

July 8, 2021

**VIA ELECTRONIC FILING**

Ms. Kimberley A. Campbell, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4300

**Re: Comments of FreeWire Technologies on Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Request for Approval of Make Ready Credit Programs Docket Nos. E-7, Sub 1195 and E-2, Sub 1197**

Dear Ms. Campbell:

Pursuant to the Commission's *Order Requesting Comments* issued May 28, 2021 in the above-referenced dockets, enclosed for filing are comments of FreeWire Technologies on Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Joint Request for Approval of Respective Make Ready Credit Programs.

Please do not hesitate to contact me if you have any questions or need additional information.

/s/ Peter A. Olmsted

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STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. E-2, SUB 1197  
DOCKET NO. E-7, SUB 1195

In the Matter of:	)	<b>COMMENTS OF FREEWIRE</b>
	)	<b>TECHNOLOGIES ON JOINT</b>
Application by Duke Energy Carolinas,	)	<b>REQUEST BY DUKE ENERGY</b>
LLC, and Duke Energy Progress, LLC, for	)	<b>CAROLINAS, LLC AND DUKE</b>
Approval of Proposed Electric	)	<b>ENERGY PROGRESS, LLC FOR</b>
Transportation Pilot	)	<b>APPROVAL OF RESPECTIVE</b>
	)	<b>MAKE READY CREDIT</b>
	)	<b>PROGRAMS</b>

On behalf of FreeWire Technologies, Inc. (“FreeWire”), we thank the North Carolina Utilities Commission (“Commission”) for the opportunity to comment on Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC (“DEP” and together with DEC, “Duke”) joint request for approval of respective “Make Ready Credit” programs. FreeWire appreciates the time that the Commission, Duke, Public Staff and interested stakeholders have dedicated to advancing transportation electrification in North Carolina in the above-captioned dockets, and we further appreciate the opportunity to join this proceeding to help deliver successful outcomes for the benefit of the state’s utility customers, electric vehicle (“EV”) drivers and grid. FreeWire further appreciates the Commission’s November 24, 2020 Order Approving Electric Transportation Pilot Program, in part (“ET PILOT Order”) and its direction to Duke, Public Staff, and stakeholders to engage in collaborative discussions around program design options to support deployment of electric vehicle supply equipment (“EVSE”).

Given that this is the first time that FreeWire is presenting comments to the Commission,

we will structure our comments starting with a brief introduction of our company and technology followed by comments on Duke’s request for approval of its proposed Make Ready Credit programs. As the leading manufacturer of battery-integrated EVSE, FreeWire’s comments are intended to provide unique perspectives regarding EV fast charging infrastructure to help ensure a sustainable market for the build out of cost-effective EV charging infrastructure in North Carolina. Specifically, FreeWire urges the Commission and Duke to consider including battery-storage technologies as eligible equipment under the definition of make ready infrastructure. As we will elaborate in our comments, the pairing of battery-storage and EVSE brings unique benefits and capabilities to the deployment of direct-current fast charging (“DCFC”) and can help to support the timely and cost-effective build out of an EV charging network along with reducing strain on the grid resulting from increased charging of EVs.

## **I. Introduction to FreeWire Technologies**

Founded in 2014, FreeWire is a pioneer of battery-integrated EVSE technology hardware and software for Level 2 and DCFC EV charging. FreeWire’s hardware provides for fast and flexible deployment and is premised upon integrating battery storage technologies to address lack of sufficient grid power or grid constraints and to reduce energy costs related to operating high power EV charging. Backed by world-class venture capital firms and global fortune 500 companies and having recently completed its Series C funding round of \$50 million, FreeWire’s “infrastructure-light” DCFC approach has come 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.

FreeWire has grown rapidly thanks to high demand for its products in the EV charging and energy infrastructure industry. The company has grown from two employees at the start of

2014 to over 100 employees today. FreeWire is headquartered in a former Dodge/Chrysler manufacturing facility in San Leandro, CA, within a disadvantaged community, which is creating clean energy jobs where they are most needed.

While FreeWire has been operating for seven years, primarily manufacturing mobile Level 2 chargers and electric generators, its ultrafast battery-integrated EV chargers, Boost Chargers, were introduced in 2020 and have been deployed in California, Tennessee, Oklahoma, Nevada, Utah, and the United Kingdom. Key customers include bp, Google, LinkedIn, Netflix, LADWP, SMUD, AEP, SRP, and many others. By the end of 2021 Boost Charger will be deployed in other parts of North America (US & Canada), Europe and Japan. Both the Boost and its integrated battery unit are UL certified and have undergone testing at EPRI, which has verified the performance and cost reduction benefits of the technology innovation.

FreeWire is dedicated to accelerating the deployment of EVSE by reducing the barriers to installation and the high energy cost of operating EV chargers. FreeWire accomplishes this by integrating battery storage technology into its Boost Charger, which reduces the need for make-ready infrastructure and reduces the grid impact of charging vehicles. Boost Charger provides a charge to the vehicle directly from the FreeWire battery using a low power input, as opposed to conventional chargers, which pull power directly from the grid at high power. This enables Boost Charger to deliver high power output to vehicles while dramatically lowering the energy costs of charging - a significant benefit to site hosts, grid operators, ratepayers, and EV drivers alike. In future iterations, this same battery will be able to provide back-up power to critical facilities or grid services, providing customers a lower cost charger and reducing their electrical costs overall. In this way FreeWire is developing the next evolution of charging assets that are also grid resources, providing back-up power and integrating renewable generation.

## II. The Benefits of Battery-Integrated DCFC

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 150 kW to one or 75 kW to two EVs simultaneously, while only drawing up to 27 kW from the grid to recharge the integrated battery unit 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 or make-ready investments.

Battery-backed 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 the Boost 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, make-ready grid upgrades. As a result of avoiding make ready upgrades to accommodate traditional DCFC systems, which can result in deployment periods of six months or longer, battery-backed systems offer the added benefit of speedy deployment and increased opportunity for EV drivers to charge at high speeds sooner.

Battery-backed 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. With the Boost, for example, vehicles charge right from the integrated battery as opposed to conventional chargers where EV are charged with power directly from the grid. As a result, site-hosts are able to offer fast charging while avoiding high demand charges associated with conventional fast charging, and therefore, when coupled with cost savings associated with minimizing electrical infrastructure requirements, are able to reduce total cost of EVSE ownership regardless of utilization rate.

While FreeWire does not suggest that battery-integrated EVSE systems are the only or best solution for every application – there are sites where the grid upgrades necessary for a conventional DCFC are both feasible and appropriate – we instead urge policy and decision-makers to design DCFC deployment programs in a manner that ensures an inclusive opportunity for emerging DCFC technologies as a means to deliver the greatest quantity of electric miles at the lowest cost to society.

### **III. FreeWire Comments on Duke’s Proposed Make Ready Credit Programs**

Duke’s proposal for Make Ready Credit programs represents the next step in its development of initiatives to support the build-out of EVSE infrastructure in North Carolina. FreeWire appreciates the time and effort that Duke has dedicated to build upon its Phase One Pilot programs along with its engagement of stakeholders throughout the process. We appreciate the opportunity to comment upon Duke’s proposed Make Ready Credit programs along with their proposed Phase Two pilots, of which the Commission has noticed separately for public comment.

To date, many DCFC deployment strategies in states across the country have focused on make-ready programs to address necessary grid constraints and upgrades needed for traditional fast charging stations. While FreeWire does not dispute that this focus is useful as part of an

overall deployment strategy, we believe that the way in which make-ready programs have been implemented to date is limiting and are often not adequately equipped to spur innovative solutions to overcome time and cost intensive challenges associated with building out a fast-charging network.

We would like to draw your attention to the response of The United Illuminating Company (“UI”) to the Connecticut Public Utilities Regulatory Authority’s Request for Program Design (“RFPD”). UI specifically makes reference to a “new generation of Hybrid storage/DCFC system that provides opportunities for siting in potentially capacity constrained areas without significant distribution system upgrades, [and] also reduces the possibility of creating new capacity constraints.”<sup>1</sup> Said differently, the grid capacity necessary to support one conventional ultrafast DCFC would accommodate six FreeWire Boost Chargers, and this battery-backed solution can essentially supersize the grid infrastructure, providing two to four times the throughput capacity regardless of whether the infrastructure is providing low or high voltage power to a site.

As Duke states in its filing, Duke refers to make-ready as “the infrastructure necessary to make a location ready for the installation of the Electric Vehicle Supply Equipment (“EVSE”), including the cost of investments in the safe and reliable installation of wiring and other upgrades that support EV charging.” As the Commission considers Duke’s proposal, we urge the Commission to consider defining make-ready in a manner which will include expenses related to stand-alone or integrated battery-storage technologies that are specifically configured to support EVSE. Given that the incorporation of battery-storage technology can supplant conventional grid and customer-sited electrical infrastructure that is necessary to support DCFC,

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<sup>1</sup> Docket No. 17-12-03RE04, Response to Request for Program Design of the United Illuminating Company, dated July 31, 2020, at 24.

including battery-storage technologies in the definition of make-ready will help to enhance the ease and cost-efficient deployment of EVSE and help to ensure that the full suite of EV charging solutions is competitive in the North Carolina market. UI previously suggested this approach in Connecticut proceedings, and we urge the Commission to consider a similar approach. UI states,

Hybrid storage/DCFC [CapEx] is more expensive than the current generation of DCFC, however the infrastructure to support them would be significantly less. Since the infrastructure cost related to these units is comparable with LII but provide the benefit of DCFC, and due to the ability to these units to reduce strain on the distribution system, the Company proposes to allow the battery components related to hybrid storage/DCFC units qualify as customer-side make ready and be eligible for DCFC make ready incentives.<sup>2</sup>

When analyzing the feasibility of a DCFC project, one must consider available electrical capacity, expected utilization, operational costs, property limitations, and other site-specific factors to determine the most cost effective and deployable charging technology solution and configuration. FreeWire believes that defining make ready to include battery-storage technologies as part of Duke's Make Ready Credit program will support a market that delivers the best fit charging solution that maximizes the electric miles enabled at the lowest overall cost while reflecting local needs and constraints.

## **V. Conclusion**

FreeWire sincerely appreciates the opportunity to join this important proceeding that will shape the future of North Carolina's strategy towards a clean and inclusive transportation

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<sup>2</sup> *Ibid*, at 24



system. We further appreciate the hard work and dedication of the Commission, Duke, Public Staff and parties to this case.

Respectfully submitted this 8th day of July, 2021

/s/ Peter A. Olmsted

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