REPLY COMMENTS OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION, THE AMERICAN CLEAN POWER ASSOCIATION, EARTHJUSTICE, AND THE NATURAL RESOURCES DEFENSE COUNCIL

Pursuant to the Federal Energy Regulatory Commission’s (“Commission”), November 18, 2021 Notice of Inquiry regarding Reactive Power Capability Compensation, the Solar Energy Industries Association (“SEIA”), the American Clean Power Association (“ACP”), Earthjustice, and the Natural Resources Defense Council-Sustainable FERC Project (“Sustainable FERC Project”) (collectively, the “Clean Energy Coalition”) submit these reply comments in response to the initial comments in this proceeding.

I. RESPONSE TO INITIAL COMMENTS

A. Cost-based rates developed in accordance with the AEP Methodology remain the best way to compensate for reactive power.

The Clean Energy Coalition is joined by multiple other parties in arguing that the AEP Methodology is a just and reasonable method for compensating all generators for providing reactive power services. In providing this needed ancillary service, inverter-based generators

---

2 SEIA is the national trade association of the solar energy industry. As the voice of the industry, SEIA works to support solar as it becomes a mainstream and significant energy source by expanding markets, reducing costs, increasing reliability, removing market barriers, and providing education on the benefits of solar energy.
3 ACP is a national trade association representing a broad range of entities with a common interest in encouraging the expansion and facilitation of wind, solar, energy storage, and electric transmission in the United States. The views and opinions expressed in this document do not necessarily reflect the official position of each individual member of ACP.
5 Initial Comments of Wolverine Power Supply Cooperative, Inc., RM22-2 at 1 (Feb. 22, 2022); Initial Comments of
assume the opportunity cost of receiving compensation for providing real power in the energy markets. At times, even the energy markets fail to adequately compensate inverter-based resources when the clearing price is zero or lower. As the energy mix transitions, grid operators will lean on inverter-based resources to provide reactive power services beyond the obligatory power factor range. Inverter-based resources are well-suited to shoulder this added responsibility. However, like most other capital assets, acquiring and installing reactive power equipment entails financing, which generally requires a reasonable assurance of cost recovery. The AEP Methodology provides such assurances through compensating generators for the actual cost of providing reactive power services.

The Commission must ensure that all resources providing reactive power are compensated justly for doing so. The Commission should eliminate its Comparability Policy, which provides that resources are not entitled to reactive power compensation unless the transmission provider provides such compensation to its own or its affiliated resources. We agree with other commentors who have argued that the Comparability Policy does not provide comparable treatment to all generators. Transmission providers who decline to compensate generators for providing reactive power consistent with the Commission-mandated power factor range can seek cost recovery in retail rates, an option that is not available for Independent Power

---

6 LRE/USC Comment at 3-4

7 EPSA Comment at 19; LRE/USC Comment at 4-5, Renewable Generation Companies Comment 34-37.
Producers. Inverter-based resources that are called on to provide reactive power services during extreme weather events are not compensated in service territories that use the Comparability Policy. This practice is unjust, unreasonable, and unduly preferential and discriminatory. We urge the Commission to use this NOI to ensure that compensation is truly comparable for all generators by extending the right for generators to use the AEP Methodology in all Commission-jurisdictional markets and service territories.

Similarly, the stated rate approach is insufficient to ensure adequate compensation for this critical reliability service. As other commenters show, the stated rates set forth by the New York Independent System Operator (“NYISO”) and the Independent System Operator of New England (“ISO-NE”) are outdated and based on the equipment needs for proxy generators, rather than the diverse generation mix in their service territories. Moreover, given the variety of age, design, equipment, and installation requirements of generators in NYISO’s and ISO-NE’s service territories, some generators will be overcompensated, while others will be undercompensated. For example, both stated rates are demonstrably lower than the actual AEP Methodology based costs recovered in the PJM Interconnection L.L.C. (PJM) and the Midcontinent Independent System Operator, Inc. (MISO).

Yet, the Independent Market Monitor for PJM (“PJM IMM”), Joint Customers, and Electricity Consumers Resource Council (“ELCON”) argue that the AEP Methodology should be replaced, and Joint Consumers and ELCON also argue that the AEP Methodology is unjust and

---

8 EPSA Comment at 10-11.
9 Renewable Generation Companies Comment at 31.
10 EPSA Comment at 11.
We disagree. First, the AEP Methodology has been in place for over 20 years, and throughout that time, the Commission has modernized it as needed.\(^\text{12}\)

Second, the premise of many of the PJM IMM’s arguments are attacks on general accounting principles and the Commission’s adjudicatory process, rather than the AEP Methodology. The PJM IMM’s assertion that the AEP Methodology’s use of allocation factors to assign production costs between real power and reactive power is “arbitrary”\(^\text{13}\) is a generalization that lacks sufficient support. This argument is akin to asserting that no assumptions can be used in regulatory accounting or financial accounting under Generally Accepted Accounting Principles without rendering the resulting financial statements arbitrary. The PJM IMM’s argument that the evidentiary support that generators submit with their reactive power rate filing is based on “subjective judgement” attacks the Commission’s hearing and settlement processes as inadequate to determine just and reasonable rates.

The PJM IMM also errs by asserting that the AEP Methodology is technology specific, an argument that essentially advocates that the Commission impose unduly discriminatory and preferential treatment in violation of the Federal Power Act (FPA). Finally, we agree with other commenters who rebut the PJM IMM’s contentions that generators that use the AEP Methodology receive double compensation, as removing market-based compensation is included in the calculation for determining reactive power compensation, among other reasons.\(^\text{14}\)

---

\(^{11}\) Joint Customers at 14; ELCON Comment 6-7.

\(^{12}\) See e.g. WPS Westwood Generation, L.L.C., 101 FERC ¶ 61,290 at P 14 (2002); Panda Stonewall LLC, 174 FERC ¶ 61,266 (2021).

\(^{13}\) Initial Comments of PJM Independent Market Monitor, RM22-2 at 5 (Feb. 24, 2022) (“IMM Comments”).

\(^{14}\) PJM IMM’s calculations are based on a proxy generator, rather than an actual example using an inverter-based resource. Indicated Generation Owners Comment at 12. Also, the Commission has long held that “electric storage resources may concurrently receive cost- and market-based revenues for providing separate services.” Indicated Generation Owners Comment at 13-14 (citing Utilization of Electric Storage Resources for Multiple Services When
Joint Consumer’s arguments concern the very administrative inefficiencies that this NOI seeks to resolve, which, alone, do not render the *AEP* Methodology unjust and unreasonable. ELCON primarily argues that reactive power should be compensated through “competitive solicitation for services that are selected at least cost.”\(^{15}\) However, as noted earlier, using the markets is not a viable option as the energy markets set clearing prices in part based on the variable cost of the last marginal resources, which in some cases is zero. ELCON also argues as a basis for discontinuing the use of the *AEP* Methodology is that the cost for inverter-based resources to provide reactive power is higher than the costs for synchronous resources. Even if this is true, the fact that inverter-based resources use different equipment to provide the same service does not justify nonpayment. Moreover, inverter-based resources can provide superior reactive power services with greater flexibility than synchronous resources.\(^{16}\)

B. The Commission should adopt a cost-of-service rate template for reactive power compensation to ensure that future proceedings are not burdensome.

While the *AEP* Methodology remains the best way to compensate generators for reactive power capability, the current process implementing that methodology is not administratively efficient. However, as many commenters in this proceeding show, the Commission can adopt several recommendations to streamline reactive power rate filings.

---

\(^{15}\) *Receiving Cost-Based Rate Recovery*, Docket No. PL17-2-000, 158 FERC ¶ 61,051 at 21 (2017) (Commissioner LaFleur, dissenting).

\(^{16}\) See NOI at P 36.

See IMM Comments at 25 (reading in to the PJM Tariff a requirement that a resource must be “directly connected” to the transmission system, despite Schedule 2 of the PJM Tariff requiring that the transmission provider have “control” over the resource); *see also* Comments of the MISO Transmission Owners at 20.
First, the Commission should adopt a standardized form with recognized schedules and officer and independent accountant certification requirements. Specifically, the Commission should adopt the cost-of-service rate template attached to the Renewable Generation Companies’ comments as that standardized form. That template does what many of the commenters in this proceeding have urged the Commission to do: It standardizes the AEP Methodology. It also provides transparency to stakeholders, and regulatory and rate certainty, to affected customers.

Second, when approving that template, the Commission should also make the following clarifications and revisions:

- Incorporate the recommendations of EPSA’s witness, Adrian Kimbrough, regarding the supporting documentation that may be used to support a reactive rate filing;
- Clarify the definition of Generator Step-up Unit so that it includes both the medium voltage and high voltage transformers; and
- Clarify that inverter-based resources may reflect their system designs by allowing solar facilities to recover their Q at Night costs, allowing wind facilities to recover “WindFREE” costs, and allowing storage facilities to reflect the portion

17 NOI at P 28(q).
18 Indicated Generation Owners Comment, Attachment B.
19 See EPSA Comments, Kimbrough Aff. at 15, 22; EDFR Comments at 4-5; Leeward at 14; Indicated Generation Owners at 11-12; P3 Comments at 4-6.
20 NOI at P 28(q); see PJM Comments at 11.
22 See EPSA Comments, Kimbrough Aff. at 24 (Standardized AEP Method Template: Example Components). Mr. Kimbrough is a former Commission trial staff employee who participated in more than 100 reactive power proceedings.
of its inverters and storage system used to support reactive power capabilities in their total Accessory Electric Equipment.\footnote{Not every facility will have costs associated with these (or other) investments in reactive capability, so in each case the filing facility would provide additional documentation with the template detailing the investment and justification for the percentage allocation for reactive capability.}

Third, to provide further clarity to the ratemaking process for renewable resources, the Commission should issue accounting guidance clarifying which renewable energy facilities, and associated operations and maintenance costs, may be recorded to existing accounts in the Commission’s Uniform Systems of Accounts ("USofA"). The Commission already has most of the information it needs to make this determination. In comments filed with the Commission in Docket No. RM21-11-000,\footnote{See Accounting and Reporting Treatment of Certain Renewable Energy Assets, Notice of Inquiry, 174 FERC ¶ 61,032 (2021).} SEIA and ACP each set forth recommendations on the specific solar and wind power equipment that can be included in certain existing USofA accounts.\footnote{See Comments of Solar Energy Industries Association, Docket No. RM21-11 (Mar. 29, 2021); Comments of American Clean Power Association Docket No. RM21-11 (Mar. 29, 2021).} The Commission could seek further comment in that proceeding to determine what energy storage equipment may be included in existing USofA accounts. Such accounting clarifications would go a long way in ensuring transparency and consistency in calculating reactive power rates for most filers, since many independent power producers, who are exempt from traditional USofA accounting, still classify their costs in accordance with the USofA.\footnote{See Delta's Edge Solar, LLC, 176 FERC ¶ 61,041, P 23 (2021) ("Delta's Edge states that it provided a thorough breakdown of the cost information used to calculate Delta's Edge's proposed revenue requirement, including classifying cost items in accordance with the Commission's Uniform System of Accounts."); Tatanka Ridge Wind, LLC, 177 FERC ¶ 61,176, P 7 (2021) ("Tatanka Ridge states that the Commission granted Tatanka Ridge waiver of the Commission's Uniform System of Accounts. Tatanka Ridge further states that therefore it developed accounting detail comparable to the Commission's account-based methodology, consistent with other applicants seeking Reactive Service compensation."); Coyote Ridge Wind, LLC, 177 FERC ¶ 61,173, P 7 (2021) ("Coyote Ridge states that the Commission granted Coyote Ridge waiver of the requirement to follow the Commission's Uniform System of Accounts. Notwithstanding that grant of waiver, Coyote Ridge asserts that it has developed an accounting detail}
C. Recovery in the capacity markets is inappropriate and does not ensure that reactive power will be provided.

1. The PJM IMM’s proposal for generators to recover reactive power revenues via the capacity market is unjust and unreasonable.

PJM’s capacity market is not intended or designed to compensate resources for their reactive power capability. As noted by EPSA:

‘the capacity market compensates resources for real power capability – not reactive power capability.’ As a result, ‘generators that clear the capacity market may still be unable to recover their costs of investing in their minimum required reactive capability – let alone their full reactive capability.’

Reactive power is a separate ancillary service and distinct from capacity. The capacity market is not set up to procure sufficient reactive power capability for the entire PJM region, nor compensate resources for their unit-specific reactive power capability.

Improvements to the cost-based method, via formulaic filings applying the AEP Methodology, will provide resources with a fixed, well-defined payment for their reactive power capability. It will also incentivize reactive power capability, especially from inverter-based resources that would be able to recover the additional costs of the facilities used to provide additional reactive power while reducing the administrative burdens on all parties. Where necessary, appropriate uplift payment rules can properly incentivize the generators’ real-time compliance with regional transmission operator (“RTO”) objectives to supply reactive instead of real power. But attempting to layer on recovery of reactive power capability into the capacity market, which was never designed for this purpose, would produce unjust and unreasonable

---

29 EPSA Comments at 14 (quoting Kimbrough Aff. at 13).


31 See Leeward and UCS Comments at 15.
results because it would both fail to compensate resources for the services they can provide, and would not reliably procure reactive power in the operational timeframe.

Additionally, this would likely substitute one administratively burdensome and inconsistent process for another. The current administration of the PJM capacity market illustrates this point. The PJM base residual auction has been delayed several times in recent years.  

32 It has also been mired in litigation over the Minimum Offer Price Rule (MOPR), with the applicable MOPR rules changing frequently.  

33 And other rules of the capacity market have also regularly changed.  

34 Consequently, these complexities make the PJM capacity market inconsistent and unreliable for developers. The provision of essential reactive power services should not be linked to the capacity market.

2. The PJM IMM’s proposal is discriminatory.

The PJM IMM’s alternative proposal is “to limit the revenue requirement that could be filed for under the [Open Access Transmission Tariff] Schedule 2 to a level less than or equal to the reactive revenue credit included in the capacity market design, in the [Variable Resource Requirement] curve net [Cost of New Entry] value, currently $2,199 per MW-year.”

35 This is inconsistent with the interaction between capacity market and other non-capacity market revenues available to market participants.

For example, today default Net CONE values for resources are calculated using proxy energy revenue values (and resource-specific Net CONE values utilize estimated resource-

32 See e.g., Order on Voluntary Remand, 177 FERC ¶ 61,209 at P 2 (2021).
33 See, e.g., Order Accepting Tariff Revisions and Terminating Section 206 Proceeding, 176 FERC ¶ 61,056 (2021).
34 See e.g., Order Establishing Just and Reasonable Rates, 176 FERC ¶ 61,137 (2021).
35 IMM Comments at 3.
specific energy revenue values). These values are used to calculate individual generators’ market seller offer caps and impact their offers into the capacity market and are also incorporated into offsets in the VRR curve, which are periodically updated. However, default or even resource-specific energy revenues that impact generators’ offers into the capacity market do not impact the amount of energy revenues generators actually receive during real-time operations during an operating year. A resource may receive more or less energy revenues based on its actual operations, and if they earn more than what is estimated, there is no “over-recovery,” nor are they trued-up if there is an under-recovery. Additionally, addressing reactive power in the capacity market would only compensate resources that participate in the capacity market; in contrast, all resources must provide (or pay for) reactive power as a reliability service.

Finally, the PJM IMM’s proposal to limit generators’ reactive power capability compensation under the premise that there is “over-recovery” is entirely unsupported and inconsistent with PJM’s market rules. This proposal would single out reactive power capability revenues and create new rules for how such revenues relate to generators’ capacity-related revenues, while not proposing similar rules for all other types of non-capacity related revenues. This is unduly discriminatory. This is in addition to the undue discrimination between generation owners and transmission owners and between different types of generation owners that Pine Gate Renewables explained in its initial comments.36

---

36 See PGR Comments at 9-10.
D. Compensation for distribution-connected resources is appropriate and necessary to ensure grid reliability.

As established in this proceeding, distribution-connected resources that provide wholesale power can, and do, provide reactive power and voltage support to the wholesale transmission system. These resources are required to do so as part of their Commission-jurisdictional interconnection agreements with an RTO. Further, as more distribution-connected resources begin to provide power to the wholesale markets, enabled by Order No. 2222, the amount of reactive power that could be provided by these resources will likely increase. The Commission must be mindful of this shift and have policies in place to ensure that these resources are justly compensated for their ability to do so.

The issue in this proceeding is whether the Commission should amend its policies to ensure that distribution-connected resources are justly compensated for providing a necessary grid reliability service, comparable to the compensation for resources directly connected to the transmission system. The issue is not whether the current tariffs provide for such relief. If the current tariffs do not provide for such compensation, then they can, and should, be amended to

---


39 NOI at P 36(a); Ingenco Wholesale Power, LLC, 173 FERC ¶ 61,247, P 10 (2020); Whitetail Solar 3, LLC, 173 FERC ¶ 61,288, P 9 (2020).


41 See NOI at P 36.

42 See IMM Comments at 25 (reading into the PJM Tariff a requirement that a resource must be “directly connected” to the transmission system, despite Schedule 2 of the PJM Tariff requiring that the transmission provider have “control” over the resource); see also Comments of the MISO Transmission Owners at 20.
do so. The Commission should issue a rulemaking in this proceeding to ensure compensation to
distribution-connected resources that have Commission-jurisdictional interconnection
agreements, which (1) require resources to invest in equipment to ensure that it has the reactive
power capability to meet a power factor requirement at the point of interconnection, and (2)
comply with the power factor and voltage directives of the grid operator. And there is no reason
not to use the same streamlined approach outlined above to ensure that compensation.

Some commenters argue that the distribution-connected resource’s reactive power must
directly affect the wholesale transmission system in order to receive compensation. We urge the
Commission to reject this requirement. Reactive power and voltage support is an inherently local
service, but it is also a critical reliability service that can have wide-ranging grid impacts if not
provided for.43 RTOs study the distribution-connected resource to ensure that the resource is able
to provide such support. Distribution-resources that have Commission-jurisdictional
Interconnection Service Agreements are required to maintain reactive voltages at 0.95 leading
and lagging.44 The resource owner invested in the equipment required to maintain those voltages
under the promise that it would be compensated for that investment, consistent with long-
standing Commission policy. If the Commission continues to encourage distribution resources to
connect to the grid through Order No. 2222, then the Commission must also ensure generator
owners are encouraged to design their resources in a way that will support the grid.

Ensuring compensation for these resources will allow for them to provide reactive power
to the grid and to recover their costs for doing so. It will encourage proper resource design to

---


44 Pro forma ISA.
allow these resources to provide such power. At a time when reactive power is becoming increasingly more important to variable load, the Commission must ensure that the correct incentives are in place to protect the grid.

II. CONCLUSION

The Clean Energy Coalition appreciates the Commission’s considerations of these comments and urges the Commission to adopt a cost-of-service rate template based on the AEP Methodology to ensure that all resources, whether connected to the transmission system or distribution system, that provide reactive power are justly, and efficiently, compensated for the valuable reliability service that they provide to the grid.

Sincerely,

/s/ Christine A. Powell
Christine A. Powell
Deputy Managing Attorney, Clean Energy Program
Admitted in the District of Columbia, Provisionally Licensed Lawyer in California

/s/ Melissa Alfano
Sean Gallagher
Vice President of Regulatory Affairs
Gizelle Wray
Senior Director of Regulatory Affairs and Counsel
Melissa Alfano
Director of Energy Markets and Counsel
Solar Energy Industries Association
1425 K St NW Ste. 1000
Washington, DC 20005
(202) 566-2873 sgallagher@seia.org
gwray@seia.org malfano@seia.org

Steven Shparber
Clark Hill PLC
1001 Pennsylvania Avenue, NW Suite 1300 South
Washington, DC 20004
(202) 772-0915 sshparber@clarkhill.com

Gabe Tabak
Counsel
Gene Grace
General Counsel
American Clean Power Association
1501 M St., N.W., Ste. 900
Washington, D.C. 20005
(202) 383-2500
CERTIFICATE OF SERVICE

The undersigned certifies that a copy of this pleading has been served this day upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, DC this 23rd day of March 2022.

/s/ Melissa Alfano