Date: May 20, 2026

Submitted electronically via: board.secretary@bpu.nj.gov

Sherri Golden
Secretary of the Board
New Jersey Board of Public Utilities
44 S Clinton Ave
Trenton, NJ 08625

Re: Docket No. QO26030099,In the Matter of Advancing Virtual Power Plant (VPP) Program in the State of New Jersey,

Dear Secretary Golden,

On behalf of Northeast Energy Efficiency Partnerships (NEEP),[1] we are pleased to submit comments on the New Jersey Board of Public Utilities' (BPU) Virtual Power Plant (VPP) Request for Information (RFI).[2] NEEP is a non-profit whose mission is to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities.

Energy efficiency, demand response, and rate design are critical strategies to ensure the successful implementation of virtual power plants (VPP) and to ensure that VPPs promote customer energy affordability. NEEP appreciates BPU's careful consideration of deployment of VPPs and encourages the BPU to leverage all three of these strategies - energy efficiency, demand response, and rate design – as it establishes its VPP approach. Policy that encourages utility investments in cost-effective efficiency and demand response as deployment of VPPs will help lower utility bills for ratepayers and help the state meet its affordability and clean energy goals.

NEEP offers recommendations below for the BPU to consider as it commences development of a statewide approach to deploying virtual power plants. Specifically, NEEP recommends that BPU:

1. Prioritize energy efficiency and demand response in New Jersey's VPP strategy;
2. Use robust stakeholder engagement to inform VPP program design;
3. Design and implement customer rates to encourage VPPs; and
4. Ensure that customers benefit from VPPs using best practice benefit-cost analysis

Leverage Energy Efficiency and Demand Response to Deploy Virtual Power Plants

VPPs are an aggregation of distributed energy resources (DERs) that integrate demand flexibility and renewables on our grid and provide cleaner, more affordable power to more Americans.[3] By aggregating power from many DERs, VPPs can deliver the same services as large central power plants. The grid's ability to provide enough capacity to meet peak demand is a major driver of expensive investments in supply-side generation, transmission, and distribution. A VPP operator can remotely adjust connected

[1] These comments are offered by NEEP staff and do not necessarily represent the view of the NEEP Board of Directors, sponsors, or partners. NEEP is a 501 (c)(3) non-profit organization that does not lobby or litigate.
[2] https://publicaccess.bpu.state.nj.us/DocumentHandler.ashx?document_id=1422683
[3] https://www.energy.gov/edf/articles/sector-spotlight-virtual-power-plants

devices (e.g., smart appliances, smart thermostats, air conditioners, heat pump water heaters, batteries, EV chargers, etc.) to help the electric grid balance supply and demand. VPPs can reduce peak demand by aggregating and dispatching DERs, which helps avoid expensive infrastructure investments and reduce customers' reliance on expensive energy at peak prices.[4]

DERs result in fewer emissions than new power plants and are quicker to implement, which make them a great tool for managing rapid load growth and protecting ratepayers from associated costs.[5] VPPs also empower consumers to be part of the energy grid. Utility or third-party implementers can pay customers to reduce energy usage at certain times and provide their own power to the grid.

It is important that the BPU leverages energy efficiency and demand response for VPP programs. Energy efficiency and demand response programs have well-defined processes that program administrators can use to design and deliver VPP programs. Program administrators can also use the name recognition of energy efficiency to jointly market new VPP programs. Similar to VPPs, energy efficiency can help offset baseload generation needs[6] and be aggregated to provide value to the grid.[7] Reducing energy use in buildings through efficiency programs makes it easier to meet remaining energy needs with DERs.

Recommendation: Leverage existing energy efficiency and demand response programs to implement VPPs.

NEEP recommends that the BPU designs and implement VPPs by leveraging New Jersey's energy efficiency and demand response programs. These programs have name recognition with customers and provide a regulatory framework that can be expanded to include VPPs. The BPU can use the success of these programs to deploy measures that save energy and enable customers to shift their load at times when it benefits the grid and benefits customer affordability. For example, utilities in New Jersey incentivize smart thermostats through energy efficiency marketplaces and whole home energy assessments. Utilities also encourage peak-time reductions through smart thermostat demand response programs. These are each part of the utilities' energy efficiency and demand response programs.

This type of integration is reflected in Massachusetts' ConnectedSolutions program through Mass Save. ConnectedSolutions incentivizes electricity customers to curtail their energy use through smart thermostats or electric vehicles (EVs) and allows electric suppliers to draw on energy stored in customer-owned or leased batteries during times of peak demand.[8] The ConnectedSolutions program pays customers for the performance of their battery systems, smart thermostats, or EVs during peak periods when utilities call upon them. Massachusetts is the first state to incorporate distributed battery storage into state energy efficiency and demand response programs to meet peak electricity demand reduction goals.[9] Massachusetts uses ConnectedSolutions, energy efficiency programs, and the

[4] Ibid.
[5] https://www.aceee.org/research-report/u2601
[6] https://pubs.naruc.org/pub/F93C25D1-AD76-1A01-876D-E996D9522545
[7] https://rmi.org/insight/virtual-power-plants-real-benefits/
[8] https://www.cleanegroup.org/wp-content/uploads/ConnectedSolutions-An-Assessment-for-Massachusetts.pdf
[9] Ibid.

Massachusetts SMART solar program to achieve peak savings.[10] Utilities in Connecticut, Rhode Island, and New York also offer the ConnectedSolutions program and other states, including New Jersey, offer similar bring your own thermostat programs.[11]

Recommendation: Align utility performance incentives with policy goals to ensure successful deployment of VPPs.

Performance incentives give utilities a financial incentive to invest in energy efficiency and demand-side resources.[12] For successful VPP deployment, New Jersey should design utility performance incentives to align with its state policy goals. The BPU can change current regulatory structures to properly value distributed energy resource programs. Changing these metrics to better value the amount, locational, and time value of energy production can enable the use of more grid interactive resources. The total systems benefit (TSB) metric accounts for when and how customers use energy by assigning a per hour value for energy generation.[13] Program administrators can use this metric as a goal and to evaluate program cost-effectiveness. Further, a metric like TSB serves multiple energy sectors and can calculate real-time energy cost and provide more level footing for distributed energy resources when compared to traditional energy sources.

Performance incentive mechanisms encourage utilities and program administrators to achieve specified targets or performance levels with their energy efficiency programs and can do the same for virtual power plants. For VPPs, NEEP recommends that the BPU aligns performance incentives with affordability, cost-effectiveness, and equity priorities so New Jersey utilities and program implementers deliver benefits to historically marginalized and/or excluded communities. Metrics could include bill savings, cost-effectiveness thresholds, participation of underserved customers, low-income savings achieved, and equitable market transformation, among others.[14] The BPU can use these metrics to incentivize and uplift policy metrics in VPP programs.

Engage Stakeholders for Program Design

Recommendation: Use a robust stakeholder engagement process to design and implement VPP programs.

[10] Ibid.
[11] https://www.energysage.com/energy-storage/bring-your-own-battery-programs/the-connectedsolutions-program/
[12] In this section, NEEP answers several RFI questions: (57) Which benefits provided and value streams (e.g., avoided capacity costs, avoided energy costs, avoided transmission and distribution costs, improved reliability, emissions reductions, etc.) provided by distributed energy storage should be included in the calculation of Phase 2 performance incentives? Are there benefits or value streams that should only be monetizable by distributed storage projects but not VPP projects or vice versa?; (61) With what frequency should performance incentive rates be reevaluated by the NJBPU? What criteria will be used to reevaluate EDC savings that should appropriately be captured in the setting of performance incentive rates?
[13] https://neep.org/sites/default/files/media-files/eulp_research_recommendations_report-formatted.pdf
[14] https://neep.org/sites/default/files/media-files/06_pims_equitymetrics.pdf

The BPU should use a robust stakeholder engagement process to design and implement VPP programs. Stakeholder engagement can be used to align stakeholders on data transparency, determine performance incentive structures, and review and advise on utility VPP plans as they are designed.

Coordination with stakeholders such as utilities, program implementers, product vendors, and community agencies to establish statewide and/or regional data transparency policies can align expectations on data access and ensure proper protections are in place for customers. Collecting real time data on energy use, locational value, and grid load is important to enable the most cost-effective grid interactive homes and buildings. Establishing standard data policies ensures customers can more easily share data with third-party providers that implement demand reduction and flexible grid services.

The BPU can also use meaningful stakeholder engagement to determine VPP performance incentive mechanisms (PIMs), which are meant to encourage program implementers to be innovative in achieving a performance requirement. In establishing incentives focused on energy affordability and equity, it is important to prioritize the needs of historically marginalized and/or excluded communities. Policymakers and program implementers can do this by creating a robust stakeholder process and incorporating feedback throughout the design process.

To complement these consumer-facing program strategies, enhanced efforts are also needed by program administrators and regulators to streamline program design and administration. In Triennium 2 energy efficiency programs, the utilities set up a Statewide Coordinator system to plan and coordinate budgets in overlapping utility territories and address any budget constraints among the utilities through the Joint Budget Allocation Committee. The Straw Proposal continues the Statewide Coordinator system. However, more can and should be done to facilitate coordination to streamline program delivery. For example, many states have a statewide energy efficiency advisory council, board, coordination committee, or similar body to enhance coordination and guide the progress of energy efficiency programs. The BPU can work with these groups to generate buy-in on energy efficiency and VPP program design and implementation.

For example, Massachusetts has an Energy Efficiency Advisory Council (EEAC), and Connecticut has an Energy Efficiency Board.[15] These and similar groups help facilitate overall process improvements, create operating procedures, and provide guidance. Such improvements and procedures could include the streamlining of VPP and energy efficiency program delivery. These groups also serve as a critical avenue for stakeholder engagement to earn buy-in on program delivery changes. Dominion Energy Virginia submitted its 2024 demand side management program update to the Virginia State Corporation Commission (SCC) in December 2024. This included three proposed new battery storage, distributed generation, and curtailment programs. The SCC rejected the proposed Residential Battery Storage Pilot

[15] https://ma-eeac.org/; https://www.energizect.com/eeb/about-eeb

Program, referred it to a stakeholder process, and required Dominion to file a report describing the stakeholder process results alongside its revised VPP pilot proposal.[16]

Design Rates to Encourage VPPs

As the BPU looks to deploy statewide VPP programs, NEEP recommends that the BPU consider which rates would best complement and bolster VPPs.[17] Time-varying rates that enable demand flexibility drive down energy usage at peak times, improve system reliability, and lower investments in new infrastructure. Modern rate design can bolster these efforts and compensate ratepayers for contributing benefits to the grid. Rate designs that promote an interactive, flexible grid charge more during time periods when it is beneficial to conserve energy or pay customers to not use energy at certain times.[18] A well-structured rates strategy, including Time of Use (TOU) rates and Peak Time Rebates (PTRs), are an important strategy for a robust VPP program.

Recommendation: Offer rates that encourage and enable grid flexibility.

VPPs rely on connected devices and customers' willingness to adjust their energy usage during peak periods. The BPU can use several rates design options to accomplish this goal, such as TOU rates, critical peak pricing, and peak time rebates.[19] Rates to encourage VPP and demand flexibility can be tied to the whole home or certain technology, such as EV managed charging.[20]

Default TOU rates can have the widest impact by incentivizing customers to shift load away from daily peak periods. TOU rates should involve a small peak window and send a strong enough price signal to incentivize load shifting. Research shows that differentials of 4 to 6 times higher for peak versus off-peak usage can provide a strong incentive for customers to shift their energy usage.[21]

Further, default or opt-out rates result in much higher customer participation and impact on megawatt hours saved. Opt-out rates paired with strong consumer outreach, protection of vulnerable customers, and complemented by robust energy efficiency programs can benefit the grid and lower customer bills. If New Jersey enacts default or opt-out rates, it will need to work to avoid negative impacts on residents who rely on medical devices, have a medical condition, are senior citizens, and/or are economically vulnerable, as discussed below.

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[16] https://nccleantech.ncsu.edu/wp-content/uploads/2026/01/2025-VPP-Report-Final-v2.pdf

[17] In this section, NEEP answers RFI question 16: What technical, regulatory, or economic barriers limit DER adoption and aggregation for New Jersey customers, particularly in low- and moderate-income (LMI) communities, and what specific strategies or programs do you recommend to address these barriers?

[18] NEEP's paper *Modern Rate Design in the Northeast: Unlocking Efficiency, Affordability, and Electrification* provides additional details on rate designs that enable grid flexibility, state implementation examples, and other rate design best practices.

[19] Ibid.

[20] Ibid.

[21] Sergici, Sanem, Ahmad Faruqui, Nicholas Powers, Sai Shetty, and Jingcheng Jiang. "PC44 Time of Use Pilots: Year One Evaluation." The Brattle Group. September 15, 2020. Available at: https://www.brattle.com/wp-content/uploads/2021/05/19973_pc44_time_of_use_pilots_-_year_one_evaluation.pdf.

Recommendation: Offer connected devices through energy efficiency programs that are aligned with rate design.

There are several participation barriers to TOU rates and DER programs, such as consumers' knowledge of the programs and ability to purchase technologies aligned with the rate design. The BPU and utilities could enhance TOU rate participation and the success of VPP programs by leveraging technologies such as dishwashers and laundry machines with programmable start times, i.e., smart appliances. Yet, these technologies often have a higher upfront sticker price, which can deter adoption. VPP program participation could be enhanced by helping consumers purchase a home battery, smart thermostat, and/or electric hot water heater when cost-effective. Smart thermostats can be used to increase or decrease temperatures to lower constraints on the grid. On-demand electric hot water heaters, like thermostats, use real time data from consumers and the grid to heat water in low demand times.

Energy efficiency programs offer an incentive and delivery channel to help consumers access and afford connected devices. PG&E implements smart water heaters with a program, WatterSaver, which heats water for customers when electricity rates are low.[22] NEEP suggests that the BPU coordinates between battery DR programs, EV programs, and VPP programs. EVs have a high demand but are a flexible load and could be valuable to leverage through VPP programs.

Ensure that Consumers Benefit from VPPs by Using Best Practice Benefit Cost Analysis

Recommendation: Establish a robust benefit cost analysis framework.

Best-practice benefit cost analysis (BCA) will be an important foundation to New Jersey's VPP strategy to ensure that consumers benefit. A helpful resource is the National Standard Practice Manual™ (NSPM) for Benefit-Cost Analysis of Distributed Energy Resources, which provides a comprehensive framework for cost-effectiveness assessment of DERs.[23] The manual offers policy-neutral principles and methodologies to support single- and multi-DER benefit-cost analysis, including energy efficiency, demand response (DR), distributed generation, distributed storage, and (building and vehicle) electrification. A new version of the NSPM, guided by an advisory group, will be released in 2026. NEEP recommends that the BPU use the NSPM as a guide for BCA for the state's VPP strategy, and that the BPU engage stakeholders in its development. New Jersey can also leverage past work already completed for benefit cost analysis through energy efficiency and demand response programs.

Recommendation: Prioritize consumer benefits including equity and affordability in VPPs and rate design.

The BPU should include access to VPPs for low-income communities when they help to lower bills and design rates that meet the needs of these customers. Low-income residents are more likely to face

[22] https://www.watter-saver.com/
[23] https://naseo.org/nesp/nspm

energy insecurity and high energy burdens.[24] Offering incentives to help low-income community members access distributed energy resources can help them lower their energy costs and provide revenue and cost-reduction opportunities from VPPs.[25] The BPU and New Jersey utilities can use modern rate designs that prioritize affordability and create more equitable energy bills for these customers. This can help avoid the need to create payment plans or discount rates that layer on after the fact and require distinct funding sources.[26]

NEEP recommends several best practices for the BPU to design equity-aligned rates. First, the BPU should define and identify economically vulnerable customers. The BPU could do this by identifying participants in other state assistance or income-eligible energy efficiency programs, identifying customers with chronic late bill payments and/or disconnections, or using advanced metering infrastructure data. The BPU could also implement billing protection mechanisms to protect these customers. If the BPU and utilities choose to include economically vulnerable customers in an opt-out TOU rate rollout, the BPU and utilities can use additional educational materials to encourage customers to enroll and provide information on the program. It is important to connect economically vulnerable customers to programs that can help them lower their energy bills and energy usage. The BPU could establish a low-income rate class or adjust fixed charges to reflect income.[27]

Conclusion

We thank the New Jersey Board of Public Utilities for the opportunity to provide comments on the implementation of virtual power plants in the state. We appreciate the BPU's commitment to advancing robust energy efficiency and distributed energy resources as a tool to immediately help customers lower energy bills and keep bills affordable. These comments are intended to support the work currently underway at the BPU to explore VPP programs. In addition to these comments, NEEP is available to provide additional technical assistance to the BPU. If you have questions or would like additional information, please reach out to Mary MacPherson, mmacpherson@neep.org.

Sincerely,

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[24] https://energyjustice.indiana.edu/research/household-energy-insecurity.html
[25] https://rmi.org/insight/virtual-power-plants-real-benefits
[26] https://www.aceee.org/sites/default/files/proceedings/ssb24/assets/attachments/20240722160801375_065c41bb-f626-4802-b8eb-70fafbe6d9b3.pdf
[27] https://neep.org/sites/default/files/media-files/neep_modern_rate_design.pdf