

**STATE OF NEW JERSEY  
BOARD OF PUBLIC UTILITIES**

IN THE MATTER OF MEDIUM )  
AND HEAVY DUTY ELECTRIC ) Docket No. QO21060946  
VEHICLE CHARGING ECOSYSTEM )

**COMMENTS OF FREEWIRE TECHNOLOGIES ON  
STRAW PROPOSAL FOR THE MEDIUM AND HEAVY DUTY ELECTRIC VEHICLE  
CHARGING ECOSYSTEM**

On behalf of FreeWire Technologies, Inc. (“FreeWire”), thank you for the opportunity to comment on the updated version of the New Jersey Electric Vehicles Infrastructure Ecosystem 2021 – Medium and Heavy Duty Straw Proposal (“Straw”). Having engaged in this proceeding since it commenced in 2021, FreeWire appreciates the time that the Board of Public Utilities (“Board”) Staff, utilities, and stakeholders have dedicated to advancing medium and heavy-duty vehicle (“MHDV”) transportation electrification across New Jersey. FreeWire appreciated the opportunity to present at technical meetings and submit comments on the initial Straw. We believe that several of our perspectives and recommendations were taken into account in modifying the Straw and welcome the opportunity to provide further comment on these and other aspects.

FreeWire is a leading manufacturer of battery-integrated charging technologies that are helping to strengthen the electric grid while accelerating transportation electrification. FreeWire’s approach to direct-current fast charging (“DCFC”) allows for balanced integration of new and significant EV load as well as grid-buffering of EV charging peak demand as well as load shifting. FreeWire’s solution has been deployed in over 15 states and 4 countries with numerous customers, including at commercial and retail locations and at fleet charging hubs.

FreeWire's comments on the Straw are intended to provide unique perspectives to help ensure a sustainable market for the build out of EV charging infrastructure in New Jersey's MHDV sector. The Straw provides a strong foundation, and FreeWire believes that there is great opportunity to accelerate deployment and lower the total costs of installing DCFC in this segment. We offer these comments in the spirit of ensuring that public investment in DCFC can support a broad suite of technologies and market solutions, maximize customer choice and encourage new innovations in this rapidly evolving industry.

## **I. Benefits of Battery-Integrated DCFC**

FreeWire's technology, while new, is not nascent, and comes to market at a time when demand for fast charging is on the rise and innovative solutions are increasingly needed to overcome total cost of ownership challenges and to enhance the EV charging experience.

The promise of battery-backed EVSE offers a step-change improvement in reducing DCFC installation and operating costs, while still providing drivers fast, high power charging. In the case of FreeWire's innovation, the Boost Charger is a stationary DCFC unit that utilizes an integrated 160 kWh battery system to deliver up to 200 kW to one or split to two EVs simultaneously, while only drawing up to 27 kW from the grid using low voltage and widely available 240-volt or 208-volt input power. In essence, this innovation reduces the load requirements to those equal to a Level 2 EVSE system but with the ability to charge EVs at DCFC output levels. With this configuration, the battery serves as a buffer, enabling fast charging assets to be deployed at most commercial locations without grid upgrades. The energy storage system inherently reduces costs on an ongoing operational basis by limiting peak energy consumption and associated demand charges.

With respect to the MHDV sector, FreeWire's technology is particularly well-suited for

drayage operations. FreeWire's Chargers can provide DCFC up to vehicles up to 950 volts and the 160 kWh integrated battery capacity is sufficient and scalable to provide drayage vehicles with the charging necessary to complete their daily routes.

Battery-integrated EVSE systems offer several core benefits when it comes to building out a fast-charging network including expanding the universe of sites, reducing deployment time, reducing total cost of ownership, and pairing of EV charging with distributed energy resources ("DER") to offer other grid and customer energy services. Hardware innovations such as that manufactured by FreeWire can greatly expand the universe of sites where DCFC stations can be deployed since these configurations can provide high-powered EV charging that does not require higher voltage input power and therefore, in many cases, minimize or defer make-ready and grid upgrades. As a result, these technology solutions can help to minimize costs and speed up deployment for MHDV charging.

Battery-integrated DCFC systems also enable owners and operators to reduce operational costs associated with traditional fast charging at high levels of power demand, most notably demand charges. Through battery-buffering, this technology configuration can reduce peak load and shift charging to off-peak periods. As a result, site-hosts are able to provide DCFC while avoiding high demand charges, therefore helping to improve economic viability.

## **II. FreeWire Comments on the Board's Updated Straw Proposal**

The updated Straw offers a strong and important foundation for deploying DCFC in the MHDV sector. Our comments address four distinct topics related to the Straw.

1. Rate reforms and demand charge alternatives

2. Load-management technologies in the context of make-ready incentives
3. Programs to support load-management and energy storage

### **A. Rate Reforms and Demand Charges**

In the updated Straw, the Board correctly identifies demand charges as an obstacle to the rapid deployment of EV charging, and FreeWire appreciates the Board's consideration of this issue. As conversations around demand charge alternatives continue to develop, FreeWire urges the Board to consider the important market signals that demand charges provide. While demand charges are a limiting factor for traditional DCFC equipment, they do provide a market signal to site hosts that incentivizes them to invest in load management solutions that have a lower grid impact. FreeWire worries that if the Board subsidizes demand charges or eliminates them without also implementing mechanisms to encourage load management technologies, it could lead to a build out that is inefficient with regard to grid capacity and could negatively impact reliability and cost for ratepayers.

FreeWire appreciates that the Straw identifies approaches that would send market signals to encourage load management through battery storage. We support the proposal to “develop and expand vehicle charging rates for MHD that encourage the use of battery storage and the capability to charge and discharge specific EVs at certain locations and times, such that grid flexibility services are possible from the vehicle battery.”<sup>1</sup> FreeWire also supports the proposal to adopt on-peak demand charges that would allow ratepayers to recoup make ready dollars from users electing to charge during those times.

FreeWire also recommends that the Straw Proposal specifies that in considering longer-term options to address demand charges, that EDCs perform a Cost-of-Service Study

(“COSS”) in order to fully assess the trade-offs related to any proposed options. This COSS stipulation was included and adopted as part of the Board’s January 27, 2021 Decision and Order Approving Stipulation of Public Service Electric and Gas Company’s (“PSEG”) Clean Energy Future – Electric Vehicle and Energy Storage Program, and FreeWire believes it is appropriate to include such stipulations in the generally applicable Requirements.<sup>2</sup>

The Straw contemplates a working group to consider alternatives to demand charges, and we support that effort and look forward to engaging in it to present our perspectives on the issue.

<sup>1</sup> Straw Proposal, Introduction, Section 3, January 27, 2021.

<sup>2</sup> BPU Docket No. EO18101111, Decision and Order Approving Stipulation, In the Matter of the Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future – Electric Vehicle and Energy Storage Program on a Regulated Basis, January 27, 2021.

## **B. Proposed “Make Ready” Program for MDHD**

To date, the majority of DCFC deployment strategies have focused on make-ready programs to address necessary grid constraints and upgrades needed for traditional fast charging stations. As stated in FreeWire’s past comments to the Board, FreeWire does not dispute that this focus is useful as part of an overall deployment strategy, but believes that it is limiting and not adequately equipped to spur innovative solutions to overcome time and cost intensive challenges associated with build-out of a fast-charging network.

We appreciate that the Straw contemplates the utilization of load management technologies to help overcome barriers with make-ready infrastructure. FreeWire notes the proposed language in the updated Straw states that, “a project developer (may) request that the

EDC evaluate the Make-Ready and distribution system upgrade costs without the load-modifying technologies and provide up to the “but for” level of funding for the project, including all load-modifying technologies.”<sup>3</sup> As explained in the Straw, this proposal is designed to allow DCFC owners and operators to receive any cost savings associated with their investment in alternative approaches. Our interpretation of this proposal is that battery-integrated DCFCs would be able to request funding for any avoided make ready infrastructure upgrades. We applaud the decision to include this provision in the updated Straw.

In order for this approach to be successful, however, FreeWire encourages the Board to consider directing the development of a standardized methodology through which potential site hosts could evaluate and compare traditional make-ready and projects that utilize load management strategies. One option for doing so would be in the context of developing hosting capacity maps as included in the Straw as responsibility of the utilities. In addition, we note the absence of a definition for load management technologies in the ‘Background on Terminology’ section, and suggest that such a definition be added to the Straw.

As noted in the Straw, FreeWire acknowledges that there are other initiatives in New Jersey that are designed to incentivize energy storage and load management technologies, including the proposed New Jersey Energy Storage Incentive Program (“NJ SIP” or “Program”) that would “encourage storage deployment that accelerates the clean energy transition, including facilitating deployment of renewable energy, electric vehicles or other DERs.”<sup>4</sup> While there are potential programmatic options that would incentivize battery-integrated EVSE at the appropriate level under that proceeding, FreeWire is concerned that the Program may not be approved or funded at a level where it sends an equivalent market signal that allows for parity with traditional DCFC. Accordingly, we suggest that the Board direct

implementation of MHDV make-ready programs in a manner that can ensure that funding provided for load management solutions can work in complement with the proposal Program for energy storage in order to establish symmetry around the different value propositions of alternative DCFC approaches. For details on our approach to rate design and incentives under that proceeding, please refer to the comments FreeWire has submitted to that docket.<sup>5</sup>

<sup>3</sup> Straw Proposal, IV. Program Elements, A. A Modified “Shared-Responsibility” Business Model for Ownership, Maintenance, and Advertising of MHD EV Infrastructure, Section 8.

<sup>4</sup> BPU Docket No. QO22080540, IN THE MATTER OF THE NEW JERSEY ENERGY STORAGE INCENTIVE PROGRAM, V. New Jersey Energy Storage Program Straw Proposal, A. Program Goals, Section 7, September 30, 2022.

<sup>5</sup> BPU Docket No. QO22080540, IN THE MATTER OF THE NEW JERSEY ENERGY STORAGE INCENTIVE PROGRAM, Comments of FreeWire Technologies on New Jersey’s Energy Storage Incentive Program Straw Proposal, December 12, 2022.

### **C. Managed Charging Program Requirements for MDHD Fleets**

The Straw correctly identifies and stipulates that managed charging solutions, either through hardware or software, can serve a critical role in helping address barriers related to demand charge. FreeWire believes that hardware and software solutions for managing energy load related to EV charging are equally if not more important, especially over the longer-term, than temporary or alternative rate design solutions or relief. We appreciate that the Straw contemplates a role for managed charging in the context of private fleet charging depots, which helps to encourage charging during off-peak periods. FreeWire supports this requirement, as we believe managed charging represents the type of solution that will ensure the program will limit grid and cost impacts in the long-run. We believe that there is additional opportunity to consider commercial managed charging, and encourage the Board to extend such a requirement beyond

private fleet charging and into the public fleet charging space. While it may be easier for private fleets to employ managed charging programs than public fleets, an increasing number of technology solutions like ours allow for managed charging while maintaining a positive charging experience and charging reliability. We also believe that commercial managed charging should be developed and evaluated alongside any demand charge relief alternatives to ensure that price signals are supporting the fullest breadth of charging technologies. This approach was recently adopted by the New York Public Service Commission and we encourage that it be considered as deliberations in this proceeding continue.<sup>6</sup>

Additionally, we would like to point out that battery-integrated charging gives fleets additional capability to manage their charging. While traditional DCFCs can make operational changes that allow them to charge at off-peak periods (therefore taking advantage of TOU rates), battery-integrated DCFCs can pull energy from the grid when demand is low and still output that energy when it is needed for a fleet's operations. This allows battery-integrated DCFCs to either avoid changes to fleet operations or compound the benefits of low input power with operational changes that can take advantage of TOU rates.

<sup>6</sup> NYPSC CASE 22-E-0236 – Proceeding to Establish Alternatives to Traditional Demand-Based Rate Structures for Commercial Electric Vehicle Charging., ORDER ESTABLISHING FRAMEWORK FOR ALTERNATIVES TO TRADITIONAL DEMAND-BASED RATE STRUCTURES, January 19, 2023.

### **III. Conclusion**

FreeWire sincerely appreciates the opportunity to submit comments on the updated Straw in this proceeding, and we further appreciate the hard work and dedication of the Board Staff and stakeholder participation in this proceeding. As conversations around demand charge alternatives



continue to develop, FreeWire would be happy to provide additional information and perspectives on the effect of demand charge subsidies on overall market signals for EVSE, equity, and EV charger reliability as it is appropriate, in the EDC-Industry working group or otherwise.

Respectfully submitted this 24th day of January, 2023

/s/ George L. Davidson

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