Clean Energy Ventures

October 5, 2021

Ms. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
Post Office Box 350
Trenton, New Jersey 08625

Re: Docket # QO21060946: In the Matter of Medium and Heavy-Duty Electric Vehicle Charging Ecosystem –Comments

Dear Ms. Camacho-Welch:

NJR Clean Energy Ventures Corporation (CEV) welcomes the opportunity to provide comments in support of a medium and heavy-duty (MHD) electric vehicle (EV) ecosystem in New Jersey.

CEV is the largest owner-operator of grid-connected solar generation in New Jersey. With approximately $1 billion of capital invested in solar projects, CEV has supported more than 5,900 local jobs to install more than 300 megawatts (MW) of residential and commercial solar capacity. The energy produced annually can power up to 12,000 MHD EVs with clean, emissions-free energy. We have significant experience developing and installing solar projects in urban, suburban, and rural locations as well as on rooftops, parking lots, landfills, schools, and corporate settings. As such, we have extensive experience and expertise regarding the issues of interconnection with the distribution network, land use regulation, safety and security of generation assets and ensuring safety of the surrounding population.

From this position and experience of renewable energy leadership in New Jersey, CEV submits for consideration in this proceeding that the **medium and heavy-duty EVs provide the best opportunity to integrate renewable energy, smart charging, and energy storage solutions into New Jersey's EV build-out.** These solutions—when integrated with MHD fleets that present unique challenges to the grid—will provide both ratepayer and environmental benefits to New Jersey.

- By co-locating high-load MHD fleet charging locations with on-site renewable energy such as solar, smart charging technology and energy storage, significant benefits can be achieved by reducing the high levels of co-incident peak demand that would otherwise be incurred by the grid. **Co-location with renewables and storage can reduce emissions, reduce costly investment in distribution and transmission system upgrades, reduce make-ready costs and maximize ratepayer benefits.**

- Encouraging co-located development requires innovative thinking—particularly with respect to rate design. The rate structures of the past must be modernized if the benefits associated with co-location are to be realized. Outdated demand-charge

based rate design—and EV incentives that rely upon demand charge rebates to spur development—will not send the price signals needed to develop co-located resources and clearly will not provide a sustainable solution for customers. **Given the potential for high co-incident peak demand associated with MHD fleets, a new rate class should be developed specific to MHD customers.** This rate class should implement a highly-differentiated time of use (TOU) rate to foster a marketplace that will provide innovative solutions—and maximize benefits to the grid. If the BPU lacks the data necessary to determine appropriate TOU rate structures, a pilot program should be launched to collect such data.

- Highly differentiated TOU rates should include a net-metering provision, so that generation at times of high value is compensated correctly.

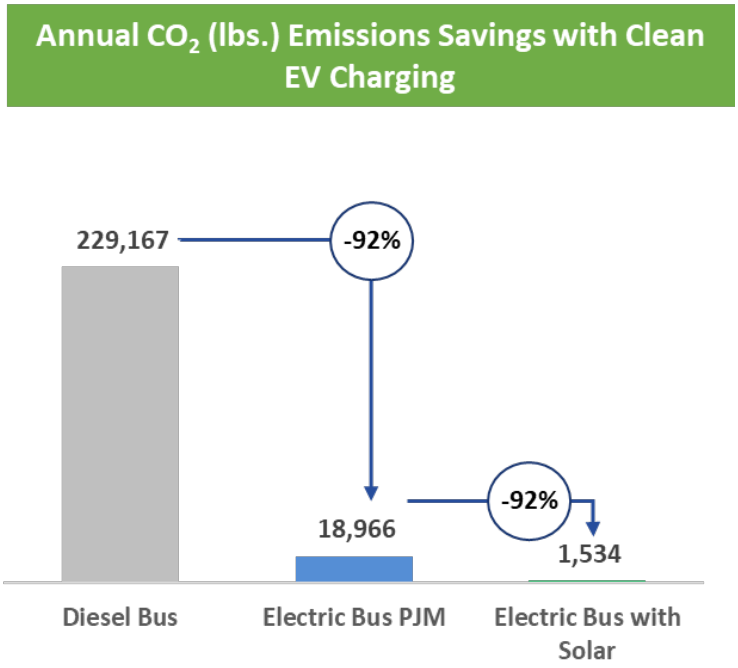
- Continuing to rely upon outdated rate structures and demand charge rebates to incentivize EV development will not deliver the results needed for New Jersey to achieve its policy goals. **If traditional demand-charge-based rates are retained for any reason, direct monetary incentives should be implemented to provide additional compensation to MHD fleet charging locations that integrate renewable and storage solutions and to offset the inequitable and inefficient effects of demand charges.** Given the absent price signals associated with demand rebate incentives, the Board must be mindful of developing an incentive that encourages co-location, at a reasonable cost.

While the Straw Proposal raises several issues CEV addresses independently below, CEV's comments revolve around two essential policies: co-locating renewable and storage resources with high-demand MHD fleet locations will provide significant benefits, and to unlock these benefits new TOU-based rate structures must be developed. The Board should therefore pursue all available options to support co-location, including establishing appropriate rate structures, tariff revisions and direct incentives necessary to encourage co-location.

Electrifying New Jersey's MHD vehicles to EVs can significantly reduce New Jersey's carbon dioxide and other harmful air emissions. Replacing the average diesel-powered bus can provide a nearly 92% reduction in carbon emissions. The Straw Proposal should therefore seek to capture the full scope of MHD vehicles in its definition. This includes expanding eligibility for incentives to private fleets—not just those providing public services—as greater emission reductions may be achieved through electrifying carbon-intensive private-duty MHD fleets when compared with public alternatives. Likewise, the Board should ensure that Class 2B and Class 3 vehicle fleets are provided with the same opportunities for electrification, as these vehicles include the most common local delivery truck fleets. Electrifying these vehicle classes would further advance local emission reductions, including in underserved and overburdened communities.

1. The Co-Location of Renewables and Storage Will Reduce Emissions and Provide Ratepayer Benefits

In addition to expanding the scope of eligible MHD fleet vehicles, New Jersey will need to further reduce emissions by replacing existing electric generation with renewables. Integrating co-located renewable energy systems at MHD fleet locations provides the vehicles with 100% clean energy, while further reducing emissions and costs.

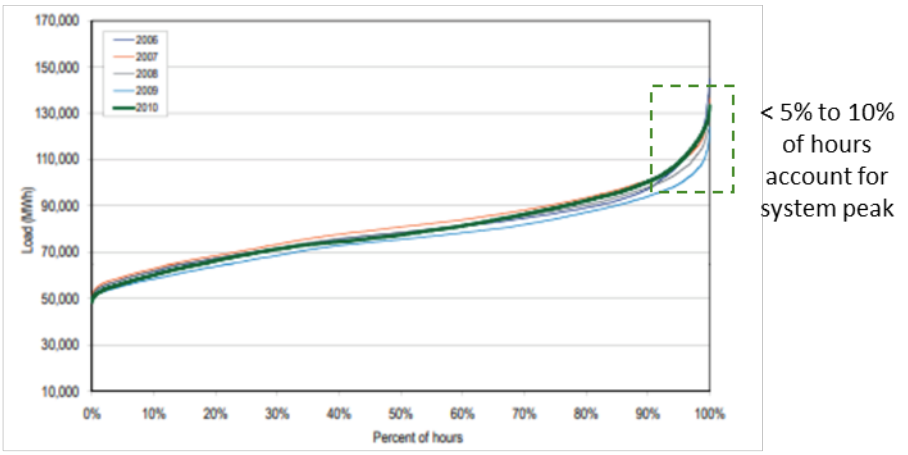


The economics of developing renewable energy systems is improved by on-site loads of comparable magnitude. MHD fleets provide an excellent use case for on-site renewable generation, as larger-scale renewable systems can be developed to serve the higher on-site load incurred by MHD EVs. Additionally, New Jersey's wholesale generation mix is ultimately a combination of resources procured by the wholesale markets administered by PJM and will not guarantee a resource mix that is consistent with New Jersey's decarbonization objectives. The electrification of MHD fleet vehicles coupled with on-site renewable generation therefore presents a prime opportunity to achieve emission reductions in furtherance of the State's ambitious emission targets.

In addition to providing clean energy to charge EVs, co-locating renewables with MHD charging facilities has significant economic benefits. MHD fleet vehicles present special challenges because—unlike more dispersed light duty vehicles—MHD fleet charging locations create high demand at a single customer location. The MHD charging demand may be coincident with high loads on the local distribution system, or even create a feeder peak at a new time of day. These high demands can place additional strain on the distribution system, requiring costly additional grid infrastructure investments for proper mitigation. By CEV's estimates, over 9GWs[1] of peak demand could be added to the system due to MHD. Under current tariffs and without appropriate mitigation measures, this additional demand would entail over 2.2 billion[2] dollars in additional necessary ratepayer investments in the grid.

[1] Per analysis conducted by CEV Full Market Vehicle Electrification in New Jersey Study by Gabel and Associates October 7, 2020 (number of vehicles in scope page 18) (Assumes 24 KW average Level 2 charger rated demand resulting in 9.36GW connected load).
[2] Per analysis conducted by CEV, multiplying 9 GW versus the weighted average price of demand for PSE&G, ACE, & JCP&L of $254/kw per year equals $2.3 billion.

Focus on the "few hours" of peak load to minimize rate payer costs



[3]

Rather than allowing this additional demand to increase to the existing peak on feeders, substations, and transmission lines, New Jersey can shift this additive demand off peak with co-located renewable generation, smart charging technology and energy storage systems. The integrated storage augments the smart charging, shifting load off-peak and shifting the renewable energy to the times of maximum charging and demand on the distribution system. These measures, if taken together could offset nearly 65% of the additive load presented by unmitigated MHD EV fleets.[4] Unidirectional charging and demand response (V1G) through smart charging should, at a minimum, be a required feature of any utility fleet-centric program design.

Co-location also offers the potential to significantly reduce needed make-ready investments, further minimizing the strain on valuable ratepayer dollars. Rather than paying for upgrades to interconnect MHD charging to the distribution system, and for upgrades elsewhere to connect distributed solar to distribution, the Board should incentivize installation of a single connection to serve both the solar output and the charging load. Storage and charging management can reduce the connection requirement even further, to the maximum difference between aligned generation and charging. An MHD fleet location utilizing canopy solar and energy storage can minimize the equipment needed, reducing make-ready expenses, and freeing up utility funding for use elsewhere—maximizing EV deployment and pursuing other State objectives.

The Board should also be mindful in establishing a framework that allows for new and innovative services. High penetration of intermittent renewable energy resources in the future will require significant energy storage deployment to resolve unavailability issues associated with renewables. EVs essentially function as a mobile battery, and can help to solve renewable intermittency issues, if the proper communication and compensation mechanisms are developed. Co-location expands this marketplace for EV-integrated solutions, by providing potential ancillary services benefits, smart charging options, and bi-directional smart charging (V2G) technology that can serve to provide two-way energy flows to the grid to meet the need of the system. While CEV considers V2G technology as technologically ready, V2G implementation requires additional market, regulatory and policy support to achieve its potential. As explained below, appropriate rate structures are critical to ensuring these solutions will be deployed in the marketplace.

[3] Historical Load Duration curves for PJM for the period 2006-2010.
[4] CEV Analysis and modeling of 70 School bus fleet operating in central New Jersey.

2. The Board Must Revise Existing Rate-Design Metrics to Properly Encourage Co-Location

A. The Board Should Develop an MHD Rate Class with TOU Rates.

In response to the Board's September 15, 2021 stakeholder meeting regarding rate design, CEV submitted comments prepared by Paul Chernick, a national expert in rate design. As Mr. Chernick explains, existing rate structures that rely upon demand charges fail to adequately capture costs and assign benefits—particularly as distributed generation and EVs achieve greater market penetration. Demand based rates, coupled with EV incentives that reduce or eliminate demand charges, fail to provide the price signals necessary to mitigate peak demand. Demand charges—even with offsetting rebates—will provide little incentive for MHD customers to minimize the additional demand these customers will place on the system. For this reason, CEV recommends the Board require New Jersey's utilities to create a new rate class for MHD customers. This new rate class should include highly differentiated TOU rates to mitigate the demand impacts associated with MHD EV adoption.

CEV understands that, in the past, the implementation of TOU rates have delivered mixed results. Unlike residential or small commercial and industrial customer classes, however, MHD fleet EVs present a unique load profile that offers the opportunity for TOU rates to deliver encouraging results through technology adoption. Given that system peaks are limited to less than 10% of hours, shifting or reducing MHD-associated demand during these periods can provide significant benefits to the grid, ultimately reducing the amount and price of generation energy and capacity and avoiding costly transmission and distribution system investments.

To achieve these benefits, however, a TOU rate must be developed that provides the appropriate price signals to alter charging behaviors and incentivize customer investments in co-location. Significantly higher rates during short duration peak periods can achieve these objectives. MDH vehicles with more elastic demand schedules can more easily adapt to TOU rates, and therefore provide the perfect candidate for TOU rate adoption. With the right rate design, energy storage systems, renewable generation, smart charging technology and other demand-reducing measures will become key components in MHD EV build-out. If the data are insufficient to support widespread TOU rate development, the Board should implement a pilot program to compile the data necessary to establish TOU rates.

B. The Board Should Direct the Utilities to Provide CEIP Rate Relief.

The current CEIP rate presents significant challenges to co-location. As currently implemented, developers of on-site resources must advance one hundred percent of CEIP system impact costs in the first year. CEV requests that the Board reexamine the CEIP capacity allocation rules, and direct New Jersey's utilities to redevelop the CEIP capacity and rate setting rules for new EV projects in a manner that more properly reflects the impacts of solar and storage on system demand. This would include allowing interconnecting customers to provide documentation of expected costs and pay first-year charges commensurate with these projections, with a true-up in the following year. Such an approach would more fairly assign costs, and reduce a significant hurdle for development, unlocking the co-location benefits described above.

3. Without a TOU Rate Class, Direct Incentives Are Required to Appropriately Compensate Co-Located Resources

CEV maintains that a highly differentiated TOU rate developed for MHD fleet charging customers is the most appropriate outcome. Such a TOU rate will encourage responsible charging behavior through proper market price signals, incentivize the development of energy storage and renewable energy resources, reduce overall peak demand, and reduce emissions beyond the baseline achieved with PJM provided wholesale power. For these reasons, CEV strongly recommends the Board undertake an analysis to implement a TOU rate structure for MHD customers. Under tariffs that include large demand charges, providing demand rebates and discounts will not achieve the Board's objectives. Without appropriate price signals driven by TOU pricing, MHD fleet charging locations will not have a significant price incentive to develop co-located storage and renewable energy resources, despite the benefits these resources can provide. So long as they face demand charges, customers with storage will be encouraged to use the storage to shift load off their non-coincident peak, without consideration of system conditions.

If for some unknown reason it is not possible to implement our rate-design recommendations, the second-best solution would be for the State to provide direct monetary incentives for co-location of storage, solar and EV charging stations for MHD vehicles that compensate resources for the environmental and grid benefits. Incentive structures could include one or more of the following:

- Larger payments and/or preferential scoring for integration of renewables and storage with charging facilities under EDC incentive programs.
- Enhanced make-ready incentives.
- Increasing parking canopy incentives in the New Jersey Clean Energy solar programs for projects coupled with charging stations.
- Larger storage incentives for projects coupled with EV charging sites, especially for installations that can minimize grid loads during peak periods.
- Extension of net metering rules to encourage solar and EV charging co-location and to also encourage both original and add-on deployment of storage.

Conclusion

CEV appreciates the opportunity to participate in the discussion regarding the Board's MHD Straw Proposal. CEV believes that MHD fleet charging presents an important opportunity in New Jersey's EV build-out to integrate smart solutions that further advance New Jersey's decarbonization and resiliency goals. By co-locating renewables, smart chargers, and energy storage resources, MHD fleets can implement cost-effective strategies that reduce the need for costly grid infrastructure upgrades while further delivering resiliency and decarbonization benefits to the State of New Jersey.

We look forward to continuing to work with the Board, as the Board tackles these and other important challenges in meeting State policy goals.

Respectfully,

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Mark F. Valori
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Cc: Larry Barth, Director of Corporate Strategy