct*, at 6–7 (May 2020), https://gridprogress.files.wordpress.com/2020/05/whether-to-frrexit-paper7.pdf. Potential mechanisms to address market power are discussed further in response to Question 1.H, below. Submitted as Attachment B.

[38] *Id.* at 5–6.

New Jersey's Energy Master Plan (EMP)[39] sets a series of targets to reduce carbon emissions from the electric sector and to and eventually decarbonize entirely by 2050 through a significant expansion of the state's reliance on clean renewable generation resources. For example, the EMP includes the goals of:

- Meeting the 50% renewable portfolio standard by 2030
- Ensuring at least 75% of electricity demand is met by carbon-free renewable generation by 2050
- Exploring regulatory authority to achieve 100% clean energy by 2050

EMP at 99 (Goal 2.1). Achieving these goals is not just critical to addressing the climate crisis, but will also yield significant benefits for New Jersey in terms of public health, job growth, and economic development. *See* EMP at 100 ("The renewable energy market provides even more jobs; the solar industry in New Jersey employs roughly 6,400 people and the emerging offshore wind industry is expected to produce roughly 25,000 full-time equivalent jobs through 2035 to build and operate the infrastructure"); *id.* (renewable energy "drives innovation and technological development . . [c]ommercialization of new storage and power integration technologies, whether core components or products and software needed for system integration, has the power to create significant R&D, design, and services jobs. . . . New Jersey can also capture manufacturing supply chain jobs in these new fields"); *id.* at 101 ("Ensuring that regulatory pathways are available to allow renewable electricity generation to support increased electrification and replacement of aging natural gas power plants will be crucial to driving down emissions and improving air quality, especially in New Jersey's most burdened communities."). Studies performed by the BPU helped develop these and other goals in the EMP, and as the EMP makes clear, the BPU's work is integral and necessary for their achievement.

The BPU has been granted broad authority by the legislature to regulate electricity service in New Jersey, including the procurement of electric power and ensuring that New Jersey electric customers and the state at large benefit from clean, reliable service. *See* NJ Rev. Stat. § 48:2-13. Indeed, as New Jersey courts have noted, the BPU has been granted "the widest range of regulatory power over public utilities," that the laws granting that authority "are to be construed liberally," and the powers so delegated "are to be read broadly." *Daaleman v. Elizabethtown Gas Co.*, 142 N.J. Super. 531, 535 (Law. Div. 1976), *decision modified and remanded*, 150 N.J. Super. 78 (App. Div. 1977), *rev'd on other grounds*, 77 N.J. 267 (1978); *see id.* at 535-36 ("At the core of this regulatory scheme is a legislative recognition that the interest of the general public in the proper regulation of those industries classified as public utilities transcends the relatively parochial interests of any subdivision of the public, and that a centralized control must be entrusted to an agency whose continually developing expertise will

[39] 2019 New Jersey Energy Master Plan Pathway to 2050, https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

assure uniformly safe, proper and adequate service by utilities throughout the State"); *Bergen County v. Department of Public Utilities*, 117 N.J.Super. 304, 312 (A.D.1971) ("The board of public utility commissioners was intended by the legislature to have the widest range of regulatory power over public utilities"); *Matter of Valley Road Sewerage Co.*, 154 N.J. 224, 235 (1998) ("his sweeping grant of power is intended to delegate the widest range of regulatory power . . . Furthermore, the BPU's authority . . . extends beyond powers expressly granted by statute to include incidental powers that the agency needs to fulfill its statutory mandate") (internal cites omitted).

It is within this broad grant of authority for the BPU to employ the FRR mechanism to avoid the harmful impacts of the MOPR on the cost of electricity in New Jersey, the state's ability to achieve the goals of the EMP, and to take steps towards averting the climate crisis. The BPU's authority regarding basic generation service (BGS) provides a pathway for developing a FRR.[40] Under the Electric Discount and Energy Competition Act, the BPU is directed to fully regulate BGS, which each utility is obligated to provide unless the BPU finds that service to be unnecessary and not in the public interest. NJ Rev. Stat. §§ 48:3-51, 48:3-57(a)(1). Although there are restrictions placed on how BGS is to be procured and assessed, those restrictions do not preclude the use of BGS to accommodate a FRR. Specifically:

> Power procured for basic generation service by an electric power supplier shall be purchased at prices consistent with market conditions. The charges assessed to customers for basic generation service shall be regulated by the board and shall be based on the reasonable and prudent cost to the supplier of providing such service, including the cost of power purchased at prices consistent with market conditions, by the supplier in the competitive wholesale marketplace and related ancillary and administrative costs, as determined by the board or shall be based upon the result of a competitive bid.

NJ Rev. Stat. § 48:3-57(d). Accordingly, as long as a potential FRR was accomplished "consistent with market conditions," it would be consistent with the BPU's authority to establish and regulate BGS. Given that the purpose of an FRR would be to realign capacity procurement to be consistent with the marketplace for capacity in New Jersey and remove the distortions flowing from MOPR, BGS has the potential to be an effective path forward.

e. Discussion of any New Jersey legislative and regulatory limitations or potential amendments necessary to pursue FRR.

[40] The BPU has implied that it has reached a similar conclusion. *See* Comments and Protest of the New Jersey Board of Public Utilities, at 8–12, Docket Nos. EL16-49-000, EL18-178-000, ER18-1314-003, and ER18-1214-004 (consolidated) (May 15, 2020).

See response to Question 1.d.

f. Discussion of which entity would procure capacity under an FRR construct and whether capacity would be procured state-wide.

PJM's rules are not prescriptive about what entity procures capacity under an FRR construct, instead those rules are concerned with which entity is ultimately responsible for the performance and adequacy of the FRR plan: either the utility or public power entity that elected FRR, or a load-serving entity (or entities) designated by the state pursuant to RAA Schedule 8.1.I. The entity doing the procurement need not be the same entity as the one ultimately responsible to PJM for the FRR capacity plan, though the latter is presumed to be the counter-party with the capacity seller in any bilateral contract.

The utility electing FRR is one entity that could conduct the procurement, though this could raise concerns about undue preferences for capacity resources owned by the utility's generation-owning affiliates.[41] Another option, discussed further below, would be to have a state procurement authority established to serve this purpose. Legislation that was introduced in the Illinois legislature provided that the Illinois Power Agency would procure capacity on behalf of ComEd. Another model that New Jersey might consider, which the RAA specifically envisions, is that retail suppliers might provide capacity for an FRR plan corresponding to the amount of load which has switched to their services.[42] Allowing retail suppliers to fill this role would lessen affiliate favoritism risks compared to a utility-centered procurement.

The state power authority approach is not incompatible with allowing retail suppliers to self-supply: any state capacity procurements could be designed following PJM's pre-MOPR self-supply arrangements. Those rules simply allowed entities with a load obligation to acquire capacity on its own, then offer it into RPM auctions at a price of zero. Since capacity offered at zero is guaranteed to clear, the self-supply entity thus has offsetting capacity revenue and bills. This approach lets competitive LSEs take on as much of the responsibility and risk of managing their own capacity procurement as they wish. Beyond the established benefits this approach brings for LSEs and public power entities, New Jersey could expand it by allowing power consumers to also offer capacity into state procurements. This could be particular attractive for commercial users who wish to meet their own clean energy standards above and beyond those set by the state.

[41] Affiliate transactions are discussed further in response to Question 1.H.
[42] RAA 8.1.D.9 ("[I]n lieu of providing the compensation described above, such alternative retail LSE may, for any Delivery Year subsequent to those addressed in the FRR Entity's then-current FRR Capacity Plan, provide to the FRR Entity Capacity Resources sufficient to meet the capacity obligation described in paragraph D.2 for the switched load").

Statewide procurement of capacity could offer administrative cost savings for both the procurement authority and capacity sellers. However, it would not fundamentally change the dynamics of how much capacity needs to be procured in which zones in order to meet the internal resource requirements of each FRR plan. Those transmission constraints would prevent a single, undifferentiated statewide procurement, though a single procurement could be run which would factor in transmission constraints to choose the lowest cost set of offers meeting the locational requirements of different participating utilities. Capacity sellers, particularly those owning relatively small resources (especially demand-side resources), may face disproportionately high overhead costs associated with participating in multiple auctions with slightly different offer parameters—a single statewide auction could ensure that such sellers are able to minimize their administrative costs associated with selling into a New Jersey FRR. Finally, we note that capacity can and should be procured from out of state to the extent allowed by the CETL in order to reduce the influence of market power and allow New Jersey customers to obtain as much of their capacity as possible at a lower price.

g. Discuss the pros and cons of a State Power Authority ("SPA"), looking at examples from across the country, including discussion of any legislative and regulatory limitations and potential amendments necessary to pursue an SPA.

In light of the negative impacts from the application of the MOPR to clean energy resources, NJBPU may want to evaluate the potential benefits of establishing a state power authority. Power authorities are government entities with the authority to own and operate generating and transmission facilities or can enter into long-term contracts for the purchase of large amounts of electricity, and are then able to sell power at wholesale and/or retail to utilities and other customers within the state. Power authorities also have various forms of financing, generally centered around the issuance of bonds, sometimes (but not always) with state support. Additionally, should the state opt to pursue FRR, the BPU will need to decide how to manage that process, whether by having one or more EDC conduct its own capacity procurement (with or without additional state requirements), or whether it would prefer to rely on a properly empowered state power authority to administer a centralized procurement process according to its own terms. State-owned power authorities exist across the U.S., including in Alaska, Arizona, Colorado, Idaho, Illinois, Kansas, Nebraska, New Mexico, New York, Oklahoma, South Carolina, South Dakota, and Wyoming. For purposes of length, just a few examples are provided below.[43]

[43] Further details on remaining state power authorities can be found in MT Energy & Telecom. Interim Comm., *Perspectives on Public Power, A review of the public power model, its history, and its potential in Montana*, Appendix G (APPA report on public power authority formation)

New York Power Authority[44]

The NYPA is the largest state power authority in the United States. It was organized in 1931 and owns and operates 16 power generation facilities (primarily hydro and some fossil fuel) and approximately 1,400 circuit miles of high-voltage transmission lines, making up approximately 25% of New York's generating capacity and nearly 70% of its renewable energy capacity. NYPA sells power at retail and wholesale (at rates below market) to various entities inside and outside of the state, including government agencies, municipal utilities, electric cooperatives, and private companies. All project construction is financed through revenue bonds sold to private investors. NYPA does not use state tax revenues or state credit in its operation and, as such, is fully self-financing.

NYPA also invests over $100 million per year in several programs designed to encourage innovation, development, and adoption of renewable energy resources, including green buildings, energy efficiency, electric vehicles, and demand response. NYPA provides low-cost project financing for any public entity in the state of NY, not-for-profit colleges and universities, and others. NYPA also provides technical expertise to help implement projects. NYSERDA has funded over $2.3 billion in energy projects that provide an annual energy savings of 1.37 gigawatt hours.

NYPA often works in partnership with the New York State Energy Research and Development Authority (NYSERDA) in developing clean energy resources. Originally established as a public benefits corporation dedicated to renewable energy research and development during the oil embargo, NYSERDA now administers a ratepayer fund designated for developing clean energy services and environmental programs. In comments to the New York Public Service Commission, NYPA suggested that were the state to exit the capacity market, NYSERDA could run the procurement process.[45]

The close coordination between NYPA, NYSERDA and the state enables New York to invest heavily in clean energy targeted to reach state policy goals at lower cost to its customers. This level of state ownership provides a more direct and faster means of achieving state clean energy goals at low cost.

(2008), https://leg.mt.gov/content/Publications/committees/interim/2007_2008/2008publicpower.pdf.

[44] NY Power Authority, https://www.nypa.gov/.

[45] NYPA Initial Comments Addressing Resource Adequacy, NYPSC Case 19E-0530 (Nov. 8, 2019), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BCFEE6E47-1DED-488F-812D-37B39C598129%7D.

Alaska Energy Authority[46]

The Alaska Energy Authority (AEA) is an independent corporation of the State of Alaska created under A.S. Chapter 83, Sec. 44.83.020, but with separate and independent legal existence. Although originally established in 1976, the AEA's authority and mission expanded in 2007 in the face of dramatically rising fuel prices and provides a good example of a state authority responding to sudden price shifts and shifting focus to renewable energy development and regional energy planning. AEA is the state's energy office and lead agency for statewide energy policy and program development. AEA is authorized to improve, equip, operate, finance, and maintain power projects and bulk fuel, waste energy, energy conservation, energy efficiency, and alternative energy facilities and equipment carrying out the powers and duties assigned to it under AS 42.45. It may issue bonds to carry out any of its corporate purposes and powers, including the establishment or increase of reserves to secure or to pay the bonds or interest on them. AEA's mission also includes:

> Energy Planning: In collaboration with local and regional partners, AEA provides critical economic and engineering analysis to plan the development of cost effective energy, setting energy priorities and formulating concrete energy plans that address energy needed by communities and regions for electricity, heat and transportation. Each planning effort includes regional stakeholders, evaluated alternatives and provided a prioritized action plan of projects.
>
> Owned Assets: AEA owns two hydroelectric plants and a major intertie transmission line.
>
> Rural Energy Assistance: AEA constructs and supports bulk fuel tank farms, diesel powerhouses, and electrical distribution grids in rural villages.
>
> Energy Technology Programs: AEA provides renewable energy and energy efficiency grants, analysis, and expertise. These include hydro, biomass, wind, solar, and others.
>
> Grants & Loans: AEA provides loans to qualified utilities, local governments, and independent power producers for the construction or upgrade of power generation and other energy facilities. The Power Project Fund (PPF) loan program provides loans to local utilities, local governments or independent power producers for the development, expansion or upgrade of electric power facilities, including distribution, transmission, efficiency and conservation, bulk fuel storage and waste energy. The loan term is related to the productive life of the project but cannot exceed 50 years. Interest rates vary between tax-exempt rates at the high end and zero on the low end. The tax-exempt rate is equal to the average weekly yield of municipal bonds for the 12 months preceding the date of the loan application. AEA also oversees implementation of the Renewable Energy

[46] *See* Alaska Energy Authority, http://www.akenergyauthority.org/.

Fund, which was created by the Alaska legislature in 2008 and has since distributed over $268 million in grants for renewable energy projects.

Illinois Power Agency[47]

The Illinois Power Agency has a somewhat unique state procurement model that might be especially relevant to New Jersey. Established in 2007 by Public Act 95-0481, the Act reflects a rate relief settlement with the state's two major utilities. In order to ensure the benefits of competition extend to all ratepayers, the Act authorizes the Illinois Power Authority to procure power for the customers of these utilities who have not opted for alternative providers under retail choice. Its goals and objectives are to:

- Develop electricity procurement plans to ensure adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time, taking into account any benefits of price stability, for residential and small commercial customers of Ameren, ComEd, and MidAmerican. The procurement plan is updated on an annual basis.
- Conduct competitive procurement processes to procure the supply resources identified in the procurement plan.
- Develop and implement a Zero Emission Standard Procurement Plan.
- Develop a Long-Term Renewable Resources Procurement Plan and implement the programs and procurements contained in the Plan, including the Adjustable Block Program and the Illinois Solar for All Program.

The Illinois Power Agency is an independent agency with two bureaus: the Planning and Procurement Bureau conducts a competitive procurement process; and the Resource Development Bureau may develop, finance, construct or operate generating facilities and power from the facilities may be sold, at cost, to governmental aggregators and municipal or cooperative electric systems. All power must be sold to end-use consumers at the purchased-power price. The agency may sell excess capacity and energy into the wholesale electric market at prevailing market rates, but may not sell excess capacity or energy through the competitive procurement process. The agency can enter into agreements to issue revenue bonds for costs incurred in connection with development and construction of a generating facility. The maturity of the bonds must be no more than 40 years and the bonds may be tax-exempt if appropriate.

After reviewing all relevant information, the IPA drafts a procurement plan every year that proposes to the LSEs which capacity resources to use and in what amounts. Competitive suppliers and public power are exempt from the IPA procurement process. The 2020 IRP recommended that ComEd procure all of its capacity through PJM's RPM and that Ameren

[47] Illinois Power Agency, https://www2.illinois.gov/sites/ipa/Pages/default.aspx.

procure half of its capacity from the IPA's competitive procurement contracts and the remaining half from MISO's capacity market.[48]

However, in light of the recent FERC MOPR Orders, the Illinois legislature is considering pulling ComEd out of the PJM capacity market altogether and creating an alternative capacity auction, with the IPA taking responsibility for capacity procurement for the ComEd territory, prioritizing carbon-free generation.[49] While it has not passed as of yet, legislative debate on withdrawal has been ongoing and seems increasingly likely.

Factors to Consider

Especially for states trying to achieve a rapid transition to clean energy, there appear to be considerable upsides to the establishment of a state power authority, though it is also clear that each authority is unique. While NYPA stands out in how much it has been able to invest and the share of clean energy it is able to provide, NYPA is the beneficiary of legacy hydro resources. New Jersey, which would be starting from scratch, would have to build or purchase its generation at considerably greater expense. The Alaska model provides an example of a fairly collaborative capacity planning process with financial investments in a relatively narrow bandwidth, primarily made up of relatively modest clean energy loans and community assistance, with a limited portfolio of renewable resources developed over time. Illinois' IPA model has a less-intensive IRP process tailored to address only those utilities with market power - which is similar in scope to the New Jersey BGS auction.

As all of these examples demonstrate, a state power authority permits generation contracting and investments in line with schedules set forth in the New Jersey Energy Master Plan at lower prices than the private sector is likely to achieve. Because a power authority has a broader scope of action than a simple procurement process run on behalf of utilities, it may be the best approach to managing an FRR plan.

A New Jersey power authority might have the following features:

- Under state authority and incorporated as a public power entity to allow PJM market participation.
- Authorized as the FRR entity that procures and bills capacity on behalf of all New Jersey ratepayers, other than those served by incumbent municipal utilities or electric cooperatives.

[48] IPA, *Electricity Procurement Plan: Final 2020 Plan* (Jan. 17, 2020), https://www2.illinois.gov/sites/ipa/Documents/2020%20Final%20Electricity%20Procurement%20Plan/IPA%20Final%202020%20Electricity%20Procurement%20Plan.pdf.

[49] Jeff St. John, *Illinois Opens Narrow Path Window for Critical Solar, Nuclear Relief Bills to Pass*, Greentech Media (May 14, 2020), https://www.greentechmedia.com/articles/read/illinois-legislature-opens-narrow-window-for-bills-to-boost-solar-nuclear.

- Manages a portfolio of renewable resources, storage, demand side measures, and traditional generation to implement the EMP at lowest cost and maintain reliable electric service.
- Provides risk pooling services as deemed in the public interest to support legislative mandates and executive clean power goals. (See I.i, below)
- Enter into long-term contracts for the purchase of power or transmission capacity to support these activities.
- Potentially build its own generation and transmission facilities. Direct investment in and ownership of generation and transmission resources by a New Jersey power authority would also help address the perpetual difficulty New Jersey has had in attracting development of new generation capacity in constrained zones, thereby helping to alleviate the concentration of market power in New Jersey.

While establishing a state power authority need not be tied to the FRR investigation, should New Jersey opt to pursue FRR, such an entity may be very well suited to both operating within PJM's market structure and realizing New Jersey's energy policy goals.

In terms of legislation, many of these potential projects could be financed through utilization of the New Jersey Economic Development Authority Act (NJDAA), N.J.S.A. 34:1B-5 *et. seq*. EDA has broad statutory power to assist in the financing of economic development projects, potentially including construction of generation facilities. While the Board is not currently a member of the New Jersey Economic Development Authority itself, it is possible the NJDAA could be amended to expand it accordingly if desired. However, the Board itself does not appear to currently have authority to procure and operate generation itself and dedicated legislation housing all authority and responsibility in one entity may be preferable, even if not necessary.

h. Discussion of any affiliate relations or market power concerns related to implementation of FRR in New Jersey.

Implementing FRR in New Jersey would require a procurement entity to negotiate rates for capacity for a sufficient quantity of capacity to meet both any internal resource requirement and the total resource requirement for the FRR plan. To ensure that New Jersey ratepayers get a fair deal, it will be important to ensure that the procurement entity has both the incentive and the ability to negotiate for reasonable rates. While FERC rules concerning market power and affiliate abuse will be implicated by an FRR, the Board will play an essential role in scoping the FRR, designing the procurement, and mechanisms to recover and allocate costs associated with the FRR in ways that can address both market power and affiliate transactions.

Sales of capacity to an FRR entity are subject to FERC's jurisdiction, meaning that FERC is obligated under the Federal Power Act to ensure that the rates paid are just and reasonable.[50] FERC has concluded that market-based rates--those negotiated between the seller and buyer--are just and reasonable so long as the seller does not have market power, i.e., a sufficient share of the relevant market that the seller can impose a price on the buyer. FERC also subjects sales between affiliated entities to additional scrutiny to ensure that the price and terms negotiated reflect what would be expected from an open and transparent procurement process.[51] In this response, we will first discuss affiliate transactions, and then market power.

Sales of capacity within an FRR are likely to involve at least some affiliate transactions. For example, according to data from S&P Global, PSEG owns 62% of nameplate capacity in the PSEG zone. FERC requires that sales of energy or capacity between a franchised public utility with captive customers and a market-regulated power sales affiliate be approved in advance.[52] The sale will be reviewed by FERC to ascertain whether the transaction resulted from a competitive solicitation process, and whether there is evidence showing a lack of affiliate abuse, such as benchmark evidence of similar sales made by non-affiliates.[53] The Board can take steps to ensure a competitive procurement that confers no undue advantage on affiliate sellers, such as requiring those processes to be run by an independent entity.[54] Additionally, the state can design an FRR capacity procurement structure that mitigates affiliate influence and achieves desired competition.[55] One option would be to design a de-centralized FRR where retail suppliers

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[50] FERC has determined that "maintaining adequate resources" bears "a significant and direct effect on" wholesale rates. *PJM Interconnection, L.L.C.*, 119 FERC ¶ 61318, at P 40 (2007). Therefore, FERC regulates interstate sales of electric capacity as part of its approach to regulating electric energy rates. *See Utilimax.com, Inc. v. PPL Energy Plus, LLC*, 378 F.3d 303, 305 (3d Cir. 2004).

[51] FERC's "affiliate restrictions include a provision prohibiting power sales between a franchised public utility with captive customers and any market-regulated power sales affiliates without first receiving Commission authorization for the transaction under section 205 of the FPA." Order No. 697, 119 FERC ¶ 61,295, at P 23 (June 21, 2007), *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*.

[52] 18 C.F.R. § 35.39(b) (2015).

[53] *Boston Edison Company re: Edgar Electric Energy Co.*, 55 FERC ¶ 61,382 (1991); *Allegheny Energy Supply Company, LLC*, 108 FERC ¶ 61,082 (2004).

[54] More broadly, the Commission looks to four guidelines to help determine if a competitive solicitation process satisfies that underlying principle: (1) Transparency: the competitive solicitation process should be open and fair; (2) Definition: the product or products sought through the competitive solicitation should be precisely defined; (3) Evaluation: evaluation criteria should be standardized and applied equally to all bids and bidders and; (4) Oversight: an independent third party should design the solicitation, administer bidding, and evaluate bids prior to the company's selection. *Allegheny Energy Supply Co.*, 108 FERC ¶ 61082, at P 22.

[55] *Id.* at 14.

handle procurement, with buyers and sellers interacting to trade contracts of different terms, conditions, and durations.[56] Alternatively, states could designate a distribution company to handle FRR procurement for all retail suppliers, with state rules governing procurement, allocation, and recovering prudent costs.[57] A third option would be to designate a state agency to handle procurement of capacity for all users within the FRR.[58]

FERC also looks to whether the product being procured is defined in a clear and non-discriminatory manner. While the Commission has recognized that a procurement may specify factors such as fuel or technology type sought, the Commission acknowledges that "[a]n RFP should not be written to exclude products that can appropriately fill the issuing company's objectives."[59] The Board should consider how to structure a procurement and set out clear requirements for the FRR entity to meet if it decides to require a utility to elect FRR where affiliate transactions are likely to arise.

A utility can also obtain a waiver of the pre-approval requirement for affiliate sales if it can establish that it has no captive customers, meaning that retail customers can purchase supply from a seller other than the utility, and are not subject to non-bypassable charges. If the Board wishes to enable a utility electing FRR to avoid the requirement to seek pre-approval for any affiliate sales, it should avoid establishing a state compensation mechanism pursuant to RAA 8.1.D.8 that would result in a non-bypassable charge. Allowing retail suppliers to instead provide their own capacity to the utility's FRR plan may be one way of avoiding a non-bypassable charge associated with FRR procurement.

Market power is present in certain FRR service areas where transmission constraints force the FRR procurement entity to buy capacity from an area where certain sellers are pivotal suppliers. If not mitigated, this market power could result in rates for capacity that are not just and reasonable. In New Jersey, only the PSEG zone has an internal resource requirement; FRR plans for the other zones could be supplied with capacity from the broader EMAAC zone, thus lessening the potential for the exercise of market power.[60]

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[56] *Id.*
[57] *Id.*
[58] *Id.*
[59] *Id.* at P 28.
[60] Monitoring Analytics concluded that a statewide FRR, PSEG FRR and JCPL FRR would all be structurally non-competitive due to the presence of multiple pivotal suppliers. *See* Monitoring Analytics, *Potential Impacts of the Creation of New Jersey FRRs*, at 11 (May 13, 2020), http://www.monitoringanalytics.com/reports/Reports/2020/IMM_Potential_Impacts_of_the_Creation_of_New_Jersey_FRRS_20200513.pdf. It is not clear the extent to which this conclusion was affected by Monitoring Analytics' assumption that the FRR obligation would be met by

The FRR does not "create" market power that does not otherwise exist. Market power exists because of an inherently tight electrical system with little surplus supply, concentrated ownership of resources able to sell that product, and transmission constraints that limit competition.[61] None of those factors increase when a utility elects FRR, since the minimum internal resource requirement reflects the same Capacity Emergency Transfer Objective (CETO) that would constrain how the BRA clears. If anything, the degree of market power is reduced compared to RPM, since the quantity that must be purchased is lower and the number of capacity resources that can effectively compete is increased (due to the absence of the MOPR).[62]

What does change is the set of tools available to mitigate the exercise of market power. Because RPM has been deemed structurally non-competitive, PJM and the IMM have developed and continue to refine a set of market power mitigation measures, including market seller offer caps. As Monitoring Analytics' recent report shows, in the last BRA, all zones in New Jersey cleared well below the applicable market seller offer cap.[63]

These specific measures would not be automatically available to control for the exercise of market power in one or more New Jersey FRRs,[64] but they are based on more general tools that FERC has used to ensure that market-based rates are just and reasonable despite the presence of sellers with market power. The fact that RPM market power mitigation measures would not directly apply to an FRR procurement does not mean that there are no available means to prevent market power from resulting in unjust and unreasonable rates. A wholesale sale within FERC's jurisdiction does not escape scrutiny simply because the sale is made outside of a

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internal load in excess of the minimum internal resource requirement. *See* Farmer & Gramlich, *supra* note 37, at 7.

[61] *See, e.g.*, Monitoring Analytics 2010 State of the Market Report, at X ("Market power is and will remain endemic to the existing structure of the PJM Capacity Market. This is not surprising in that the Capacity Market is the result of a regulatory/administrative decision to require a specified level of reliability and the related decision to require all load serving entities to purchase a share of the capacity required to provide that reliability.").

[62] While seller market power has the potential to put upward pressure on rates paid through an FRR, there is a possibility that mitigation of market power could actually be more effective in an FRR than in RPM, if the state and FERC are able to work constructively toward a solution. As acknowledged by the IMM, there are serious gaps in the construct for mitigation of market power in RPM, suggesting that it may not be hard for New Jersey to do better.

[63] *See* Monitoring Analytics, *Potential Impacts of the Creation of New Jersey FRRs*, at Table 10 (May 13, 2020), http://www.monitoringanalytics.com/reports/Reports/2020/IMM_Potential_Impacts_of_the_Creation_of_New_Jersey_FRRS_20200513.pdf.

[64] In a centrally cleared auction like RPM, the presence of structural market power can increase the clearing price paid to all capacity sellers. In a bilateral market with multiple buyers and sellers, market power directly affects only those transactions in which the pivotal supplier is involved.

centralized market; FERC remains responsible for ensuring that all market-based rates are just and reasonable. A recent paper evaluating the potential benefits and costs of the FRR summarizes several ways that FERC and states like New Jersey could work independently or collaboratively to ensure that customers are not saddled with unreasonable rates for capacity.[65]

From the state side, New Jersey can design the FRR construct to blunt market power at the outset. Because FRR does not have to be applied state-wide, a New Jersey FRR could be more surgically applied to initially exclude the PSEG zone, given its internal resource requirements, and focus on zones with fewer constraints.[66] Since the goal is to ensure that state EMP goals are met, an initial FRR need only be large enough to acquire capacity from clean energy resources that would otherwise be excluded from RPM as a result of the MOPR. However, because FRR has potential to bring significant benefits to ratepayers, and because New Jersey's fleet of clean energy resources will be growing rapidly, it is imperative that the Board identify mechanisms to effectively address market power (including collaboration with FERC), so as not to restrict the scope of the FRR for the longer term.

The mechanisms to address market power are likely to include elements of both federal and state authority. While sales of capacity are subject to FERC's jurisdiction, these sales also have an obvious and direct impact on prices charged to retail customers, which is a matter of state concern.[67] Courts have held that although a state regulator cannot reset a price charged by a seller for a FERC-jurisdictional product, the state can establish rules to regulate the prudency of capacity purchases.[68] [69] States also retain authority to regulate the conduct of capacity sellers pursuant to general states laws, such as anti-trust prohibitions, notwithstanding incidental effects on sales within FERC's jurisdiction.[70]

The state can also seek to work with FERC to establish cost caps for capacity purchases, which have been used in similar market settings, such as CAISO.[71] FERC also has a statutory obligation to mitigate market power and its traditional enforcement role serves as an important backstop against non-competitive conduct, including in the FRR context. Sellers in the FRR context are still subject to EQR reporting requirements, which allows for public monitoring of bilateral transactions and the basis of which can be used for a complaint or protest to FERC,

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[65] Farmer & Gramlich, *supra* note 37, at 11–13.
[66] *Id.* at 13.
[67] Because sales of capacity fall within FERC's "directly affecting" jurisdiction, states likely have concurrent jurisdiction over those sales.
[68] Farmer & Gramlich, *supra* note 37, at 13.
[69] *Kentucky West Virginia Gas Co. v. Pennsylvania Public Utilities Comm'n*, 837 F.2d 600 (3d Cir. 1988).
[70] *Oneok, Inc. v. Learjet, Inc.*, 135 S. Ct. 1591 (2015).
[71] Farmer & Gramlich, *supra* note 37, at 12.

which is authorized to investigate specific utilities or anomalous market circumstances and has decades of experience enforcing against and penalizing anti-competitive conduct.[72]

While market power will remain an issue in New Jersey, that will be true whether the state exercises the FRR option or remains entirely in the PJM RPM.[73] However, a properly designed, monitored, and enforced FRR does not appear to exacerbate this problem. If anything, compared to the inevitable barriers against the development of new generation under the MOPR, a well-designed and implemented FRR could actually do a better job of alleviating market power while achieving the state's clean energy goals.

i. Discussion of any related topics.

Although the FRR would allow New Jersey utilities to avoid some aspects of RPM that are incompatible with New Jersey's clean energy goals, more fundamental elements of PJM's resource adequacy construct create deeper barriers that will ultimately need to be resolved in order for New Jersey and other PJM states to achieve high levels of decarbonization in an affordable manner.

The primary areas of difficulty are:

1. **Resource Adequacy**. The EMP models New Jersey's power grid as a portfolio of resources that "work in complementary fashion to serve the needs of the system" (IEP Technical Appendix sec 7.2, at 98). This is in alignment with recent research into how to design a reliable low-carbon electricity grid, which highlights balancing the grid through different types of renewables (e.g., solar that is most productive on summer days and wind power that may produce more during the winter), use of storage to bridge periods of low renewable output, and controllable generation as a backstop.[74] In this model, resource adequacy is protected by modeling renewable output and demand for electricity over many scenarios to find a resource mix that provides a sufficiently low risk of power outage.

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[72] *Id.*

[73] It is also important to note that the structure of generation ownership in New Jersey is not set in stone. Indeed, many of the objectives in the EMP involve incentivizing new entry by generation resources, including offshore wind, energy storage, and distributed and small-scale resources. Assuming the policies to procure or incentivize these resources avoid allowing further concentration of ownership, over time generation ownership in New Jersey will become more dispersed, lessening the proportion of capacity sales potentially affected by market power. We estimate that over 4600 MW UCAP of new clean energy resources will be built in New Jersey by 2030, 1200 MW of which is likely to be constructed in the constrained PSEG zone. *See* Attachment A.

[74] *See, e.g.*, Ben Haley *et al.*, *350 PPM Pathways for the United States*, Evolved Energy Research, at 58 (May 8, 2019) https://irp-cdn.multiscreensite.com/be6d1d56/files/uploaded/350PPMPathwaysfortheUnitedStates.pdf.

RPM, in contrast, was designed around the characteristics of traditional power plants, and treats each resource as a stand-alone source of a fixed amount of "capacity". Resource adequacy is protected when the sum of the capacity value of each individual resource meets the amount of capacity deemed to provide an acceptable risk of power shortage, allowing for power plant outages and similar risks. RPM provides some limited ability for aggregation of seasonal resources, but provides nothing similar to the sophisticated hourly output models used to develop the EMP.

RPM's rules mean that power plants are generally valued only in isolation. Under RPM, many low-carbon resources count very little towards reliability: individual renewable resources by themselves can not serve the power grid year-round, and RPM provides no meaningful way to recognize the portfolio effects from large amounts of complementary resources.

2. **Managing Peak Demand**. The EMP envisions aggressively managing peak hour demand for electricity in order to reduce the need for expensive, likely fossil-fueled peaker plants. (EMP Goal 3.2, page 147ff). However, RPM rules severely undervalue peak demand reduction, resulting in continued procurement of the very fossil plants peak management programs are designed to replace.

Peak demand management is accommodated in RPM either out of the market through its impact on load forecasts, or in the market through participation in demand response programs. However, reductions in peak demand take 20 years or more to be incorporated into PJM load forecasts. Demand response rules only value resources that can curtail in non-peak seasons, and so do not allow peak demand reductions to fully displace generation capacity. Likewise, although the EMP emphasizes the value of energy efficiency (EMP 3.1), RPM employs an "add back" that entirely prevents energy efficiency from displacing generation. The peak management and energy efficiency strategies envisioned in the EMP will not succeed under RPM.

3. **Lack of seasonal capacity procurement.** RPM procures enough capacity year-round to meet the summer peak load plus the installed reserve margin target. A resource offering into RPM must offer based on the amount of capacity it can commit to providing on a year-round basis. This means that resources with strong seasonal generation profiles, including summer-only demand response, must either offer at the level available during their "off season" or must attempt to aggregate with another resource with complementary seasonality, a process that has

not worked well since it was introduced when the capacity performance reforms eliminated all seasonal capacity products.[75]

Thus, even if New Jersey utilities pursue FRR, state policymakers cannot ignore the basic rules of RPM which will still affect the capacity credit that clean energy resources are able to earn, and the extent to which fossil fuel resources are able to continue earning revenues for providing capacity, even while operating very infrequently. In conjunction with significant reforms to RPM, PJM's market and planning design must help to ensure that the kinds of ancillary services needed to support a high-renewable system are procured and adequately compensated. Rather than procuring an excess of the undifferentiated service of "capacity," PJM must shift to a market design where flexibility is rewarded.

[75] Sam Newell *et al.*, *Opportunities to More Efficiently Meet Seasonal Capacity Needs in PJM*, The Brattle Group (Apr. 12, 2018), http://files.brattle.com/files/13723_opportunities_to_more_efficiently_meet_seasonal_capacity_needs_in_pjm.pdf.

Question 2. Can New Jersey Utilize the FRR to Accelerate Achievement of New Jersey Clean Energy Goals? Staff seeks written comments to discuss *whether* establishing FRR service area or areas in New Jersey would accelerate achievement of the State's clean energy goals, including those set forth in the 2019 Energy Master Plan. Suggested topics for inclusion in the comments are as follows:

a. Discuss whether FRR is a viable construct to assist New Jersey in achieving its clean energy goals.

The FRR construct is necessary to New Jersey achieving its clean energy goals, but is not sufficient—it must be complemented by other policy mechanisms. Fundamentally, FRR allows the state's utilities to direct revenues for capacity to resources required to meet the state's policy goals, and a decreasing percentage of those revenues to resources that are not compatible with decarbonization.

FRR reduces the cost of meeting specific state goals such as the requirement to develop 7500 MW of offshore wind energy generation by 2035,[76] because without the FRR those offshore wind facilities would not be able to receive capacity revenues due to prohibitively high offer floor prices.[77] An offshore wind project unable to earn capacity revenues will require higher environmental attribute payments to be financeable, forcing New Jersey consumers to pay more for the offshore wind while still having to buy capacity from a (likely) carbon-emitting resource. The cost of meeting the state's energy storage targets of 600 MW by 2021 and 2 GW by 2030 will likely also increase as a result of the MOPR.[78]

FRR effectively addresses this problem, which is necessary to New Jersey achieving its EMP goals in an affordable manner. As noted above, FRR can also allow New Jersey utilities to get more capacity value out of renewables by enabling pooling of capacity performance risk. And finally, by reducing capacity over-procurement, FRR allows New Jersey utilities to buy less unneeded capacity, which will put downward pressure on bills. As New Jersey seeks to electrify transportation and building end uses, the costs associated with buying a higher reserve margin than needed for reliability will become especially unacceptable.

The ability of an FRR plan to support achievement of New Jersey's decarbonization goals depends in part on the location of the clean energy resources. As noted above, due to transmission constraints, a PSEG FRR must include about 40% capacity from within the PSEG

[76] Exec. Order No. 92, (Nov. 19, 2019), https://nj.gov/infobank/eo/056murphy/pdf/EO-92.pdf.
[77] See, PJM Interconnection, LLC, *Compliance Filing Concerning the Minimum Offer Price Rule, Request for Waiver of RPM Auction Deadlines, and Request for an Extended Comment Period of at least 35 days*, at Table 1, Docket Nos. EL16-49 *et al.* (showing illustrative MOPR floor offer price for offshore wind of $3,146/MW-day).
[78] A. 3723, Gen Assemb. (N.J. 2018) https://www.njleg.state.nj.us/2018/Bills/PL18/17_.PDF.

zone. PSEG, JCPL and AECO all require about 80% of capacity to be located in EMAAC. An FRR plan will not provide the needed support for renewable energy development as RPS targets increase, unless the renewable resources are built mostly within PSEG or EMAAC or transmission import limits are increased. While this could be perceived as a limitation on the FRR's usefulness as a policy tool, the constraint is actually consistent with the least-cost scenario outlined in the EMP, in which "[i]n-state renewables, including offshore wind, utility-scale solar PV, and rooftop solar PV, dominate New Jersey's generation mix in 2050."[79] As shown in Attachment A, the growth of renewable energy resources driven by New Jersey law could mean enough incremental clean energy resources in the PSEG zone by 2030 to allow the internal resource requirement to be met entirely by resources supported by state policy.

By offering clean energy resources subject to the MOPR an opportunity to earn capacity revenues, especially on a basis longer than a single year, an FRR would make it more advantageous for clean energy resources to locate within PSEG or EMAAC. This incentive will help to achieve the state's objective of reducing carbon emissions from the electric sector attributable to New Jersey load. It will also further many of the EMP's goals, including maximizing local solar development and distributed energy resources (EMP Strategy 2.3), and developing clean energy workforce opportunities (EMP Strategy 6.2).

At the same time, there are limits to the ability of FRR to help meet the EMP goals.[80] Because FRR is only a capacity procurement mechanism, it cannot ensure procurement of the increased levels of ancillary services, ramping capability, and other flexible attributes needed to integrate high levels of renewables. New Jersey will have to look to PJM's market design or other state policy tools to ensure that the generation and demand-side resources in the state develop in a manner that facilitates decarbonization. Similarly, while the FRR can ensure that a particular resource mix is available to serve New Jersey load, it cannot control how much those resources operate, and therefore the emissions associated with a particular resource mix. Thus, an FRR could not directly ensure a specific level of reductions in greenhouse gas emissions from the electric sector, as will be needed to achieve compliance with the Global Warming Response Act's requirement to reduce the state's emissions of greenhouse gases to 80% below the 2006 level by 2050. What the FRR does provide is a way for New Jersey to minimize the conflict between the resource adequacy construct and its state policies.

[79] EMP at 54.

[80] Most obviously, the FRR cannot directly incent transportation and building electrification, though it can reduce the costs of that electrification. The FRR also will not directly facilitate the many other critical goals set out in the EMP, such as supporting energy efficiency and clean energy development in low- and moderate-income communities. For purposes of this section, we address the FRR's ability to help achieve the EMP's high level goals for the electricity sector.

b. Discuss whether any FRR could be structured to ensure procurement of clean energy resources to meet resource adequacy needs in line with the 2019 EMP objectives. (i) How would procuring greater numbers of clean energy resources affect pricing outcomes? (ii) Could the State require that procurements "internalize" the value of anticipated carbon emissions during the delivery year, subject to a true-up? (iii) How could New Jersey determine what such a reference carbon value could be, addressing both price and environmental considerations? (iv) How would preferentially procuring clean energy resources affect reliability outcomes?

FRR could be structured to ensure the procurement of clean energy resources to meet resource adequacy needs consistent with the EMP. In fact, this is one of the key strengths of the FRR, as it allows capacity procurement to support clean energy goals rather than working in opposition to them. The simplest way in which this could work would be for the FRR procurement to be staged, in order to first contract for capacity with resources needed to meet state policy goals, and second to contract for a residual amount of capacity from carbon-emitting resources.[81] Even if an all-source procurement construct was preferred, clean energy resources coming online in order to satisfy state policy would likely submit lower offers than would carbon-emitting resources due to their relatively high net energy revenues and compensation received for environmental attributes.

Procuring a higher percentage of clean energy resources will produce better pricing outcomes. The ability of utilities to enter into contracts with resources that have the lowest levelized costs over the planning horizon (while mitigating their capacity performance risk), should allow for cost-effective procurement of large numbers of clean energy resources. Also, clean energy resources, to the extent they are owned by entities that do not have market power, would tend to yield lower prices. Finally, clean energy resources that receive a "state subsidy" would not have RPM as an alternative to sell their capacity, and therefore would have a very low opportunity cost for selling into a New Jersey FRR.

While an FRR procurement could first contract for capacity from resources needed to meet EMP objectives, and only procure fossil capacity as needed, less prescriptive means could also be employed to ensure that the procurement is consistent with EMP objectives. By internalizing the cost of carbon emissions into capacity offers, the relative competitiveness of offers of resources consistent with the EMP would be improved, thereby making it more likely

[81] FERC has recently upheld California's resource adequacy model in which utilities must procure capacity consistent with a state integrated resource planning process, described as "as an analysis leading to an optimized portfolio of resources to serve load that is constrained by greenhouse gas emissions, reliability and cost." 169 FERC ¶ 61,045, at P 44 (Oct. 17, 2019). The Commission rejected arguments that this resulted in undue discrimination, noting that "under state authority, a state may choose to require a utility . . . to purchase power from the supplier of a particular type of resource." *Id.* (quoting 70 FERC ¶ 61,215, 61,676 (1995)).

that an FRR portfolio would be in line with EMP objectives. Currently, resources compensated for environmental attributes through the sale of RECs or ZECs are able to submit lower offers for sales of capacity, achieving a directionally similar outcome to internalizing the cost of carbon emissions into the capacity offer. However, the latter would have a broader impact, by tending to procure more capacity from more efficient and therefore lower-emitting resources, even those not eligible to sell RECs or ZECs. While the details of this proposed approach are not clear, a potential downside would be that carbon-emitting resources would be paid more for their capacity (assuming that the contracts are pay-as-bid, rather than reflecting a single clearing price). We believe that this approach could have benefits, but would need to understand more elements of the proposal in order to assess whether it would better achieve the state's goals with lower legal risk compared to a staged procurement.

Preferentially procuring clean energy resources would have no impact on resource adequacy, though moving toward a higher penetration of variable resources will generally require an evolution in the technologies and operational practices used to maintain reliability. As noted above, capacity participating in an FRR plan must meet the same performance requirements as resources selling capacity through RPM, and it can only be credited with the same unforced capacity (UCAP) value as if it sold into RPM. While PJM's rules generally undervalue the capacity contribution of renewables, their general purpose is to ensure that the variability of renewable energy resources, or the limited duration of storage resources, is factored into their UCAP, calculated contribution to resource adequacy. Thus, from a resource adequacy perspective, a capacity portfolio should be indifferent to a MW UCAP from solar, and a MW UCAP from gas. Reliability is a much broader concept, and requires numerous system characteristics beyond the number of megawatts physically available to the system, such as an ability to ramp quickly, and respond accurately to changes in frequency on the system. A system with high levels of demand-side resources, storage, and variable renewables can provide all of these services in abundance, but separate mechanisms to specifically compensate for these services are required -- they cannot be ensured simply by buying sufficient capacity to meet peak load plus a reserve margin. In short, an FRR plan that preferentially procures a high level of clean energy resources can be just as, or more reliable, than one with more carbon-emitting resources, but achieving this end depends on other elements of market design outside the scope of the FRR itself.

c. Discuss whether the State should consider adopting an energy market carbon dispatch price, in addition to RGGI, in lieu of an FRR approach. (i) How would such an approach work? (ii) Discuss whether such a carbon price is a viable construct to ultimately get New Jersey to achieve the totality of the 2019 EMP goals.

An energy market carbon dispatch price and the FRR approach address different barriers to New Jersey achieving its clean energy goals and should be viewed as possibly complementary

policies rather than alternatives. A carbon price could help New Jersey achieve the EMP goals, but it would not address the MOPR's effect of forcing New Jersey customers to pay for unneeded capacity from fossil plants.[82] The potential for energy market carbon dispatch prices to accelerate development of low-carbon resources has been described extensively.[83] However, the context and implementation details for the carbon price matters greatly. The Board should be cautious about adopting a carbon price in lieu of policy mechanisms that would more directly alleviate the harms to communities affected by co-pollutants, and should proactively seek input from such communities and a wide array of stakeholders on the design of any carbon pricing mechanism, including the allocation of collected revenues.

A carbon price could help with replacing capacity revenues that clean energy resources would lose as a result of the MOPR. However, it would have to be higher than expected RGGI levels to raise inframarginal rents to a level that would do so effectively. In the long run, it would also concentrate carbon costs in a smaller set of resource-constrained hours, so may not be effective to support revenue for wind and solar. The revenues the state collects through the imposition of a carbon price could be directed toward objectives in the 2019 EMP that require a robust funding stream, such as energy efficiency and distributed generation development in low- and moderate-income communities.

The carbon price may also have the effect of decreasing the net energy market revenues of in-state fossil capacity resources, due to increased competition from out-of-state resources (i.e., leakage),[84] which could lead to increased capacity prices as those resources now look to capacity payments to make up a larger amount of "missing money." Without broader capacity market reform, or the ability to determine which resources supply the state's load-serving entities with capacity (i.e., FRR), New Jersey customers will face additional, unnecessary costs associated with a clean energy transition.

III. Conclusion

[82] To the extent that a carbon price increases the energy revenues of state-supported resources, and these increased revenues are reflected in the price floors required by the MOPR, a carbon price could reduce the harm caused by the MOPR.

[83] *See, e.g.*, Susan F. Tierney *et al.*, *Clean Energy in New York State: The Role and Economic Impacts of a Carbon Price in NYISO's Wholesale Electricity Markets, Summary for Policymakers*, Analysis Group (Oct. 3, 2019), https://www.nyiso.com/documents/20142/2244202/Analysis-Group-NYISO-Carbon-Pricing-Final-Summary-for-Policymakers.pdf.

[84] While PJM has initiated a stakeholder process to address leakage associated with state and regional carbon prices, the process is in its early stages and it could be years until PJM is able to obtain approval from FERC for the needed tariff changes and implement the border adjustments needed to address leakage.

Public Interest Organizations commend the Board for initiating this important proceeding to assess whether PJM's resource adequacy construct is compatible with the goals set out in the Energy Master Plan. As explained above, we believe that PJM's capacity market serves as a barrier to New Jersey achieving its goals, in ways that are both immediate (application of the MOPR to state-supported resources), and will become more urgent as New Jersey achieves higher levels of decarbonization. We therefore urge the Board to move towards implementation of the FRR for one or more of the state's distribution utilities, while advocating for more fundamental changes to the resource adequacy construct at PJM and FERC that will facilitate long-term achievement of the EMP objectives at the lowest possible cost to consumers. But it is critical that New Jersey not simply hope for change to come from PJM or FERC; the climate crisis and burdens faced by New Jersey communities are too urgent for New Jersey not to take immediate steps to reclaim a larger degree of control over its resource mix as the FRR allows.

Respectfully submitted,

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