Institute *for*
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

October 25, 2022

VIA ELECTRONIC SUBMISSION

Carmen D. Diaz, Acting Secretary of the Board
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Docket: **EO20030203 – Investigation of Resource Adequacy Alternatives**
Subject: **Institute for Policy Integrity Comments**

Dear Acting Secretary Diaz:

The Institute for Policy Integrity at New York University School of Law[1] (Policy Integrity) appreciates the opportunity to submit these initial comments to the New Jersey Board of Public Utilities (BPU) in response to its September 22, 2022 Notice[2] in the above-captioned proceeding. Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

Thank you for your consideration of the attached comments.

Respectfully,

/s/ Christopher Holt	/s/ Sarah Ladin	/s/ Burçin Ünel
Christopher Holt, Ph.D.	Sarah Ladin	Burçin Ünel, Ph.D.
Economist	Senior Attorney	Interim Co-Executive Director
chris.holt@nyu.edu	sarah.ladin@nyu.edu	burcin.unel@nyu.edu

[1] This document does not purport to present the views of New York University School of Law.
[2] Notice, In the Matter of the New Jersey Investigations into Resource Adequacy: 2022 Progress Report, Docket No. EO20030203 (Sept. 2, 2022).

Institute for Policy Integrity Comments on the 2022 Progress Report on New Jersey's Resource Adequacy Alternatives

In September 2022, the New Jersey BPU published the 2022 Progress Report on New Jersey's Resource Adequacy Alternatives (2022 Staff Report).[3]

As the BPU continues its efforts in determining how best to ensure resource adequacy in New Jersey, Policy Integrity encourages Staff to clarify its views on the design options and the details of key features of the resource adequacy structures proposed in the 2022 Staff Report. Policy Integrity has also identified specific recommendations for Staff regarding the implementation of its resource adequacy structure and the market structures presented in the 2022 Staff Report. Staff should:

- Clarify its definition of clean capacity to ensure eligibility of certain non-generation resources;
- Further explore the possibility of indexing renewable energy credits (RECs) and/or clean energy attribute credits (CEACs) to the emissions intensity of displaced generation;
- Reconsider its proposal to create a market for clean capacity credits (CCCs);
- Recognize challenges associated with assessing additionality in the context of a CCC market; and
- Ensure the effectiveness of the proposed alternative compliance payment (ACP) option.

Staff should also thoroughly consider the preemption risk associated with the CCC feature presented in the 2022 Staff Report and the potential risk of a new Minimum Offer Price Rule (MOPR) in response to a CCC market. Staff should consider whether and how the Inflation Reduction Act (IRA) changes the calculation of costs and benefits of moving forward with any of the options presented. Finally, Staff should continue to encourage PJM's efforts to ensure that capacity markets are not biased toward fossil-fuel generation.

[3] N.J. BD. OF PUB. UTILS., 2022 PROGRESS REPORT ON NEW JERSEY'S RESOURCE ADEQUACY ALTERNATIVES: UPDATE REGARDING STAFF'S INVESTIGATION OF RESOURCE ADEQUACY ALTERNATIVES, DOCKET #EO20030203 (Sept. 2022) [hereinafter 2022 STAFF REPORT].

I. Staff Should Clarify Its Views on Market Design Options and Provide Greater Detail on Specific Features of Proposed Resource Adequacy Structures

The 2022 Staff Report discusses, in varying levels of detail and support, several resource adequacy design options and features. Staff should clarify its position on these design proposals and offer more detail on specific features of any proposed market.

Staff makes clear that its first-order choice for a resource adequacy structure is that PJM reform its existing capacity market by adopting an Integrated Clean Capacity Market (ICCM).[4] Staff also makes clear that, due to regulatory uncertainty associated with adopting the ICCM (which would require PJM and FERC approval), it supports concurrent development of a "Regional Voluntary Clean Energy Market."[5]

However, the Report becomes vague after that point and discusses several design options. Staff does not define "Regional Voluntary Clean Energy Market," but instead presents several different potential forward procurement market structures to meet either resource adequacy requirements and/or New Jersey's clean energy and decarbonization goals. Staff should clarify its positions on the options presented. The Report at some points seems to favor a Forward Clean Energy Market (FCEM) that trades only CEACs, but at other times presents an FCEM that trades both CEACs and CCCs.[6] It also suggests an ICCM that also sells CCCs.[7] It is not clear which of these designs Staff prefers to be developed in place of an ICCM, should the ICCM's implementation prove too challenging.[8]

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[4] *Id.* at 4 ("Staff recommends that the Board find that: (i) An Integrated Clean Capacity Market Would Result in Significant Cost Savings and Accelerate the Clean Energy Transition; New Jersey Should Continue to Advocate for its Adoption at the Regional Level.").

[5] *Id.* ("While Regional Efforts Continue Under Uncertainty, New Jersey Should Develop a Regional Voluntary Clean Energy Market.").

[6] *Compare id.* at 14–15 (describing an FCEM that only procures CEACs), *with id.* at 27 ("An FCEM, similar to the RPM, would send these signals three-years in advance, by enabling the forward procurement of Clean Energy Attribute Credits and Clean Capacity Credits.").

[7] *Id.* at 42 ("Under a Clean Capacity Credits market, interested LSEs would be required to purchase Clean Capacity Credits from eligible producers (whether bilaterally or through a future ICCM/FCEM structure) and then retire the annual or seasonal Clean Capacity Credits in proportion to their load obligation.").

[8] *Id.* at 14 ("The main benefit of an FCEM structure over an ICCM structure is that it requires less federal and PJM involvement than the ICCM, while still achieving many of the economic benefits. Consistent with the Board's 2019 findings, efforts at PJM and FERC for such market reforms may result in "never ending" stakeholder discussions and the realities of climate change prioritize the timeliness of implementing any new market structure. The FCEM creates an alternate route for establishing a clean energy market outside of PJM's market rules, and therefore outside of lengthy stakeholder processes and potentially much more timely than an ICCM. An FCEM could thus be created through coordinated state action faster than other options, and New Jersey could serve as a catalyst for forming such a market. Further, any FCEM market has the potential to be integrated with the PJM market if some of the PJM and FERC implementation challenges can be addressed.").

Staff also alludes to several design features throughout the Report without clearly explaining how they might fit into the FCEM (or FCEM+CCC) proposal, exactly how such features would work, or the extent to which Staff is encouraging their adoption. Such features include:

- indexing both CEACs and CCCs;[9]
- adding an ACP mechanism;[10]
- including of a "clean capacity constraint"[11] or "firm clean capacity" requirement;[12] and
- adopting a seven- to twelve-year price lock mechanism.[13]

Staff should clarify how these features would work, and under what circumstances they might support their adoption into a resource adequacy structure (e.g., as part of an FCEM, an FCEM+CCC, an ICCM, or as part of any of the three).

II. Resource Adequacy Structural Recommendations

The directive underlying Staff's Report is to provide guidance on how best to ensure that New Jersey can achieve its long-term clean energy goals while also meeting its resource adequacy needs.[14] New Jersey's specific clean energy targets are driven by the overarching goal of decarbonizing the energy sector to combat "the negative health and environmental consequences of climate change."[15] The buildout of clean electricity generation capacity is therefore a means for achieving the goal of a decarbonized energy sector, rather than an end goal itself. In this context, we discuss several of the resource adequacy structural design features proposed by Staff under its directive, and their implications for achieving decarbonization of the energy sector in a cost-effective manner while maintaining resource adequacy.

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[9] *Id.* at 20.

[10] *Id.* at 43 ("Staff likewise recommends that the Board require those LSEs to purchase a minimum quantity of clean capacity, and offer an Alternative Compliance Payment ('ACP') option to ensure that the clean capacity constraint does not unduly increase prices.").

[11] *Id.* at 31 (discussing "a capacity constraint on the BRA"), 34 (noting idea for a "clean capacity constraint"), 35 ("a clean constraint in PJM's RMP"), 38 ("a competitive regional market with an imposed clean capacity constraint"). Specifically, it is not clear whether this constraint refers to a constraint in PJM's existing capacity market, or in a separate non-PJM regional market, and if it does refer to a constraint in the capacity market, whether this is something different than the ICCM. Throughout the Report, reference to such a constraint is made in passing without elaboration.

[12] This requirement only appears in the graphics provided on page 28, 35, 39, and 39. However, there is no explanation behind what this requirement is or how it fits in with the structures described.

[13] *Id.* at 32 ("This can be accomplished by incorporating a 'price lock' for a period of 7 to 12 years . . . .").

[14] *Id.* at 2–3.

[15] *Id.* at 6 ("New Jersey, under the leadership of Governor Phil Murphy, is combatting the negative health and environmental consequences of climate change through advancing and diversifying its clean energy portfolio to reduce the energy sector's greenhouse gas ('GHG') emissions.").

A. Staff Should Clarify Its Definition of Clean Capacity to Ensure Eligibility of Non-Generation Resources

The Report proposes to define clean capacity as "capacity from non-carbon emitting *generation* resources that contribute toward New Jersey's resource adequacy needs."[16] However, it is also clear from the Report and workshop presentation that Staff intends to include *non-generation* resources like energy efficiency and demand response (and mixed resources like energy storage) as eligible to provide clean capacity.[17] Staff should consider whether the definition provided, even given the clear intent of Staff, should be reworked to explicitly include both generation and non-generation resources. This clarification is important for ensuring that the stated intent behind the definition translates over time and between reports and other future regulatory or legislative efforts, and to avoid future confusion.

B. Staff Should Continue to Explore Use of Indexed Credits

New Jersey's renewable portfolio standard (RPS) requires energy providers that serve retail customers to procure a percentage of their electricity from renewable generation sources.[18] This standard is implemented by requiring that electricity suppliers serving retail customers in New Jersey purchase RECs for a portion of their electricity sales, or face a penalty in the form of an ACP.[19] RECs represent units of electricity generated by clean sources.[20] A well-known shortcoming of using RECs is that they result in a uniform price for all clean energy even though the value of clean energy depends on the amount of emissions that it displaces, and the harm that those emissions would have caused.[21] The emissions displaced by clean energy generation varies widely depending the generation mix at a given time and place.[22] By failing to account for this variation in the value of clean energy, RECs inefficiently compensate resources for their clean attributes.

To address this inefficiency, Staff "recommends that the Board consider indexing clean energy compensation to the carbon intensity of the grid at the time the clean energy is produced, with the idea of providing higher compensation for clean energy produced when emissions are

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[16] *Id.* at 38.
[17] *Id.*
[18] *See* N.J. ADMIN. CODE §§ 14:8-2.1, -2.3.
[19] *Id.* § 14:8-2.3.
[20] *Id.* § 14:8-2.2.
[21] *See, e.g.*, Duncan S. Callaway, Meredith Fowlie & Gavin McCormick, *Location, Location, Location: The Variable Value of Renewable Energy and Demand-Side Efficiency Resources,* 5 J. ASS'N ENV'T & RES. ECON. 39, 40 (2018) ("In principle, policies designed to support socially efficient levels of investment in [renewable energy] and [energy efficiency] should provide incentives that accurately reflect all external, uncompensated benefits and costs. Absent other market failures or distortions, a carbon price set equal to the marginal damage caused achieves this objective. However, production and capacity-based subsidies are far more prevalent.").
[22] *Id.*; *see also* JEFFREY SHRADER, PH.D., ET AL., INST. FOR POL'Y INTEGRITY, VALUING POLLUTION REDUCTIONS: HOW TO MONETIZE GREENHOUSE GAS AND LOCAL AIR POLLUTANT REDUCTIONS FROM DISTRIBUTED ENERGY RESOURCES (2018), https://perma.cc/8G4E-KWF4.

high, while providing lower levels of compensation to clean energy produced during times when the grid is relatively clean."[23]

Staff and the Board should continue to consider indexing the value of RECs (or CEACs) in this manner. From an economic perspective, efficient payments to generators should reflect the value of the benefits that those resources provide which are not captured by existing markets. The most prevalent of these "positive externalities" is the social value of displacing emissions from pollution-intensive generators.[24] Compensating generators in proportion to the amount of emissions that they displace will guide investment in clean energy toward the places where it provides the greatest benefits, thus moving towards New Jersey's clean energy goals in a more efficient manner.

Data collection processes and tools are available which can be used to construct an index that reflects the value of clean energy generation at a given time and place. For example, PJM publishes real-time marginal emissions rates (MERs) every five minutes for individual nodes across the grid.[25] MERs provide an approximation of the emissions that would be displaced by adding additional clean generation.[26] Using MERs to implement an index that ties the value of RECs or CEACs to the emissions intensity of displaced generation will involve a number of important design considerations to ensure that the amount of emissions displaced is measured accurately.[27] Nevertheless, the availability of detailed information on MERs in PJM provides a promising means for constructing an indexed REC that may significantly improve the efficiency of New Jersey's RPS.

Further, indexing of clean attribute credits is critical for participation of storage resources in an FCEM. Without indexing, it may be difficult to ensure storage resources are compensated for clean energy or clean capacity only where resources are actually reducing emissions. Storage

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[23] 2022 STAFF REPORT, *supra* note 3, at 4.

[24] Other positive externalities such as technological spillover effects are more difficult to quantify. *See* Callaway, Fowlie & McCormick, *supra* note 21, at 69 ("Our analysis has emphasized what we maintain is the most important external benefit: displaced carbon emissions."); *id.* ("There are other potential external benefits, such as health co-benefits and learning by doing, that are harder to quantify.").

[25] *Marginal Emission Rates Added to Data Miner Tool*, PJM INSIDE LINES (Sept. 10, 2021), https://perma.cc/5KGG-PCRK. WattTime, a nonprofit, and ReSurety, an analytics company, have also developed methods for measuring MERs. *See Marginal Emissions Methodology,* WATTTIME, https://perma.cc/3BJU-72NW (last visited Oct. 13, 2022); *Locational Marginal Emissions (LMEs)*, RESURETY, https://perma.cc/BMK8-3ZS7 (last visited Oct. 13, 2022).

[26] *See* Callaway, Fowlie & McCormick, *supra* note 21, at 45.

[27] Total emissions displaced by clean generation can be approximated by multiplying the marginal emissions rate by the amount of clean generation. As the amount of clean generation increases, this approach becomes less precise because the intensity of displaced emissions is not constant as more generation is added to the system. Moreover, due to the complex nature of supply constrained economic dispatch, which involves balancing generation from many sources with load across the system subject to transmission constraints, marginal emissions rates are highly uncertain. This uncertainty creates risk associated with a financial contract to purchase or sell emissions displaced in the future. These complications should not be viewed as prohibitive but will require careful consideration upon implementation of any proposal to index RECs or CEACs.

resources have previously been excluded from participation in FCEMs, i.e., ineligible to receive CEACs, given the complexity of determining whether storage increases clean energy production.[28] Policy Integrity has previously explained that the value of energy storage, and whether storage resources reduce emissions, depends on MERs.[29] If Staff cannot or does not appropriately index CEACs (or CCCs), then it should consider the best way for storage to participate in any new market structure in a manner consistent with reducing emissions.

C. Staff Should Reconsider Its Proposal for a Clean Capacity Credits Market

Staff proposes a resource adequacy structure that adds trading CCCs to the FCEM (which generally is described as trading only clean energy attributes) or the ICCM (which is described as co-optimizing the settlement of the capacity market and clean energy attributes).[30] Under this proposal, the FCEM (or potentially the ICCM) would involve trading both CEACs and CCCs. Accordingly, in addition to an LSE's obligation to forward-purchase clean energy attributes, LSEs would be required to purchase CCCs.[31] Staff proposes to define a CCC as a unit of unforced capacity (MW) of a resource that does not emit greenhouse gases when it generates power.[32]

Staff is essentially proposing to create a market analogous to the RPS but applied to capacity rather than energy. This proposal is motivated by Staff's observation that current capacity market rules do not allow buyers "to signal their preference to purchase capacity from non-emitting resources" and that absent such a market, resource adequacy will continue to be provided by fossil

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[28] *See, e.g.*, ISO NEW ENGLAND, STORAGE RESOURCES AND PATHWAYS TO A FUTURE GRID (Apr. 8, 2021) (providing justification for ISO-NE's decision not to include storage resources as eligible to participate in an FCEM for purposes of its Future Pathways study).

[29] *See, e.g.*, Comments of Inst. for Pol'y Integrity & WattTime on Connecticut's Annual Energy Storage Solutions Program Review at 3 (Sept. 21, 2022); *see also* Richard L. Revesz & Burçin Ünel, *Managing the Future of the Electricity Grid: Energy Storage and Greenhouse Gas Emissions*, 42 HARV. ENV'T L. REV. 139 (2018); MADISON CONDON ET AL., INST. FOR POL'Y INTEGRITY, MANAGING THE FUTURE OF ENERGY STORAGE: IMPLICATIONS FOR GREENHOUSE GAS EMISSIONS (2018), https://perma.cc/NJ32-AKE7.

[30] 2022 PROGRESS REPORT, *supra* note 3, at 20 ("Staff recommends that the Board . . . to design a market framework capable of separately tracking Clean Capacity Credits and indexing clean energy products to track the amount of carbon displaced by RECs and CCCs."). Staff later notes that it envisions an FCEM which would enable the "forward procurement of Clean Energy Attribute Credits and Clean Capacity Credits." *Id.* at 27. It also includes modeling scenarios which involve a "clean capacity constraint" or "Clean Capacity Credits." *Id.* at 34–35. Staff suggests incorporating a Clean Capacity Credits market into either an FCEM or the ICCM. *Id.* at 42 ("Under a Clean Capacity Credits market, interested LSEs would be required to purchase Clean Capacity Credits from eligible producers (whether bilaterally or through a future ICCM/FCEM structure) and then retire the annual or seasonal Clean Capacity Credits in proportion to their load obligation.").

[31] *Id.* at 37 ("Under either an ICCM or FCEM concept, the obligation to contract with clean energy resources rests with the entity serving the New Jersey load. In general, this would mean that New Jersey's basic generation suppliers and third party suppliers (all LSEs) would be assigned an obligation to purchase clean energy attributes, on a forward basis, for a minimum percentage of their load (the "Clean Energy Market Purchase Obligation"). Each NJ supplier would also be required to purchase a certain level of Clean Capacity Credits prior to meeting their capacity obligations in PJM's RPM auction.").

[32] *Id.* at 40 (defining a CCC as "one UCAP megawatt of capacity, as certified by PJM, for a particular delivery year or season, and particular PJM capacity zone that is produced by a resource that does not directly emit GHGs, including nuclear, energy storage, demand response, energy efficiency, a resource capable of producing Class I REC, or an emitting resource that either uses a 100% carbon-free feedstock or that captures and sequesters 100% of the carbon that would otherwise be produced").

fuel-fired generators.[33] There are several issues associated with this proposal that Staff should consider as it moves forward in this proceeding.

1. A Market for Clean Capacity Credits Is Not Likely to Lead to Efficient Reductions in Emissions

New Jersey's clean energy goals are motivated primarily by the urgent need to reduce greenhouse emissions to mitigate climate change.[34] Selling CCCs, however, is not necessarily likely to facilitate reductions in greenhouse gas emissions. A unit of unforced capacity—the basis for the product that is sold in capacity markets as they are currently designed—does not itself emit pollution. Rather, greenhouse gas emissions are produced from the generation of electricity through burning fossil fuels. Put differently, establishing an electricity system that is made up of 35 percent clean unforced capacity does not imply that 35 percent of electricity consumed is coming from clean sources, and vice versa.

Furthermore, introducing a CCC market would not address the shortcomings of existing decarbonization policies like the RPS and the Regional Greenhouse Gas Initiative (RGGI). First, the RPS values all clean energy equally, regardless of the amount by which it results in lower emissions, and treats all fossil generation equally, regardless of pollution intensity. As such, an RPS is widely recognized in the economics literature as less cost-effective than a price on carbon dioxide.[35] Second, while RGGI imposes a price on carbon dioxide in New Jersey, RGGI continues to result in a price on carbon dioxide emissions that is well below estimates of the marginal damage that it causes, and therefore is also sub-optimal from an economic perspective.[36]

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[33] *Id.* at 42 ("Under the current rules, PJM does not have any means of allowing buyers, including New Jersey's LSEs, to signal their preference to purchase capacity from non-emitting resources. Therefore, without a clean capacity constraint or Clean Capacity Credit purchase requirements, New Jersey consumers will continue to rely on fossil fuel generation to meet their resource adequacy needs, continuing the disconnect between state policy and wholesale markets. This forced reliance on emitting resources does not align with New Jersey's ambitious GHG emission reduction targets.").

[34] *Id.* at 6 ("New Jersey, under the leadership of Governor Phil Murphy, is combatting the negative health and environmental consequences of climate change through advancing and diversifying its clean energy portfolio to reduce the energy sector's greenhouse gas ("GHG") emissions. The State has therefore committed to eliminating most GHG emissions and achieving a predominantly clean energy economy by 2050.")

[35] *See, e.g.*, Harrison Fell & Joshua Linn, *Renewable Electricity Policies, Heterogeneity, and Cost Effectiveness,* 66 J. ENV'T ECON. & MGMT. 688, 689 (2013) ("An RPS and production subsidy provide the same (implicit or explicit) subsidy regardless of the environmental value—in effect, treating all renewable generation as equally environmentally valuable. . . . By comparison, under a CO_2 emissions price, the revenue earned by a renewable generator depends on the market and environmental values.").

[36] The RGGI clearing price on June 1, 2022 was $13.90, the highest since its inception. *See Allowance Prices and Volumes*, RGGI, https://perma.cc/S6N4-W456 (last visited Oct. 13, 2022). The Interagency Working Group on Social Cost of Greenhouse Gases produced an estimate of the Social Cost of Greenhouse Gases of $51 in February 2021. *See* INTERAGENCY WORKING GROUP ON SOCIAL COST OF GREENHOUSE GASES, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON, METHANE, AND NITROUS OXIDE, INTERIM ESTIMATES UNDER EXECUTIVE ORDER 139905, at 5 tbl.ES-1 (2021) (showing a $51 average social cost of CO_2 under a 3 percent discount rate).

A CCC market does not address the sub-optimal nature of the RPS and RGGI.[37] A CCC market as proposed by Staff would result in a pre-determined portion of unforced capacity being offered by clean generation resources. The amount of emissions produced by the resulting resource mix would depend on a variety of factors, including the emissions intensity of the fossil-fuel-fired portion, localized demand patterns, and transmission constraints. By treating all clean capacity the same regardless of how it affects the amount of emissions generated by the electricity system, the CCC market would be indifferent to how much emissions are actually reduced.

Staff has proposed including an "additionality" constraint to ensure that clean capacity results in emissions reductions, however this proposal involves significant and perhaps prohibitive challenges, discussed below in Section II.D. Moreover, because the CCC does not involve an explicit carbon price, the market does not address the problem of a sub-optimal RGGI price.

2. Indexing Energy Attribute Credits Would Further Lessen the Need for a Clean Capacity Credits Market

Staff's proposal of mandating clean capacity through a market for CCCs (designed for reliability purposes) would, by design, result in a pre-determined amount of the system's total unforced capacity being composed of clean generation technologies. The extent to which such a mandate reduces emissions depends on how unforced capacity is called upon for generation. It is not clear that a mandate for clean capacity will be more effective at reducing emissions than the RPS mandate for clean energy. Unforced capacity for renewables represents capacity that can be available when energy supply is more likely to be scarce, for example during peak hours.[38] If emissions rates are significantly higher during peak hours relative to off-peak hours, this may suggest that the CCC would result in greater emissions reductions than the RPS mandate by making available a greater portion of unforced capacity. However, an analysis of PJM marginal carbon dioxide emissions rates showed that the marginal on-peak emissions rate was five percent greater than the marginal off-peak emissions rate in 2021, suggesting that the CCC may not add much benefit in terms of emissions reductions relative to an RPS.[39]

Staff's proposal to index RECs or CEACs, in contrast, has the potential to improve the efficiency of capacity investment (and energy market dispatch) by valuing clean energy in proportion to the amount of emissions it displaces. For example, if marginal emissions rates at one location on the PJM grid are greatest during off-peak hours, indexing RECs or CEACs would incentivize investment in clean generation at the location that can displace fossil generation during

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[37] The same reasoning applies to the establishment of a clean capacity constraint.

[38] PJM INTERCONNECTION, LLC, PJM MANUAL 21: RULES AND PROCEDURES FOR DETERMINATION OF GENERATION CAPABILITY 36 (Aug. 1, 2021) ("The Capacity Value for a wind or solar capacity resource represents that amount of generating capacity, expressed in MW that it can reliably contribute during summer peak hours and which can be offered as unforced capacity into the PJM capacity markets.").

[39] PJM INTERCONNECTION, LLC, 2017-2021 CO_2, SO_2, AND NO_X EMISSIONS RATES 3 (Apr. 18, 2022), https://perma.cc/MLR9-58CN (showing a marginal on-peak emissions rate of 1,089 lbs./MWh on average during 2021 and a marginal off-peak rate of 1,037 lbs./MWh).

those hours. If, in another location, emissions intensity is greatest during periods when reliability is a concern, indexing RECs or CEACs will guide investment in clean energy that can be produced during those periods in that location. In contrast, a CCC market would only require that some portion of procured capacity be from clean sources without regard for how much emissions are reduced.

Staff also proposes indexing CCCs in proportion to the amount of emissions offset by the clean capacity.[40] Correctly indexing CCCs according to how much emissions would be offset by clean capacity is redundant if firms are already compensated for emissions displaced through an indexed REC/CEAC system. This redundancy arises because emissions can be attached to only generation rather than capacity. Moreover, indexing CCCs according to displaced future emissions involves assessing the additionality of projects, a notoriously difficult undertaking (see Section II.D for further discussion of additionality).

3. Introduction of a Clean Capacity Credits Market Complicates Implementation of the Existing RPS

There are several ways in which the introduction of a CCC market complicates implementation of the existing RPS. Staff should carefully consider these issues going forward.

First, the RPS already encourages investment in clean capacity. LSEs are obligated to satisfy a portion of their load obligations through clean energy; that clean energy must come from clean capacity. The market for RECs sends a price signal to investors. The RPS therefore indirectly guarantees investment in clean capacity, but appropriately focuses on generation, which is more directly tied to emissions reductions. That the RPS is codified into state law, and that it involves targets set far into the future, provides certainty to investors. An FCEM that trades CEACs, if one is introduced, further strengthens these signals, particularly if CEACs are inclusive of resources such as nuclear, storage, and demand response which the RPS currently does not cover. The existence of the RPS and potential for an FCEM or ICCM draws into question the added value of a CCC market.

Second, creating a market for clean capacity that operates separately from and prior to PJM's existing capacity market, as Staff is proposing, adds an additional burden on LSEs.[41] LSEs are already responsible for purchasing RECs, and are allocated a portion of capacity costs through the forward capacity market. It remains unclear whether adding a third requirement—that LSEs purchase CCCs—would reduce emissions in a cost-effective manner.

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[40] 2022 STAFF REPORT, *supra* note 3, at 41 ("Staff also recommends that the Board consider indexing any future Clean Capacity Credit. The indexing feature on a CCC would track the level of carbon emissions related to the generation resource in which the CCC is produced from and would have the ability to quantify the amount of carbon emissions displaced by using the CCC compared to a non-clean capacity certified resource.").

[41] *Id.* at 37 ("Each NJ supplier would also be required to purchase a certain level of Clean Capacity Credits prior to meeting their capacity obligations in PJM's RPM auction.").

Third, the introduction of a CCC market prior to and separate from the forward capacity market would likely alter how investors in generation capacity bid into the capacity market, the implications of which remain unclear and should be considered if Staff continues to advocate for a CCC market.

4. An ICCM Would Lessen or Obviate the Need for a CCC Market

In the Report, Staff appears to put forward an option that would involve integrating the sale of CCCs into the ICCM.[42] Yet, the advantage of an ICCM is that it "co-optimizes" the settlement of capacity (for the purpose of achieving PJM's system-wide reliability standards) and clean energy attributes, achieving both goals in a cost-effective manner.[43] Importantly, the analysis relied upon to make this conclusion, conducted by Brattle Group and described in an earlier report released by Staff, involves an ICCM that does not include a CCC market component.[44] If the ICCM offers a cost-effective approach to achieving both reliability and clean energy goals as Staff claims, Staff should consider whether also integrating a CCC market provides additional value to this market design. The inefficiencies of yet another product to the ICCM may be significantly greater than adding a CCC market to the FCEM.

D. Staff Should Recognize Challenges Associated with Additionality

Staff's suggestion to index CCCs to the amount of emissions displaced by clean capacity involves some assessment of the amount of emissions that would be produced with and without the clean energy project. To perform such an assessment is to determine what is known as the "additionality" of a given clean energy project.[45] A project satisfies additionality if it reduces emissions beyond the levels that would occur under a baseline scenario. In addition to Staff implicitly calling for an assessment of project additionality by introducing an indexed CCC product, Staff also proposes explicitly and more generally that "New Jersey explore using [additionality] as a constraint in the State's clean energy preference and enable the regional clean energy market to assist the State in ensuring that a portion of all RPS resources are sourced from new clean energy facilities."[46] There are significant challenges and implications of assessing additionality that Staff should be aware of in moving forward with this feature.

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[42] *Id.* at 42 ("Under a Clean Capacity Credits market, interested LSEs would be required to purchase Clean Capacity Credits from eligible producers (whether bilaterally or through a future ICCM/FCEM structure) and then retire the annual or seasonal Clean Capacity Credits in proportion to their load obligation.").

[43] *Id.* at 13 ("Under the ICCM, generators submit a single, combined price at which they are willing to sell their capacity and, if qualified, their clean energy attributes. The ICCM then generates a clearing price for both capacity and clean energy attributes. This allows the ICCM to select the optimal mix of resources that satisfy both clean energy and resource adequacy requirements at the lowest overall cost.").

[44] *See* N.J. BD. OF PUB. UTILS. AND BRATTLE GROUP, ALTERNATIVE RESOURCE ADEQUACY STRUCTURES FOR NEW JERSEY: STAFF REPORT ON THE INVESTIGATION OF RESOURCE ADEQUACY ALTERNATIVES, DOCKET #EO20030203, at 37–44 (2021).

[45] Junjie Zhang & Can Wang, *Co-Benefits and Additionality of the Clean Development Mechanism: An Empirical Analysis,* 62 J. ENV'T ECON. & MGMT. 140, 140 (2011).

[46] 2022 STAFF REPORT, *supra* note 3, at 33.

Additionality can be considered in both the short run (whether generation from a clean energy resource changes dispatch such that less pollution is emitted than the amount that would have been emitted under a baseline scenario), or in the long run (whether building a clean energy generation resource leads to less pollution being emitted than the amount that would have been emitted under a baseline scenario). In the Report, Staff is suggesting consideration of the long-run additionality.[47]

Demonstrating this type of additionality is a difficult undertaking. It requires estimating emissions under (1) a scenario under which the project is built and (2) a scenario without the project, and then calculating the difference. If emissions are lower under scenario (1) than (2), then the project satisfies additionality. Additionality in the context of clean energy capacity is not simply "the construction of new clean energy resources," as Staff suggests.[48] If the new clean energy resources were going to be built anyway, then they do not provide *additional* emissions reductions relative to a baseline.[49]

Estimating future emissions under either scenario (1) or (2) requires forecasting, which will necessarily be imprecise given uncertainty about demand and the future generation mix, and which therefore already complicates quantification of the index proposed by Staff. Moreover, creating a market for future emissions reductions can also lead to the manipulation of baseline emissions forecasts: firms may be incentivized to suggest that their investments displace emissions that would not have occurred anyway.[50] This issue has proved to be stubbornly difficult to surmount in establishing global offset markets for emissions reductions.[51]

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47. Indexing CEACs like RECs poses the related challenge of accurately measuring emissions displaced in the short run. This challenge is made more tractable by the availability of data on real-time marginal emissions rates but should nevertheless also be considered carefully in any design proposal.

48 2022 STAFF REPORT, *supra* note 3, at 33 ("However, promoting the construction of new clean energy resources, a concept known as 'additionality,' is a key feature for many voluntary buyers, including large corporate buyers, municipalities, and others.").

49 Moreover, if a clean capacity constraint were imposed (through CCCs or otherwise), it would likely be less efficient to impose a constraint on the proportion of new capacity than on the proportion of overall capacity. An overall proportion target is more flexible because it can be achieved both through the addition of new clean generation capacity and the retirement of existing fossil fuel capacity.

50 *See, e.g.*, James B. Bushnell, *The Economics of Carbon Offsets*, *in* THE DESIGN AND IMPLEMENTATION OF U.S. CLIMATE POLICY 197, 201 (Don Fullerton & Catherine Wolfram, eds. 2012) ("The primary concern in offset markets is the phenomenon that offset sales will be particularly attractive to firms whose true baselines are lower than the regulators' estimates. These firms can essentially be paid for 'reductions' that would have happened anyway. In the jargon of offset policy, this problem is known as additionality.").

51 *See, e.g.*, Joseph E. Aldy & Robert N. Stavins, *The Promise and Problems of Pricing Carbon: Theory and Experience*, 21 J. ENV'T & DEVEL. 152, 166 (2012); *see also* Zhang & Wang, *supra* note 45, at 149.

E. Staff Should Ensure the Effectiveness of Any Alternative Compliance Payment Mechanism

Many RPS and CES programs allow an LSE to choose among several options to satisfy their obligations: they may (1) make or buy a sufficient amount of qualifying capacity and/or energy, (2) supplement that qualifying quantity with the purchase of credits from qualifying resources, *or* (3) pay a fine to the state in the form of an alternative compliance payment. As noted by stakeholders during the workshop, key to the success of any FCEM that includes an ACP option is ensuring that the cost of paying the fine is high enough to incentivize LSEs to procure the clean energy rather than paying the fine. Where the ACP is too low, LSEs may see this as the more cost-effective option. However, where LSEs choose to pay the fine, the program will not procure the clean energy necessary to meet its actual goal of driving down emissions. Staff should ensure that the ACP is priced high enough to incentivize LSEs to procure clean energy or buy credits, and the fine should increase (or decrease) over time to match the market.

III. Staff Should Consider the Preemption Risk Associated with Certain Market Designs and Whether Jurisdictional Bars Limit the Effectiveness of Those Designs

As the New Jersey BPU is well aware, the Supreme Court's decision in *Hughes v. Talen* places some limits on states' ability to provide revenue to clean resources under clean energy and environmental policies.[52] Staff should be cautious in creating new capacity-related products given that such products sit at the intersection of state and federal jurisdiction. While it is not enough that a state-created clean capacity product would inevitably affect the wholesale market for state policy to violate the Federal Power Act's jurisdictional divide,[53] Staff should clarify how the sale of CCCs would or would not relate to or interact with the wholesale capacity market to address preemption concerns at the outset. And, Staff should consider whether the legal barrier that would prevent CCCs from being tethered to wholesale markets under *Hughes* would limit the effectiveness of any program established. That is, while the sale of CCCs cannot be tied to wholesale market participation (for example, the BPU could not require sellers of CCCs to offer the related capacity into the market as self-supply), the lack of such a connection may render any CCC market less effective at reaching New Jersey's goal at the lowest cost.

Furthermore, Staff should consider whether, unlike some of the other options proposed, a CCC market creates greater risk of a new MOPR in PJM. A crucial difference between the policies at issue in *Hughes* and the policies that triggered MOPR application under PJM's Expanded MOPR is that the former involved capacity-based subsidies (per-MW payments), while RECs and

[52] Hughes v. Talen Energy Mktg., LLC, 578 U.S. 150 (2016).
[53] *Id.* at 164.

ZECs are generation-based (per-MWh).[54] This distinction is important for understanding whether and how payments made under state policies can affect capacity market prices.[55]

In opposing a MOPR that indiscriminately mitigates the effect of generation-based externality payments, Policy Integrity demonstrated that payments made to inframarginal clean resources on a MWh basis have their primary effect in the energy market and are unlikely to lower capacity market clearing prices as MOPR proponents allege.[56] However, this is not true for MW-based subsidies, which would shift the supply curve in the capacity market to the right, potentially reducing capacity prices.[57] While FERC has not considered this distinction in previous orders, and there may be other important reasons for the Commission not to apply the MOPR to state-preferred resources, the economic rationale for applying a MOPR to resources that receive MW-based subsidies under state policies might be stronger. This risk should not be ignored as Staff and the BPU consider moving forward with any procurement mechanism.

IV. Staff Should Consider the Effect of the Inflation Reduction Act on the Need for New Resource Adequacy Structures

Staff started investigating resource adequacy designs and working on its 2022 Report before the IRA was passed. However, this legislation profoundly changes the clean energy landscape in which reforms should be considered, yet it is not mentioned in the Report. As Staff notes, while this proceeding began as a response to the MOPR, further market reform is needed to harmonize PJM's market with New Jersey's energy policies. Yet, such reform may be less urgent (or even unnecessary) because the IRA may remedy some of the problems that these reforms are intended to solve. Particularly, the IRA provides significant revenue to incentivize clean energy capacity and generation, including stand-alone storage, and the law may drive sufficient investment to help New Jersey meet its clean energy and decarbonization goals without new procurement mechanisms (at the regional or state level). It may also do so with limited emissions leakage given the breadth of eligible resources and without raising the complicated jurisdictional concerns around different clean energy and clean capacity procurement mechanisms.

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[54] Comments of the Inst. for Pol'y Integrity at N.Y.U. School of Law at 12–13, *PJM Interconnection, L.L.C.*, Docket No. ER21-2582 (Aug. 20, 2021) [hereinafter Policy Integrity PJM Focused MOPR Comments]; Comments of the Inst. for Pol'y Integrity at N.Y.U. School of Law at 7–9 *Modernizing Electricity Market Design: Resource Adequacy in the Evolving Electricity Sector*, Docket No. AD21-10 (Apr. 26, 2021).

[55] Policy Integrity PJM Focused MOPR Comments, *supra* note 54, at 16–18; *see also* Brief of Amicus Curiae Inst. for Pol'y Integrity at N.Y.U. School of Law in Support of Respondent and Denial of the Petitions, Docket No. 21-3068 (D.C. Cir. Aug. 12, 2022) [hereinafter Policy Integrity Amicus Brief] (explaining that generation-based policies like RECs and ZECs are unlikely to suppress capacity market prices).

[56] *See generally* Policy Integrity Amicus Brief, *supra* note 55 (explaining the findings in Sylwia Bialek & Burçin Ünel, *Efficiency in Wholesale Electricity Markets: On the Role of Externalities and Subsidies*, ENERGY ECON., May 2022).

[57] Policy Integrity PJM Focused MOPR Comments, *supra* note 54, at 17.

Accordingly, the new revenue provided by the IRA (and other laws, like the Bipartisan Infrastructure Law's Civilian Nuclear Credit Program[58]) may change the incremental value of implementing new procurement markets, particularly the CCC market. Payments to clean resources (for clean capacity or clean energy attributes) may be duplicative of revenue provided by the IRA. Further, while centralized procurement of CEACs or CCCs might have provided efficiency gains before the IRA's passage, those gains may be lower with the IRA also dispersing funds (and without competition). In sum, the IRA's passage changes the cost-benefit calculation on whether New Jersey should implement any of the procurement designs discussed in the Report. Staff and the Board should not move forward without considering how the IRA has changed the calculation. New Jersey should consider whether the costs and legal risks remain the same (and remain worthwhile) in light of the IRA's passage.

V. Staff Should Continue to Encourage PJM's Efforts to Ensure Capacity Markets Are Not Biased Towards Fossil Fuel-Fired Generation

Finally, Policy Integrity supports Staff's view that the most preferred option is to continue to advocate for reforms to PJM's capacity market. Advocating for such reforms should remain a priority for Staff, even if it works to develop alternatives concurrently. Certain measures can be taken to ensure that the PJM capacity market is not biased toward fossil-fuel-fired generation. Removing the Expanded MOPR was a significant step toward unbiased capacity market design. Further measures toward ensuring that capacity markets are technology neutral can facilitate cost effective emissions reductions. Such measures include:[59]

- Encouraging forward contracts which can mitigate asymmetric risk profiles of renewable vs. fossil investment;
- Continuing to make improvements in measuring the reliability contribution of renewables (including effective load carrying capacity);
- Ensuring that operational constraints and obligation periods are technology neutral; and
- Ensuring efficient specification of penalties for non-performance.

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[58] 42 U.S.C. § 18753; *see also* Press Release, Dep't of Energy, DOE Seeks Applications, Bids for $6 Billion Civil Nuclear Credit Program (Apr. 19, 2022), https://perma.cc/8DTK-SGEJ.

[59] *See* SYLWIA BIALEK, JUSTIN GUNDLACH & CHRISTINE PRIES, INST. FOR POL'Y INTEGRITY, RESOURCE ADEQUACY IN A DECARBONIZED FUTURE: WHOLESALE MARKET DESIGN OPTIONS AND CONSIDERATIONS 28–34 (2021).