



May 20, 2020

**VIA ELECTRONIC MAIL**

Ms. Aida Camacho-Welch  
Secretary of the Board  
New Jersey Board of Public Utilities  
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**Re: Joint Comments of PSEG and Exelon Generation Company LLC**

**Investigation of Resource Adequacy Alternatives  
BPU Docket No. EO20030203**

Dear Secretary Camacho-Welch,

PSEG and Exelon Generation Company, LLC appreciate the opportunity to submit the following joint comments in response to the Board of Public Utilities' ("Board's") Request for Written Comments dated March 27, 2020 and Supplemental Notice for Written Comments dated April 17, 2020.

New Jersey has long been a national leader in advancing a transition to clean energy. For more than two decades, New Jersey has supported the development of renewable energy resources through the creation of a Renewable Portfolio Standard based upon renewable energy credits (RECs). The State has focused specifically on the development of solar photovoltaic resources by requiring the procurement of a designated percentage of RECs from those resources. More recently, it adapted the REC model to support the development of offshore wind resources through "ORECs" and to maintain the operation of nuclear plants through the Zero Emission Certificate ("ZEC") program. Building upon these investments in clean generation technologies, the 2019 Energy Master Plan provides a pathway to 100% clean energy by 2050.

These forms of state support for clean generation promote efficient market outcomes. Without an economy-wide carbon price that forces all polluting resources to internalize the full cost that pollution imposes on society, the resource mix will be inefficiently weighted toward

polluting resources. New Jersey’s technology-based support programs counteract that inefficiency by providing clean resources with additional revenue in an amount tailored to the circumstances of each resource type. For some resources, such as nuclear, the additional revenue received through New Jersey’s credit programs is significantly less than those resources would receive from a carbon price pegged to the most widely accepted estimates of the social cost of carbon. For other resources, such as offshore wind, based on recent solicitations the additional revenue received is much greater—but necessary to assist a nascent industry in reducing costs over time.

Even as New Jersey moves toward 100% clean energy, its load-serving entities continue to obtain capacity through a PJM auction mechanism that is indifferent to a resource’s environmental profile. Meanwhile, new rules governing capacity market bidding imposed by the Federal Energy Regulatory Commission (“FERC”)<sup>1</sup> will prevent many clean resources, particularly new ones on which New Jersey will rely in increasing numbers, from receiving any capacity revenue at all—meaning that an even higher share of New Jersey’s capacity dollars will go toward the support of emitting resources. As the Board explained in its Order initiating these proceedings, under these new rules (called the “Minimum Offer Price Rule” or “MOPR”), if a resource receives any form of state support (such as payment for its environmental attributes), it will be required to submit an administratively determined minimum offer price in the PJM capacity auction. That minimum offer price will be set so as to preclude these state-supported resources from recognizing state support when determining their offer—thus pushing their bids higher than they would otherwise be, and putting them at risk of failing to clear in the capacity market. Some resource technologies, such as offshore wind, are unlikely ever to clear in the PJM capacity market under the new bidding rules.

Supporters of the MOPR argue that the near-term impact of FERC’s actions will be minimal and, therefore, MOPR expansion can co-exist with state clean energy programs. These parties focus narrowly on the next capacity auction, in which most state-supported resources will have exemptions from the MOPR. But as an increasing amount of new renewables come online in response to state mandates, the impact of FERC’s order will be significant—for consumers, the environment, and the State. Consumers will pay higher capacity prices, as bid prices and clearing prices are increased by the MOPR. Further, resources that emit greenhouse gases will be permitted to clear in the capacity market without being required to account for the societal costs of their operation,<sup>2</sup> while non-polluting resources will be deprived of capacity revenue despite, in fact, providing capacity to the system. FERC’s actions will thus force the State to decide whether to provide even greater support to these clean resources than it

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<sup>1</sup> *Calpine Corp. v. PJM Interconnection, L.L.C.*, 169 FERC ¶ 61,239 (2019), *on reh’g*, 171 FERC ¶ 61,035 (2020).

<sup>2</sup> Moreover, because FERC’s structure ignores the environmental profile of generating resources, it also fails to distinguish between the most polluting technologies (*i.e.* coal-fired generation) and other less polluting technologies (*e.g.* natural gas-fired generation).

currently does, in order to replace the capacity revenue these clean resources are no longer receiving, or instead to give up on its environmental agenda.

We applaud the Board for initiating a proceeding to determine the best way for New Jersey to avoid this dilemma, and to align New Jersey's procurement of capacity with its environmental agenda. These comments examine the benefits and drawbacks of various approaches—including the implementation of an energy market carbon dispatch price (in addition to Regional Greenhouse Gas Initiative ("RGGI")) or expanded obligations to procure clean energy attributes. However, in our view, the best approach centers on utilizing the Fixed Resource Requirement Alternative ("FRR")—an existing option set forth in the PJM Reliability Assurance Agreement that allows states to exert greater control over how their load-serving entities meet resource adequacy requirements.

By electing the FRR option (and thereby becoming an "FRR Entity"), an electric distribution utility takes on the responsibility for obtaining capacity for all of the customers located within its zone. It does so by procuring capacity outside the PJM auction, whether through bilateral contracts, self-supply, or a state-directed mechanism. Because an FRR Entity obtains capacity outside of the PJM auction, the FRR Alternative can facilitate the State's efforts to support the clean generation goals of the New Jersey Energy Master Plan ("EMP") and integrates with other programs, including the market-based RGGI program that New Jersey helped found and reentered this year. To do so, however, an FRR procurement must be properly designed.

The design proposed below would integrate the procurement of capacity with the procurement of environmental attributes, in order to standardize the State's support for clean electricity resources and encourage competition among different types of clean resources. Offshore wind projects qualifying for ORECs, new grid-connected solar resources qualifying for state support, and the nuclear plants selected to receive ZECs would compete to sell their capacity and attributes, bundled together, for an all-in price fixed at the outset of a long-term contract, less forecasted energy revenues (based on futures prices for energy at a liquid trading hub) and ancillary services revenues determined in advance of each delivery year. The Board would oversee the procurement of capacity and environmental attributes from these resources for terms longer than one year at a time—thereby aligning capacity procurement with the State's environmental priorities, and reducing developer risk (and thus lowering the cost of procuring these clean resources). The ZEC program would be replaced by this new mechanism.

The State would establish a limit on the all-in price it is willing to require customers to pay for capacity bundled with environmental attributes, to ensure the program remains affordable. Additionally, the offset for forecasted energy prices would protect consumers from excessive costs if energy prices are projected to rise, and prevent over-compensation if RGGI is expanded or an energy market carbon dispatch price is implemented in addition to RGGI. Any additional capacity needed to satisfy the FRR zone's needs would be obtained through a subsequent competitive procurement for capacity only for a one-year term. This residual

procurement would be open to all clean and demand-side resources capable of satisfying PJM's locational constraints. If clean resources do not economically satisfy the full requirements of the FRR, gas resources could also be procured to fill in the balance.

We refer to this approach—which would require new legislation, despite the Board's broad authority—as the “Integrated FRR Procurement” to distinguish it from other approaches that may also utilize the FRR option. An Integrated FRR Procurement will allow New Jersey to fully and timely achieve its EMP goals at a lower cost for consumers than they would otherwise pay, by avoiding the inefficiencies that will result from FERC's new bidding rules in the PJM capacity auction. An Integrated FRR Procurement could also provide renewable developers with greater long-term certainty, reducing development costs.

Currently, the clean resources supported by the State represent only a fraction of the entire State's capacity needs. Therefore, we recommend that New Jersey phase-in an Integrated FRR Procurement over time, by selecting one of New Jersey's four electric distribution companies (“EDCs”) to serve as the State's initial FRR Entity. The Board could select a zone large enough to procure capacity from the clean resources currently supported by the State, as well as to accommodate a significant increase in new renewable resources (both solar and offshore wind) that will effectively be excluded from the PJM capacity auction as a result of State support. Ideally, the selected zone would not have locational constraints requiring the use of in-zone resources, in order to maximize the number of resources that could potentially participate. As the State-supported resources over time reach 100% of that zone's requirements, the Board could then select additional EDCs to serve as FRR Entities.

While we recommend that the State begin reclaiming control over its clean energy future by directing an FRR arrangement for a single EDC zone, we emphasize that the arrangement benefits all of the State's residents, and accordingly the costs should be allocated equitably to all customers in the State. For retail cost allocation purposes, the customers within the FRR zone should pay the same total capacity charge as they would have paid if their EDC had not become an FRR Entity. The balance of the Integrated FRR Procurement cost is appropriately treated as payment for the resources' environmental attributes, which benefit the State as a whole and should properly be billed to all retail customers in the State. The other EDCs can collect those charges on their distribution bills for remittance to the FRR Entity, much as they do today for electric supply provided by third-party suppliers.

This approach ensures that customers will pay no more for capacity than they would have paid if the capacity needed to serve the zone had been procured through the PJM market, and will allow clean resources to be procured more efficiently than if those resources were unable to monetize their capacity. Moreover, this approach is compatible with the current retail market structure in the state, including both retail competition and service provided by third-party suppliers, as well as the Basic Generation Service (“BGS”) procurement auctions.

The approach we have outlined above, and on which we elaborate below, has advantages over other potential solutions to the dilemma facing New Jersey as a result of FERC's recent order.

One alternative, for example, would be a technology-neutral clean energy standard, under which load-serving entities would be required to procure technology-neutral clean attribute credits to meet an escalating statewide clean electricity target. This approach departs from the technology-specific structure New Jersey has often adopted, and solar and offshore wind facilities would likely be undercut by less costly clean technologies from within or outside the State. Yet the State has good reason to support those technologies despite their relatively higher cost. It may also be difficult to integrate storage resources, which are not simply generation resources.

Moreover, this alternative approach would still trigger FERC's new bidding requirements under the expanded MOPR. Clean energy credits would be categorized as state support, even if they are technology neutral. Consequently, recipients would be subject to an administratively determined bid floor in the PJM capacity auction and would risk not clearing in the auction—in which case they would need to demand higher prices for credits, to make up for the missing capacity revenue. Expanding clean energy credit programs thus does not solve the dilemma facing the State created by FERC's recent MOPR orders.

Another alternative would be a clean capacity procurement with an internalized carbon price, under which the Board would oversee the procurement of capacity from all resources, with resource selection based on an offer price adjusted to reflect a resource's carbon emission abatement value, based on a specified carbon value (such as the Social Cost of Carbon). Again, this approach would likely fail to provide sufficient support to solar and offshore wind facilities that are costly relative to other clean technologies. And because this approach would mandate a resource selection process that differs significantly from that used by the broader PJM capacity market, this approach would also require the FRR option.

Finally, a nationwide or large regional emissions credit program or carbon price would be the most efficient approach to reducing carbon emissions. Already, New Jersey is a member of RGGI, which drives emissions reductions while generating money to invest in a variety of emission-reducing actions. However, RGGI allowance prices are currently far too low to drive the meaningful reductions contemplated by New Jersey's EMP.

A New Jersey-only energy market carbon dispatch price, by contrast, would be hampered without assistance from PJM, as a result of leakage. Leakage occurs, for example, when a carbon-emitting resource in New Jersey reduces output, but then a resource in another state with the same (or worse) carbon emissions profile increases output to replace the reduction in New Jersey generation. A meaningful carbon price applicable to only a single state (or even the subset of RGGI states) within a highly integrated region such as PJM is very vulnerable to leakage. New Jersey would appear to be reducing carbon emissions, but the

overall amount of carbon emissions would remain the same or even increase (for example, if New Jersey gas generation were replaced by coal generation in another state). PJM could implement leakage mitigation to prevent leakage, and in fact has been evaluating such options for some time. However, we expect that addressing emissions leakage within PJM will continue to take significant time, hampering New Jersey's ability to act now. (By contrast, the Integrated FRR Procurement proposed here is not vulnerable to leakage, because it displaces emitting resources by mandating the procurement of clean resources, rather than providing economic incentives for emitting resources in New Jersey to generate less.)

Finally, we note that the PJM Independent Market Monitor ("IMM") recently issued a report purporting to model the potential cost impacts of forming FRR service areas within New Jersey, and showing substantial cost increases in most scenarios.<sup>3</sup> We believe that this analysis is seriously flawed and intend to address it in detail in our reply comments. However, we offer a few preliminary observations regarding obvious and major problems with the report:

- The IMM analysis employs an "apples to oranges" comparison that contrasts *past* RPM outcomes with a projection of outcomes under an FRR. This is misleading. One must ask how *future* rates *with the FRR option* in place compare to *future* rates as they would evolve under the expanded MOPR *without the FRR option*, assuming that the EMP's mandates are fulfilled in either scenario. The IMM study completely ignores the cost impacts of requiring New Jersey ratepayers to "double-pay" for capacity when the MOPR prevents state-supported clean units from clearing in the capacity market.
- The IMM analysis incorrectly assumes New Jersey would not take advantage of lower-cost capacity outside of EMAAC. The IMM assumes the FRR needs are met, first and primarily, by resources inside the primary Locational Deliverability Area ("LDA"), and that New Jersey does not take full advantage of its ability to import lower-cost capacity from outside of EMAAC. This assumption places artificial constraints on the analysis that are inconsistent with PJM's FRR and other market rules. Not only does it ignore a low cost supply source available to the FRR Entity but it also artificially raises prices to the rest of the State. In contrast, the Integrated FRR Procurement described herein would take advantage of the ability under PJM rules for FRR entities to obtain capacity from resources outside of the EMAAC region (such as MAAC) at lower prices, consistent with conditions of supply and demand in the neighboring regions.
- The IMM analysis assumes in a number of scenarios that an FRR entity would be willing to pay for capacity at prices as high as the offer caps in the PJM capacity auction – prices that would be much higher than competitive outcomes in the PJM capacity auction. There is no basis for this assumption and, in fact, it defies logic. The same locational sourcing requirements and supply and demand fundamentals would be

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<sup>3</sup> Monitoring Analytics, Potential Impacts of the Creation of New Jersey FRRs (May 13, 2020).

present under an FRR as are present under RPM auctions. There is no basis for the IMM's apparent belief that generators controlling thousands of MWs in MAAC and EMAAC would suddenly begin behaving in an economically irrational fashion instead of competing among themselves as they do now.

We share these initial views of the IMM's flawed FRR report now given the expectation that the IMM and others will rely heavily on the report in their initial comments. However, our review of the IMM's report is ongoing and we will provide a comprehensive analysis of the IMM's conclusions in our reply comments.

Below, we further elaborate on our proposal for an Integrated FRR Procurement, and then respond to the Board's specific questions.

#### **A. INTEGRATED FRR PROCUREMENT**

New Jersey has invested significant resources in fostering the development of new renewable generation through its REC, SREC, TREC, and OREC programs, and in preserving existing zero emissions facilities through the ZEC program. Investment in new renewables is anticipated to increase substantially to meet the State's EMP clean energy targets. Yet FERC's recent order will potentially prevent these resources from receiving capacity revenues, due to the MOPR that FERC will apply to any resource receiving state support. We propose an approach that is tailored to address that specific problem, by integrating New Jersey's technology-specific environmental attribute programs with an FRR capacity procurement.

*A Phased Approach.* As discussed further in our response to Question 1(f), we propose that New Jersey phase in the Integrated FRR Procurement zone by zone, as the number of clean energy resources serving New Jersey increases over time. Accordingly, the legislation should direct the Board to begin the phase-in by selecting a single EDC to serve as the initial FRR Entity in the State. The Board should select the EDC zone that is right-sized to accommodate the procurement of the offshore wind and nuclear resources to which New Jersey has already committed its support, as well as significant growth in new renewable generation. The selected EDC zone should also be free of any locational constraints requiring the procurement of in-zone resources, in order to maximize the number of capacity resources that could potentially supply capacity to the zone. Once that zone nears 100% clean capacity, the legislation should direct the Board to select an additional utility to become an FRR Entity.

*Two Procurement Tiers.* We propose that the FRR Entity procure capacity, subject to Board supervision, as follows:

*Tier One.* The FRR Entity would first attempt to fill as much of its Capacity Plan as possible with resources targeted by FERC's new MOPR because they receive State support:

offshore wind eligible for ORECs, new grid-connected solar eligible for State support programs,<sup>4</sup> and nuclear resources selected to receive ZECs.

These resources would compete to enter into long-term contracts with the FRR Entity to sell their capacity bundled with environmental attributes, for an all-in price set at the beginning of the contract term. Bundling capacity with attributes will ensure that New Jersey can achieve its EMP goals more efficiently than it otherwise would, as State-supported resources will be able to monetize the value of their capacity. The FRR Entity would solicit proposals for an all-in price and winning resources would be paid based on their as-bid all-in prices. Each year's payment would be equal to the all-in price bid by the resource, less projected energy revenues, based on futures prices for energy at a liquid trading hub for that delivery year, and an allowance for average ancillary services revenues.<sup>5</sup> Accordingly, customers will be protected from excessive costs if energy prices rise, for example, due to higher market prices caused by fuel cost increases, changes in market rules, or the enactment of a carbon price or expansion of RGGI.

The FRR Entity would select resources as follows: In order to achieve the technology-specific goals of the EMP, while at the same time harnessing competition to reduce prices for offshore wind and new solar, the procurement would contain a carve-out for offshore wind and a carve-out for solar. Each of these carve-outs would be subject to a not-to-exceed price, recognizing that New Jersey's preference for certain technology types must be balanced with a concern for customer affordability.

Thus, the FRR Entity would first select a pre-determined quantity of capacity (consistent with the EMP) from offshore wind resources, subject to a not-to-exceed price based on recent offshore wind procurement results, escalating annually for inflation.<sup>6</sup> The FRR Entity would then select a pre-determined quantity of capacity (again, consistent with the EMP) from new grid-connected solar resources, subject to a not-to-exceed price based on recent estimates of solar development costs in New Jersey, escalating annually for inflation. Finally, the FRR Entity would procure up to the remaining quantity needed for the FRR zone from either offshore

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<sup>4</sup> By "new" grid-connected solar, we mean those grid-connected solar resources that fall outside the MOPR exemption set forth by FERC for renewable resources that, prior to December 19, 2019, had either cleared a PJM capacity auction, or had executed or filed an interconnection service agreement or Wholesale Market Participant Agreement. *See Calpine Corp.*, 171 FERC ¶ 61,035 at P 203.

<sup>5</sup> The use of a futures index for energy prices follows the approach taken by New York and Illinois in establishing their Zero Emissions Credit programs, each of which survived legal challenge.

<sup>6</sup> The Board could give a preference to the offshore wind project already awarded ORECs. Under the Board's existing order, that offshore wind project has no obligation to sell capacity, but does have an obligation to use its best efforts to do so in order to minimize the amount customers must pay for its environmental attributes. Given that the project seems extremely unlikely to clear in the PJM capacity auction, agreeing to convert its arrangement into a bundled sale should satisfy the best efforts standard.



wind, grid-connected solar, or the nuclear units selected to receive ZECs, subject to a still lower not-to-exceed price (escalated for inflation) to be determined.

*Tier 2.* To the extent that the full amount of capacity needed for the FRR zone cannot be procured through the process just described, the FRR Entity would then conduct a residual procurement for one-year contracts for capacity only. Potential suppliers would include nuclear, hydro, renewable generation, and other clean technology types recognized in New Jersey’s Class I RPS program, as well as demand response and energy efficiency resources, located in EMAAC and, to the extent possible, MAAC. There are approximately 15 gigawatts of such clean capacity (not including the state-supported clean resources in Tier 1), so this residual tier should be very competitive. If for some reason the procurement is undersubscribed, the FRR Entity can open the residual procurement to gas-fired resources as well. Resources would be paid as bid.

For subsequent years, the FRR Entity would then repeat this procurement process, each year attempting to attract an additional quantity of offshore wind and new grid-connected solar, consistent with EMP goals.<sup>7</sup> Once the level of capacity procured for the zone under Tier 1 approaches the full zonal demand, and significant levels of Tier 2 residual capacity are no longer needed for that zone, the Board can designate an additional EDC to become an FRR Entity, thereby enabling continued growth in clean energy resources.<sup>8</sup>

*Equitable Cost Sharing.* The FRR Entity’s procurement of capacity serves the customers in its zone, but its procurement of environmental attributes benefits the State as a whole. Accordingly, for retail ratemaking purposes, the costs of the program should be recovered as follows: Each delivery year, the Board should calculate the total capacity charge that would have been paid by retail customers in the FRR Entity’s zone (including customers of third-party suppliers within that zone) if capacity for those customers had been procured through the RPM auction instead of the FRR procurement. That amount should be billed to load-serving entities (including BGS and third-party suppliers) in the FRR Entity’s zone.

The remaining cost is properly socialized across all of the customers in the State as compensation for environmental attributes that benefit the state as a whole. For ease of administration, the Board should direct that the FRR Entity can recover its costs via a “Clean Capacity” charge assessed on all retail customers in the State, which could be collected by EDCs acting as agents for the FRR Entity—similar to the manner in which the EDCs currently collect

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<sup>7</sup> The FRR Entity could also employ this process to the extent that it needs to procure additional resources to update its FRR Capacity Plan in the period prior to the delivery year, due to an unexpected retirement or load growth.

<sup>8</sup> An EDC that followed this process for procuring resources for its FRR Plan would be deemed to have acted prudently and would be guaranteed to recover its costs. To the extent the EDC pursued a different approach to procure clean capacity, its choice would be subject to Board review for prudence and consistency with the statutory goals.

electric supply charges from customers of third-party suppliers and then remit those amounts to the third-party suppliers. To eliminate any concern regarding the balance-sheet impact on the EDC selected to be the FRR Entity that could result from carrying long-term capacity and attribute contracts, legislation should allow the EDC to securitize its cost recovery.<sup>9</sup>

The FRR Entity would then pay generators the sum of the capacity charge imposed on retail customers in its zone, and the environmental attributes charge imposed on all of the State's customers and collected via EDCs' bills. This approach ensures that customers of the FRR Entity will not be disadvantaged relative to other customers in the State by the Board's decision to direct that EDC to serve as an FRR Entity. If the FRR is adopted for more than one zone, this approach can easily be modified to accommodate that evolution.

## **B. RESPONSE TO THE BOARD'S QUESTIONS**

### **1. New Jersey Can Utilize the FRR Alternative to Satisfy the State's Resource Adequacy Needs.**

#### *a. FRR Requirements under the PJM Tariff and Applicability in a Restructured State*

The FRR Alternative is an available option in PJM's tariff for states that wish to exercise greater control over capacity procurement. The FRR Alternative is "an alternative means ... for an eligible Load-Serving Entity to satisfy its [capacity] obligations" under the PJM tariff.<sup>10</sup> An eligible entity includes investor-owned utilities with a substantial business in owning transmission and distribution, such as New Jersey's four electric distribution companies, PSE&G, JCP&L, ACE, and RECO.<sup>11</sup> An eligible entity may decide up to four months before a Base Residual Auction to become an FRR Entity during the Delivery Year for which that Base Residual Auction is taking place. The decision to elect the FRR Alternative must be made for a minimum term of five consecutive Delivery Years.<sup>12</sup>

By electing the FRR Alternative, an eligible entity commits to obtaining capacity resources to serve all of the load in its zone—including customers who purchase energy from third-party suppliers.<sup>13</sup> The entity electing the FRR must submit, no later than one month prior to the first Base Residual Auction after its election, an FRR Capacity Plan demonstrating that it

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<sup>9</sup> An alternative approach would be for the Board to order the assessment of charges to be collected from retail customers as described above, as it did in its offshore wind order, and in exchange for remitting these charges to capacity resources, the resources would commit to be included as capacity resources on an FRR Capacity Plan and to deliver all of their environmental attributes to the State.

<sup>10</sup> PJM Reliability Assurance Agreement Sched. 8.1.A.

<sup>11</sup> *Id.* Sched. 8.1.B(1).

<sup>12</sup> *Id.* Sched. 8.1.C(1).

<sup>13</sup> *Id.* Sched. 8.1.B(1).

has secured capacity resources sufficient to meet its capacity obligations for that load.<sup>14</sup> The plan must be updated each year.<sup>15</sup> The resources included in the FRR Capacity Plan will then not participate in the Base Residual Auction or the incremental auctions for the delivery year, having already committed their capacity to the FRR Entity.

The PJM tariff is explicit that the FRR approach is available in states like New Jersey that have implemented retail choice. In such a state, once again, the FRR entity must commit capacity for all load in its FRR zone, including load that purchases energy from third-party suppliers. The state is authorized to develop a mechanism for requiring switching customers or the third-party suppliers to compensate the FRR entity for the switched customer's share of the zonal capacity obligations. In the absence of a state compensation mechanism, PJM will apply a default rule under which the third-party suppliers will compensate the FRR Entity based on the capacity price in PJM's unconstrained zones.<sup>16</sup> However, third-party suppliers do have the option, "in lieu of providing compensation," to "provide to the FRR Entity" capacity resources that are "sufficient to meet the capacity obligation ... for the switched load."<sup>17</sup> The third-party supplier identifies the specific capacity resources it wishes to use to supply its own load—which it either owns or contracts with—and the FRR Entity then must include those capacity resources in its FRR Capacity Plan. Third-party suppliers may make such a designation for any year subsequent to the FRR Entity's then-current FRR Plan—so that the FRR Entity is not at risk of procuring capacity that turns out to be unnecessary.<sup>18</sup> PJM manages the transfer accounting associated with compensation between third-party suppliers and the FRR Entity.<sup>19</sup>

*b. Practical Limits Arising from New Jersey's Location*

The locational mix of resources included in an FRR Entity's capacity plan must conform to the minimum internal resource requirements ("MIRR") for that FRR zone, which PJM determines based on the geographic location and transmission import capability of the applicable zones. The MIRR for all PJM zones are updated each delivery year and included in PJM's "Planning Parameters for Base Residual Auction" file which is posted on the PJM website. An illustration of the various overlapping and nested zones for New Jersey for the 2022/23 delivery year is included below. For example, for the 2022/23 delivery year, the MIRR for a JCPL FRR requires at least 81.5% of total capacity to be located in the EMAAC zone, with any remaining capacity located in MAAC (outside of EMAAC). The AECO and RECO zones have the

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<sup>14</sup> *Id.* Sched. 8.1.C(1).

<sup>15</sup> *Id.* Sched. 8.1.D(1).

<sup>16</sup> *Id.* Sched. 8.1.D(8).

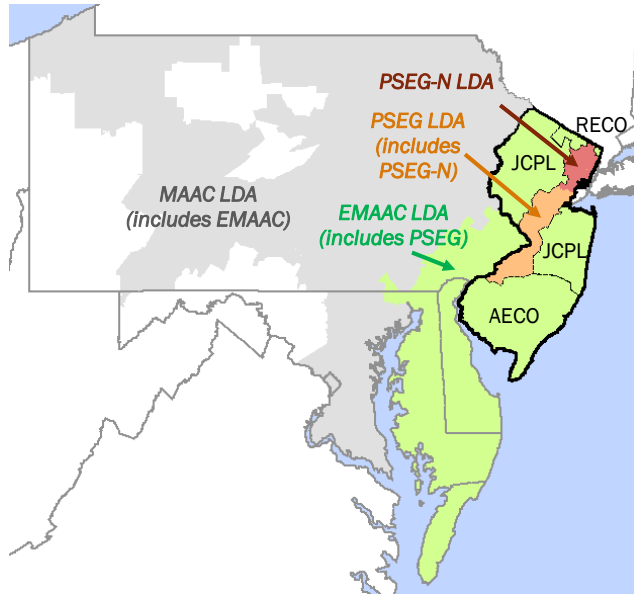
<sup>17</sup> *Id.* Sched. 8.1.D(9).

<sup>18</sup> *Id.*

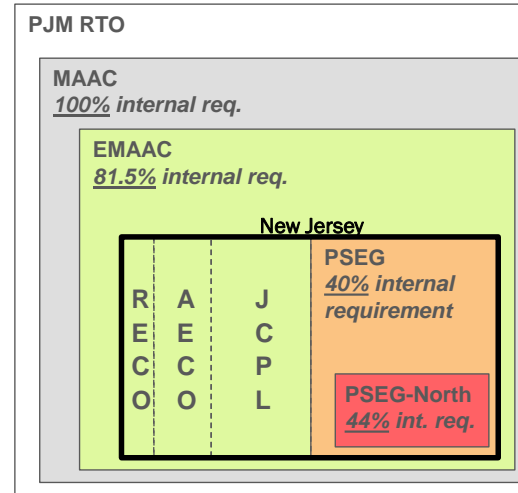
<sup>19</sup> *Id.*

same MIRR as JCP&L, while the PSEG zone has additional internal resource requirements, as shown below.

Map of New Jersey LDAs



“Simplified” Schematic of New Jersey LDAs



Note: Colored rectangles denote distinct LDAs. Some LDAs are located entirely within another (e.g. PSEG is a subset of EMAAC). Regions shown with dotted lines are load zones that are not modeled as their own LDA.

*c. Pricing and Rate Implications*

The ultimate pricing and rate implications of an FRR, in conjunction with New Jersey’s aggressive clean energy goals, are complex and demand considerably more study than is feasible in this initial round of comments. Nonetheless, we offer several directional observations about the likely impact of an FRR on consumer costs and rates.

First, regardless of whether New Jersey adopts an FRR, future pricing and rates for New Jersey customers will be greatly affected by the aggressive clean energy goals embodied in the EMP and associated legislation and executive orders. These goals are ambitious, and the ultimate environmental benefits are enormous, but they will necessarily require increases in customer electric rates. Thus, when evaluating the FRR option, one cannot merely evaluate whether future rates will increase relative to past rates. Rather, one must ask how future rates with the FRR option in place compare to future rates as they would evolve without utilization of the FRR option, assuming that the EMP’s mandates are fulfilled in either scenario.

The FRR offers several significant advantages relative to proceeding with the EMP without an FRR, provided the FRR is carefully integrated with New Jersey’s environmental commitments. First, one benefit of the FRR Alternative is that the State can regulate the FRR Entity’s procurement choices to achieve the competitive procurement of clean capacity resources—for example, the clean resources in which New Jersey has already made investments, and plans to make significant future investments. The FRR thus will reduce the

capacity revenue provided by New Jersey customers to emitting resources of the very kind that the State is aggressively trying to replace.

Second, with respect to clean resources supported by New Jersey, an FRR avoids application of FERC's newly expanded MOPR, and thereby avoids the possibility that New Jersey will need to increase its financial support of clean resources to replace capacity revenue that those resources may not receive. At a minimum, offshore wind projects cannot be expected to clear in RPM auctions. Assuming New Jersey achieves its goals for 3500 MW of offshore wind, the additional amount that would be needed to support those units if they do not receive capacity revenues is expected to exceed \$50 million per year.<sup>20</sup> That amount would be expected to more than double when New Jersey achieves its ultimate goal of 7500 MW of offshore wind.

Third, an FRR structure creates an opportunity for New Jersey to restructure its clean resource procurement plan in a manner that provides greater long-term price certainty for clean resources, which will allow the State to achieve its EMP goals at lower cost than otherwise. In particular, because the FRR structure will enable the FRR Entity to procure capacity under long-term contracts, developers of clean resources will have reduced price volatility risk, which will reduce the cost of developing and operating those clean resources.

Fourth, when the capacity market is over-supplied (as it is today), the FRR option allows load to satisfy its capacity obligation with a lower reserve margin. That is because the FRR Entity must procure capacity in a quantity sufficient to satisfy the Installed Reserve Margin, rather than the reserve margin established by the downward-sloping demand curve used in the Base Residual Auction. In recent years, the Installed Reserve Margin of approximately 16% has been significantly lower than the reserve margin procured through the Base Residual Auction. Procuring capacity to meet the lower Installed Reserve Margin will save customers money. Moreover, the extra capacity that New Jersey currently procures from the PJM auction comes predominantly from emitting resources like uneconomic coal units that should instead be retiring.

Fifth, the FRR Entity has the option to satisfy PJM's capacity performance requirements by electing a physical non-performance assessment, in which the FRR Entity's capacity performance is assessed on a portfolio-wide basis, and any performance shortfall is remedied through the procurement of additional capacity resources, rather than through the assessment of non-performance charges on under-performing resources. This option is helpful to developers of intermittent renewable technology, as they are effectively able to pool their non-

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<sup>20</sup> The resources' lost capacity revenue, based on the 2021/22 Base Residual Auction prices, would be equal to 3500 MW of offshore wind capacity multiplied by a 26 percent UCAP rating multiplied by an EMAAC capacity price of \$165 per MW-day multiplied by 365 days, or more than \$54 million.

performance risk with the other capacity resources providing capacity to the FRR Entity—thereby lowering their costs.<sup>21</sup>

Finally, it is important to emphasize that, by embracing an FRR, the State is neither abandoning competition nor committing to pursuing the EMP goals at all costs. New Jersey can exercise significant oversight over the FRR procurement process—much as it does today with respect to the procurement for BGS—to ensure that pricing remains driven by competitive forces and is appropriate in relation to the State’s environmental goals and affordable for retail customers. Accordingly, our proposal limits the quantity of offshore wind that the State would support at a ceiling price to be determined; limits the quantity of grid-connected solar that the State would support at a different ceiling price to be determined; and would procure remaining clean capacity and attributes from any of the eligible Tier 1 resources—offshore wind, new grid-connected solar, or nuclear units selected to receive ZECs—only if the State could do so below another price yet to be determined. If these resources cannot be procured consistent with these thresholds, then the FRR Entity would procure capacity from a broader array of resources.

In sum, states have broad discretion on what sort of FRR capacity procurement plan they may pursue, and the ultimate cost impact of an FRR election depends on the specifics of the state’s procurement plan. Utilities across PJM have utilized the FRR option nine times in the past, for a variety of reasons and using a variety of capacity procurement plans, and the resulting prices paid by consumers under these plans have in some cases been below the RPM auction price and in some cases have been above it.

*d. State authority to direct the FRR*

The PJM tariff—which has the force of federal law<sup>22</sup>—expressly reserves state authority to designate one or more load-serving entities to elect the FRR Alternative and become FRR Entities. “Each [load-serving entity] subject to such state action ... shall be deemed to have elected the FRR Alternative.”<sup>23</sup> Thus, from PJM’s and FERC’s standpoint, New Jersey can require one or more of its electric distribution companies to elect the FRR Alternative.

Current state law grants the Board broad authority to regulate public utilities to advance environmental goals. As the Board noted in its order initiating this proceeding, it has the authority to “require any public utility to furnish safe, adequate and proper service, including furnishing and performance of service in a manner that tends to conserve and preserve the

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<sup>21</sup> PJM Reliability Assurance Agreement Sched. 8.1.G.

<sup>22</sup> See *California ex rel. Lockyer v. Dynegy, Inc.*, 375 F.3d 831, 839 (9th Cir. 2004) (“Once filed with a federal agency, such tariffs are the ‘equivalent of a federal regulation.’”); *Cahnmann v. Sprint Corp.*, 133 F.3d 484, 488 (7th Cir. 1998); accord *Marcus v. AT&T Corp.*, 138 F.3d 46, 55 (2d Cir. 1998) (“[A] tariff filed with a federal agency is the equivalent of a federal regulation.”).

<sup>23</sup> PJM Reliability Assurance Agreement Sched. 8.1.I.

quality of the environment and prevent the pollution of the waters, land and air of this State.”<sup>24</sup> The Board also retains “general supervision and regulation of and jurisdiction and control over all public utilities,” as well as “the necessary jurisdiction with regard to the production of electricity ... to assure the reliability of electricity ... supply to retail customers in the State.”<sup>25</sup>

Nevertheless, new legislation would be necessary to integrate the SREC, OREC, and ZEC programs into an FRR capacity procurement and to replace the ZEC program with the program structure described above. New legislation also would be necessary to authorize the Board to impose a new non-bypassable charge to recover the implied attribute value from all New Jersey customers.

*e. EDECA is not a barrier to the FRR alternative*

New legislation would eliminate any doubt that might otherwise exist regarding whether an EDC may elect the FRR Alternative in light of the Electric Discount and Energy Competition Act of 1999 (“EDECA”). Such legislation would not retreat from the overall policy set forth in EDECA. That statute expressed the State’s policy to “[p]revent any adverse impacts on environmental quality in this State as a result of the introduction of competition.”<sup>26</sup>

Nor will the FRR Alternative inhibit the retail competition facilitated by EDECA. Most retail competition in New Jersey takes place with respect to energy, and not capacity. While a few third-party suppliers may self-supply capacity, the vast majority do not own or contract for their own capacity resources. Instead, PJM purchases capacity on their behalf and bills them, at the same rate, for the volume of customers that each supplier serves for each Delivery Year. Similarly, if a utility initiates an FRR plan, the supplier would pay the FRR Entity, at the same rate, for the volume of customers that each supplier serves in the FRR zone for the Delivery Year. To the extent that a third-party supplier does wish to compete with regard to its retail supply of capacity, it has the option under the PJM tariff of committing resources that it either owns or with which it has contracted to be included in the FRR Entity’s FRR Capacity Plan.<sup>27</sup> And even if a third-party supplier does not avail itself of that option, but instead compensates the FRR Entity for the latter’s procurement of capacity, the third-party supplier still can decide whether to pass along in its retail charges the full amount that it pays the FRR Entity for capacity, or instead to absorb some of that cost to enhance its competitive position. Thus, the FRR Alternative is sufficiently flexible to allow for the possibility of retail competition with

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<sup>24</sup> N.J.S.A. 48:2-23.

<sup>25</sup> N.J.S.A. 48:2-13.

<sup>26</sup> N.J.S.A. 48:3-50(a)(9).

<sup>27</sup> PJM Reliability Assurance Agreement Sched. 8.1.D(9). In such case, the FRR Entity will need to procure proportionately less capacity to fulfill its capacity plan.

respect to capacity charges. EDECA's pro-competition policy will not in fact be frustrated by the FRR Alternative.

Nevertheless, certain conforming changes may need to be made to EDECA in light of the Integrated FRR Procurement. In particular, the term "electric generation service," which is currently defined to mean "the provision of retail energy and capacity,"<sup>28</sup> should be redefined to mean "the provision of retail energy," to make clear that the Board may regulate the procurement of capacity, and EDCs are permitted to procure it even for customers of third-party suppliers, pursuant to an FRR arrangement.

*f. An FRR Construct Could Be Phased In Over Time*

New Jersey has four zones that each could become an FRR service territory — one for each of the State's four electric distribution companies. As a result, the State does not need to choose between all or nothing. One zone can be part of an FRR plan, while the remaining zones continue to procure capacity through the PJM capacity auction. This allows the State to phase in a statewide FRR over time, beginning with one FRR zone, and expanding into multiple FRR zones over time as the State's commitment to clean resources increases.

In selecting an initial FRR zone, the Board should "right size" the FRR by choosing a zone with a capacity requirement that roughly matches the quantity of capacity provided by clean resources that New Jersey either is already supporting (and as a result may be adversely affected by FERC's MOPR order), or that New Jersey expects to begin supporting in coming years. New Jersey currently supports approximately 3.9 gigawatts of clean capacity resources, which, as a result of FERC's new bidding rules, could potentially lose their capacity revenue stream. New Jersey can also select an EDC zone that lacks locational constraints requiring in-zone capacity resources, to avoid unduly limiting the resources that could participate in the procurement. And, as discussed above, cost recovery can be structured so that if only one zone has elected the FRR, it will pay the same capacity charge as it would have paid if it had procured capacity through the PJM auction.

As New Jersey's renewable commitments grow over time, the legislation should instruct the Board to consider adding FRR capacity by directing one or more of the State's other EDCs to elect the FRR Alternative as well.

If the State instead immediately opted for a statewide FRR, there would be no choice but to procure a significant amount of capacity from fossil plants in order to meet FRR requirements. Furthermore, because portions of the state have restrictive local capacity requirements, procurement of capacity for some zones is likely to be much more complex with fewer available supply options. (The Board should consider these locational constraints as well when selecting which EDC will serve as an FRR Entity.) In addition, if other EMAAC states (such as Maryland) also direct their utilities to elect the FRR Alternative, New Jersey would be

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<sup>28</sup> N.J.S.A. 48:3-51.



competing with Maryland to procure significant quantities of clean EMAAC capacity that both states would demand. That will drive up the price of the FRR, without actually reducing carbon emissions. New Jersey can avoid this potential complication if it starts off small, with a program sized to meet the specific problem created by FERC's new bidding rules and accommodating expected growth in new renewables in coming years.

*g. A State Power Authority Is Unnecessary*

We do not believe a state power authority is necessary to carry out an FRR arrangement in New Jersey. In some other states, such as Illinois, a state power authority has been useful in acting as a procurement coordinator for Illinois's default service procurement and for environmental attributes. But as the BGS auctions have consistently demonstrated, the Board can successfully manage and oversee supply procurements in New Jersey. Further, if authorized by statute, the Board can hire an independent consultant to administer a procurement, subject to the Board's review, oversight, and approval.

*h. Affiliate Relations and Market Power Concerns Pose No Obstacle to the FRR*

Neither affiliate relations nor market power concerns should prevent New Jersey from using the FRR Alternative to procure capacity from the clean resources in which New Jersey has made and will make significant investments through RECs, ORECs, and ZECs.

*Affiliate relations*

Depending on what EDC the Board selects as the initial FRR Entity, there may be no affiliate transaction at all. Only two of the State's four EDCs own clean capacity resources eligible to participate in Tier 1 of the Integrated FRR Procurement proposed above.

Even if the Board were to direct a statewide FRR, so that some of the State's EDCs were procuring capacity from affiliated generation, the affiliate rules should not preclude such transactions from occurring. The purpose of the affiliate rules is to prevent distribution utilities and their generation affiliates from using the utility's captive customers to cross-subsidize ostensibly competitive generation. The affiliate rules thus address the concern that a power-purchasing distribution utility may have "an incentive to favor its affiliate even if the affiliate is not the least-cost supplier, because the higher profits" from the arrangement "can accrue to the [affiliate]'s shareholders."<sup>29</sup>

That concern is absent, first of all, where customers are not captive to the distribution utility. Accordingly, FERC has granted affiliate waivers in jurisdictions with retail choice, where state laws and policies allow retail customers to choose their own electricity supplier and avoid any charges that their electric utility, as a provider of last resort, may have imposed on

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<sup>29</sup> *Boston Edison Co. re: Edgar Electric Energy Co.*, 55 FERC ¶ 61,382 at 62,168 (1991).

customers through improvident procurements.<sup>30</sup> The FRR Alternative does not undermine the grounds for such waivers. Under the FRR Alternative in a retail choice state, third-party suppliers remain able to designate the capacity resources to be used to serve their customers, and will be incentivized to do so if they can secure less costly resources. Retail customers, then, are not “captive” to the capacity procured by the distribution utility.

Second, even if the FRR did produce captive customers, the procurement structure we have proposed should not raise any affiliate concerns. Again, the purpose of the affiliate rules is to prevent the distribution utility from improperly favoring an affiliated generation company at the expense of captive customers. In other words, the rules are focused on disciplining the decision-making of the distribution utility when it evaluates its supply options. Our proposed structure, however, would not afford the FRR Entity the discretion to favor an affiliated supplier. The legislation would establish the procurement structure as set forth above, and an independent procurement administrator would evaluate applications and make selections according to the predetermined criteria established in legislation and by the Board. Because the EDC has no discretionary decision-making authority under such a structure, there is no opportunity for EDC to engage in affiliate abuse. The affiliate relationship could play no role in motivating the transaction. We are not aware of any FERC decision finding even the potential for affiliate abuse in such circumstances.<sup>31</sup> Indeed, under the *Edgar/Allegheny* factors applied by FERC when assessing affiliate transactions, FERC will approve even a utility-initiated transaction when the utility conducts an open and fair solicitation process for a precisely defined product, where bids are evaluated using standardized criteria applied to all bidders, and where the procurement is designed and administered, and bids evaluated, by an

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<sup>30</sup> See *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order 697, 119 FERC ¶ 61,295 at PP 478–483 (2007); see also Order 697-A, 123 FERC ¶ 61,055 at PP 198–199.

<sup>31</sup> In the Ohio cases, by contrast, distribution utilities made the decision to propose an Electric Security Plan to procure capacity and energy from affiliated generation, which was then resold in the PJM markets; the utilities recovered any costs from captive customers through a non-bypassable charge. The distribution utilities attempted to defend the transaction on the ground that the Ohio Commission had approved it, and FERC rejected that approval as inadequate to prevent affiliate abuse. See *Electric Power Supply Association et al. v. AEP Generation Resources and Ohio Power Co.*, 155 FERC ¶ 61,102 (2016) (“*AEP Generation*”); *Electric Power Supply Association et al. v. FirstEnergy Solutions Corp., et al.*, 155 FERC ¶ 61,101 (2016) (“*FirstEnergy*”). In the first place, the Ohio cases did not involve an FRR plan; instead the Ohio utilities would resell the energy and capacity in the PJM markets, most likely at a loss. Moreover, in those cases, unlike the structure proposed here, the decision to enter the contracts was made by the distribution utilities, and the Ohio Commission’s approval was at the back end. Thus, the approval did not vitiate the possibility that the utilities’ decision-making had been distorted by favoritism toward their generation affiliates. Had the Ohio Commission instead made its own decision to require Electric Security Plans, called for bids by generation resources able to provide the desired product, and applied its own criteria to select the winning bidders, the case would have been quite different, even if the resulting contracts were the same.

independent third party procurement administrator.<sup>32</sup> Those factors are all present in the structure we propose here, plus the additional feature that the transaction is initiated by the State, not the utility.

### *Market Power Concerns*

As discussed above, an FRR procurement can be structured so as to mitigate any market power concerns, by promoting competition among clean resources to supply capacity and attributes, with price caps in the event that a procurement is undersubscribed. The price caps for the first tier, reflecting the State's maximum willingness to pay for particular technologies, are akin to the alternative compliance payments that the state has used to prevent the exercise of market power in its environmental attribute programs.<sup>33</sup> The backup residual procurement for capacity only, open to all clean and demand-side resources that satisfy PJM's locational constraints, and potentially open to gas resources as well, is likely to be highly competitive.

## **2. New Jersey Can Utilize the FRR to Accelerate Achievement of New Jersey Clean Energy Goals.**

The FRR would allow New Jersey to accelerate achievement of the State's clean energy goals, including those set forth in the EMP, within existing PJM market rules and, therefore, without reliance on PJM or FERC for the development or approval of associated market changes. Because New Jersey contains four distinct areas that could potentially be FRR service territories, it can phase in the FRR over time, as the percentage of clean energy in the State ramps up. To the extent New Jersey wishes to accelerate the achievement of those goals, it can simply procure larger quantities of clean capacity sooner.

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

Please see Part A and Part B.1.

*b. The FRR can be structured to ensure procurement of clean energy resources to meet resource adequacy needs in line with the 2019 EMP objectives.*

New Jersey currently has only 3,875 MW of zero-emission unforced capacity (UCAP), consisting of:

- 168 MW of grid-connected solar
- 286 MW of contracted offshore wind (the derated capacity for Ocean Wind)
- 3,421 MW of nuclear

Yet the EMP lays out the following power sector goals:

- 50% renewable by 2030

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<sup>32</sup> *Allegheny Energy Supply Co., LLC*, 108 FERC ¶ 61,082 at P 22 (2004).

<sup>33</sup> N.J.S.A. 48:3-87(d)(4), (j).

- 75%-100% carbon-free by 2050
- 7500 MW offshore wind by 2035 (of which 1,100 MW has already been procured)
- Local solar is maximized
- 17.2 GW of solar by 2035

Significant investment in clean energy resources will be needed to meet those goals. In order to achieve the EMP goals in the most cost-effective manner, the capacity provided by these clean resources must be monetized explicitly, either through the PJM capacity auction or through an FRR plan. Otherwise, even as New Jersey customers support these clean resources at the level needed for them to come online, they will also be paying for capacity supplied by other resources—capacity which is both redundant and predominantly powered by fossil fuels. Supporting clean resources while ignoring their capacity, while at the same time paying for capacity from emitting resources, will significantly increase the cost of achieving New Jersey’s EMP goals—potentially by up to \$400 million per year by 2030.<sup>34</sup>

Under FERC’s new MOPR rule, however, that is exactly what will happen without the FRR Alternative. State-supported clean resources—particularly new offshore wind and grid-connected solar—are very unlikely to be able to monetize their capacity in the PJM capacity auction. Yet customers will still effectively be paying for the unmonetized capacity through a higher attribute cost. Consequently, an FRR is essential for New Jersey to be able to meet its EMP objectives in the most cost-effective manner. The only opportunity for these resources to monetize their capacity will be through an FRR arrangement.

To be sure, some parties including the Board have challenged FERC’s new MOPR rule in court. But even if the rule is remanded, FERC could attempt to retain the rule supported by new reasoning and evidence, depending on the basis for the court’s decision—necessitating a further round of appeals. Thus, even in the event that a challenge ultimately succeeds, several capacity auctions may be conducted by the time new rules are in place. In order to reach its goal of 100% clean energy, New Jersey must continue a rapid pace of investments, and cannot allow any existing clean resources to retire. Electing the FRR Alternative now ensures at the very least that progress on EMP goals is not delayed while review of FERC’s rule is pending—let alone if it is ultimately affirmed.

*(i) How would procuring greater numbers of clean energy resources affect pricing outcomes?*

Pricing will be a function of the clean energy and FRR capacity procurement design, and the overall level and timing of clean energy goals. Under the structure we have proposed,

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<sup>34</sup> This is based on lost capacity revenues of 6 GW UCAP of carbon-free resources, assuming the capacity price equals the 2021/22 weighted average PJM capacity price adjusted for inflation. If nuclear resources would be able to clear the capacity market notwithstanding their receipt of ZECs, then the additional cost to New Jersey to achieve its EMP goals would be approximately \$200 million per year.

pricing will differ depending on the resource type. New Jersey can influence pricing outcomes by phasing in its progress toward the EMP goals over time. As proposed above, the State can also decide that there is some maximum price it is willing to pay to make progress on its EMP goals—and to the extent it is unable to attract sufficient supply at that price, it can use a residual procurement to fill out the required FRR Capacity Plan.

*(ii) Could the State require that procurements “internalize” the value of anticipated carbon emissions during the delivery year, subject to a true-up?*

This question appears to envision a single procurement for locationally-eligible capacity, open to all capacity resources, in which emitting bidders face a carbon charge (or bid adjustment) reflecting the social cost of their anticipated carbon emissions during the delivery year. As a result, fossil fuel bids would be increased by the cost of carbon. As an example, for an efficient gas plant, this would add the equivalent of approximately \$240/MW-day to the capacity bid (assuming a \$50/mt carbon price and a 50% capacity factor),<sup>35</sup> while the bids of less efficient or more carbon-intensive resources would be increased more.

This approach is unlikely to allow New Jersey to achieve its EMP goals. SREC prices and the implied OREC attribute value have been much greater than \$20/MWh. Increasing capacity prices by \$20/MWh thus would not provide a sufficient incentive to build incremental solar or offshore wind projects. New solar and off-shore wind projects will only be built as a result of technology-specific programs that offer greater levels of state support.

An Integrated FRR Procurement described above solves this problem by including a carve-out for a certain quantity of offshore wind and new grid-connected solar.

*(iii) How could New Jersey determine what such a reference carbon value could be, addressing both price and environmental considerations?*

There are many estimates for the social cost of carbon (SCC). The US Interagency Working Group on Social Cost of GHG issued an August 2016 technical update which estimated a SCC range of \$42 to \$69 in 2007 dollars, for the years 2020 and 2050 respectively. This value was identified by the New Jersey legislature in the ZEC law as a benchmark for evaluating the level of payments under the ZEC program<sup>36</sup> and was referenced in the EMP as a benchmark for measuring savings associated with achievement of NJ’s clean air goals.<sup>37</sup> Further, the United Nations released a study in September 2019 stating that “[t]here is limited evidence, but high

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<sup>35</sup> A typical combined cycle plant has an emission rate of 0.4 tons of carbon dioxide per MWh of generation. Thus, at a \$50/ton carbon price, the social cost of carbon emissions for each MWh generated is 0.4 multiplied by \$50, or \$20 per MWh. Translated into \$ per MW-day terms this is equivalent to a \$240/MW-day adder (\$20/MWh multiplied by 8760 hours per year and a 50% capacity factor and then divided by 365 days).

<sup>36</sup> See N.J.S.A. 48:3-87.3(b)(8)

<sup>37</sup> See EMP at 51, n. 12 and accompanying text.

*agreement* that present costs of carbon are clearly underestimated.”<sup>38</sup> According to the report, when “multiple interacting tipping points” are taken into account, the social cost of carbon should be valued at \$116 per ton of CO<sub>2</sub>.<sup>39</sup>

*How would preferentially procuring clean energy resources affect reliability outcomes?*

Preferentially procuring clean energy resources will not impair reliability in any way. PJM establishes a reserve requirement for FRR zones that is exactly equal to the PJM reserve requirement. The reserve requirements assure that there is sufficient excess capacity above the amount projected to be necessary to meet peak summer demand levels during the Delivery Year. The requirements are based on industry standards established by the North American Electric Reliability Council (“NERC”), which FERC has designated to establish electric reliability standards. Typically, PJM targets capacity procurement of about 15%-16% over the projected peak summer demand. FRR entities are obligated to procure the same level of reserves to assure reliability.

PJM’s capacity auctions have often resulted in capacity procurements far in excess of the approximately 15%-16% target reserve level needed to maintain reliability. In the last capacity auction, PJM procured reserves of over 21%. Opponents may argue that an FRR Entity is “less reliable” because it procures to the target reserve amount, rather than procuring reserves in excess of the target, but that argument is misleading. The capacity demand curve utilized in the PJM RPM auction forces the procurement of additional resources above the level needed to maintain the one-day-in-ten-years reliability standard in the event that such additional capacity offers into the auction at a price below the level of the demand curve. The theory behind the demand curve and procurement of resources over the target reserve amount was that excess reserves had a value that declined as the quantity of reserves increased. However, the existing RPM construct procures well more than was intended, due to the operation of the demand curve. That over-procurement will be exacerbated by the new MOPR rule, which will result in load-serving entities paying for clean capacity in addition to that which is procured from the centralized-PJM auction. The FRR Entity, by contrast, will procure the FERC-approved, industry-standard reserve level, sufficient to assure that a load curtailment due to resource shortages can be expected to occur no more than one day in every ten years. There is no need to procure reserves in excess of that amount. And there have been no reliability issues in the AEP territories that have used the FRR Alternative since its inception.

*c. The State should not adopt an energy market carbon price in lieu of an FRR approach.*

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<sup>38</sup> “The Ocean and Cryosphere in a Changing Climate,” Intergovernmental Panel On Climate Change, September 24, 2019, pp. 6-54 ([https://report.ipcc.ch/srocc/pdf/SROCC\\_FinalDraft\\_FullReport.pdf](https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf)).

<sup>39</sup> *Id.*

A meaningful carbon price is the most efficient approach to addressing carbon emission reduction goals. However, electric sector carbon pricing at levels sufficient to drive decarbonization is less effective when it occurs in a single state that is integrated into a multi-state energy market like PJM without any ability to mitigate leakage. As noted above, leakage will undercut the effectiveness of a carbon price. Market rules can be designed to reduce leakage, and we are actively working with PJM to do so. However, the slow pace of these discussions confirms that it will take significant time for such rules to be developed and submitted to FERC for consideration, during which environmental degradation would continue. Thus, as further described below, we encourage New Jersey to move forward with FRR rather than wait for PJM and FERC to expand carbon pricing beyond RGGI participation.

A carbon price directly internalizes the cost of carbon emissions into the energy market, and thus directly incentivizes the most economically efficient carbon-reducing electricity market actions on a technology-neutral basis, including investment in clean generation but also including other actions such as redispatch of existing generation, demand-side changes, and investment in emerging carbon reduction technologies. If carbon reduction is the primary goal, a national or regional carbon pricing regime offers the most efficient and ultimately cost-effective means of achieving it. Furthermore, unique among the alternatives for achieving the EMP, a carbon price approach does not involve direct support to clean generation, and thus would avoid triggering the MOPR and the need to utilize the FRR option instead of the RPM.

A carbon price could be implemented in different ways—for example, as an adjustment to bids made by carbon-emitting resources, or by imposing an allowance price for carbon emissions such as is done by RGGI. Either way, the carbon price is or would be incorporated into energy offers and ultimately energy prices. The increased energy price signal creates an incentive for carbon-reducing actions in the electricity market, including investment in new clean generation—much as RGGI has done. To achieve New Jersey’s clean energy goals, a carbon price would need to be set at a level sufficiently high to incentivize entry by the entire suite of clean generation technologies desired by the State, including offshore wind.

However, a meaningful carbon price approach suffers from considerable practical complications in the present PJM market that undercut its efficacy as a primary means of achieving New Jersey’s clean electricity goals in the near to medium term.

First, a carbon price operates to incentivize investment in clean generation through the actions of private investors in response to the carbon price signal. Consequently, there is no assurance that clean generation investment will occur in line with the goals set out in the EMP. In particular, a carbon price is unlikely to incentivize investment in offshore wind unless set to a level well above generally accepted views on the social cost of carbon.

Second, in a multi-state energy market like PJM, a single-state carbon price will be less effective in reducing overall carbon emissions, due to leakage.<sup>40</sup> Such leakage occurs when carbon-emitting generators in other parts of PJM (who will not face New Jersey’s carbon price) displace New Jersey emitting generators, which already happens to some extent with RGGI today. Leakage frustrates the ability to achieve carbon reduction goals with purely market programs; effectively, a higher carbon price in New Jersey would cause PJM to shift to relying more heavily on potentially higher-carbon intensity generation in other states interconnected with New Jersey, rather than to replace carbon-intensive generation with clean generation. PJM has begun the earliest stages of evaluating leakage mitigation options, but the ultimate likelihood of PJM actually acting – or FERC approving any resulting market rule changes – is unknown.

To be sure, New Jersey could and should pursue more meaningful regional carbon pricing in tandem with the Integrated FRR Procurement proposed above. In the longer term, effective leakage mitigation across PJM would be complementary to an Integrated FRR Procurement. If an energy market carbon dispatch price were ultimately implemented, it would simply increase energy prices with a corresponding reduction in the cost of bundled capacity and attributes through the Integrated FRR Procurement. But a significant energy market carbon dispatch price, with leakage mitigation, is not a viable near-term option for New Jersey. To make progress on carbon and EMP goals in the near-term, the prompt development of an FRR is needed.

### **3. The Board Should Not Modify the Basic Generation Service Construct.**

New Jersey’s BGS procurement processes functions reasonably well and can accommodate the FRR Alternative with little modification. The BGS auction occurs after capacity has been procured for a given delivery year. Currently, BGS suppliers include in their bids the capacity price set by the PJM capacity auction. Under an FRR arrangement, BGS suppliers would instead include in their bids the implied capacity price paid by the FRR entity, for those zones under an FRR arrangement. That price will be known at the time of the BGS auction.

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<sup>40</sup> However, a well-designed carbon pricing mechanism in a single-state ISO, such as the New York Independent System Operator has recently proposed, can be effective. Even in that proposal, however, border adjustments have been developed to ensure that emissions reductions in New York are not offset by emissions increases associated with imports from neighboring states. With similarly well-designed leakage mitigation, a subset of states within a multi-state RTO like PJM could achieve the same result with border adjustments internal to the PJM footprint, so long as PJM supported the development of such market rules and FERC approved them. It is also important to note that New York’s proposal does not replace REC programs nor RGGI, but instead is in addition to these technology-specific approaches, much like RGGI or California’s allowance-based programs coexist with relevant state renewable portfolio standards or clean energy standards and the federal production tax credit and investment tax credit.



The only difference under the proposed Integrated FRR Procurement is that, for PJM's purposes, the FRR Entity would be the supplier of capacity to the loads in its zone. But as explained above, because the BGS supplier would be responsible for compensating the FRR Entity for having procured the needed capacity and because the price of that capacity will be known prior to BGS auction, there would not be any adverse impacts on the BGS auction mechanism. The forces of competition that have disciplined past BGS auctions would still be present.

**4. Other Mechanisms, such as a Clean Energy Standard or Clean Energy Market, Will Not Facilitate Achievement of New Jersey's Clean Energy Goals as Effectively as an Integrated FRR Procurement.**

Other potential approaches, such as a clean energy standard or clean energy market, will not, standing alone, achieve New Jersey's EMP goals in a cost-effective manner. That is because any state program providing direct financial support to clean resources—whether through long-term contracts, clean energy credits, or clean energy procurement carve-outs—will trigger FERC's new bidding rule and thereby deprive those clean resources of capacity revenue through the PJM capacity auction. Any of these approaches will therefore require the FRR option, which allows clean resources to supply their capacity outside of the PJM auction. (The one exception is a meaningful carbon price or increased RGGI allowance price, with effective leakage mitigation which, as discussed above, is not available in the near term given the need for PJM and FERC support to develop and implement related market rules).

By the same token, the FRR is not a stand-alone solution, either. An FRR will advance clean energy goals only if it is structured to do so. Accordingly, New Jersey must integrate its clean energy credit programs with the FRR, as we have outlined above. Resources receiving State support for their environmental attributes—and thus effectively ousted from the PJM capacity market—should be the resources for which capacity is procured under an FRR. The easiest way to do so is through an Integrated FRR Procurement, in which capacity and attributes are procured in a bundle.

An Integrated FRR Procurement can also help New Jersey achieve its technology-specific EMP goals, such as the targets for offshore wind and extensive reliance on local solar. These technology-specific goals are not necessarily least-cost, but they foster a diversity of clean resource types and can assist in jump-starting relatively new technologies, such as offshore wind, that will be critical to achieving 100% clean electricity. Thus, there are good policy reasons for the EMP's inclusion of technology-specific goals. Importantly, however, a technology-neutral approach—such as a clean energy market or carbon price—will likely not succeed in achieving these technology-specific goals. We recommend the Integrated FRR Procurement in part because it can accommodate New Jersey's technology specific goals through the establishment of carve-outs with different pricing.

With that framing, we summarize below the main pros and cons of different potential mechanisms, including a clean energy standard or clean energy market.

### *Clean Energy Standard*

A clean energy standard (CES) framework is akin to a renewable portfolio standard, under which a specified percentage of electricity sold in the state must come from qualified sources. However, a clean energy standard typically treats a larger array of sources—including nuclear and hydro—as qualified.

A CES can be implemented with or without carve-outs or tiers for specific technologies. With no carve-outs, all MWh from eligible zero-emission generators get the same credit. That approach, however, is unlikely to achieve the technology-specific EMP goals, particularly with respect to resources such as offshore wind and New Jersey-based solar. Those resource types are substantially more expensive than onshore wind, utility-scale solar, nuclear, and hydro, and thus would be underbid if forced to compete for clean energy credits with these less costly clean resources.

Alternatively, carve-outs can be added to a CES to promote policy goals beyond carbon reduction, but with added complexity and reduced economic efficiency. The State's current patchwork of RPS, SRECs, ORECs, and ZECs is effectively a CES with carve-outs for particular technologies.

The current clean electricity programs could be integrated into a single CES program—effectively, the Integrated FRR Procurement does so—but even if the programs are not formally consolidated, they can be revised to reflect best practices. For example, the long-term all-in price for offshore wind contracts provides an excellent model for procuring clean energy resources at lowest cost. Such an approach can be adopted for other technologies as well, and the Integrated FRR Procurement allows the Board to do so in a manner consistent with New Jersey's statutory programs for supporting particular clean technologies.

Because revenue from a CES would be considered a “state subsidy” under FERC's new capacity bidding rule, new generators and existing nuclear generators receiving support from a CES would be subject to the MOPR. In order to support those resources in a cost-effective manner, any CES program must be coupled with an FRR.

### *Clean Capacity Procurement*

As discussed in the response to Question 2.b.ii, the State could institute a single procurement for locationally-eligible capacity (pursuant to an FRR), with a bid adjustment for anticipated carbon emissions from the resource during the delivery year. Generally, this approach would result in more clean resources being selected in the procurement than otherwise. However, this approach would fail to achieve the technology-specific goals of the EMP. Carbon-emitting resources would need to raise their bids by about \$240/MW-day in light of their anticipated carbon emissions, assuming a carbon price of \$50/mt. But SRECs and

ORECs have historically cost far more than \$240/MW-day. Thus, a clean capacity procurement with a bid adjustment for anticipated carbon emissions is unlikely to deliver prices high enough to incent incremental solar or offshore wind projects. Instead, to achieve the EMP's technology-specific goals, New Jersey must have technology-specific procurement carve-outs, as reflected in the Integrated FRR Procurement we have proposed.

*Carbon Price in Energy Market*

Please see our response to Question 2.c.i-ii. While a meaningful carbon price in the energy market is a very efficient mechanism for reducing carbon emissions, such an approach by a single state (or even subset of states) within a multi-state energy market such as PJM will be compromised by leakage, as discussed above. In addition, even a meaningful carbon price alone is unlikely to achieve the EMP's technology-specific goals.

**CONCLUSION**

As explained above, the Integrated FRR provides an efficient and effective path toward achievement of New Jersey's carbon reduction and environmental protection goals. We appreciate the Board's leadership in developing policies to align New Jersey's procurement of capacity with its environmental agenda and look forward to working with the Board as this proceeding moves forward.

Very truly yours,



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