

ZincFive, Inc.

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ZincFive

June 28, 2022

Florida Department of Transportation
Attn: Paul Baker
Subject: DOT-RFI-22-9114-PB, DCFC EVSE
605 Suwannee Street, MS20
Tallahassee, FL 32399

DCFC EVSE RFI: Response of ZincFive

To Whom It May Concern:

On behalf of [ZincFive](#), I submit the following response to the Florida Department of Transportation (FDOT) Request for Information regarding the *Statewide EV Infrastructure Deployment Plan*.

We are very excited about FDOT's deployment of DCFC EVSE, and we very much appreciate your consideration of our responses to the below questions. We look forward to being in touch with you and your team as a means of helping ensure EV infrastructure in the state of Florida is safe, resilient, and accessible by all.

Kindest Regards,

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General

1. Please describe your organization's involvement and experience with DCFC infrastructure. What are your long term EV Plans?

ZincFive (Z5) and its partners manufacture immediate power nickel-zinc battery and clean, mobile microgrid solutions for electric grid reliability and EV charging applications. ZincFive leverages fail-safe, green, nickel-zinc electrochemistry to provide high power density and performance while simultaneously offering superior safety and environmental advantages. ZincFive and its partner, Kaizen Clean Energy (KCE) are developing solutions to support public-private DC fast charging for multiple use cases. Specifically, ZincFive & KCE technologies offer grid-buffering solutions, to accommodate peak demands for charging, as well as mobile microgrid solutions that can provide temporary or permanent energy for charging, which can supplement available grid resources while also providing unparalleled resiliency through rapid islanded, mobile, deployment models. Our immediate power battery and microgrid solutions are compatible with all software and hardware.

2. Where does your organization see the biggest opportunities for the utilization of NEVI funds?

ZincFive sees the biggest opportunities for FDOT to utilize NEVI funds in three areas: resilience, comprehensive corridor fast charging, and expanded access.

Resilience: With extreme weather events and flooding on the rise across the US, the need for resilient power solutions has increased drastically in the last decade. NEVI funds should be deployed to ensure that EV charging infrastructure can withstand extreme weather and disruptions to the power grid. Z5's battery solutions can be deployed in extreme climates, thereby increasing the effectiveness and efficiency of renewable and backup energy assets such as solar or natural gas generators. These "power tower" configurations will enable state and local transportation officials to deploy on-demand power rapidly and safely to locations where technical difficulties exist with existing EV charging infrastructure, or weather-related events have caused power outages or increased demand on the grid. For example, during extreme heat or cold events, power tower configurations can be deployed within a matter of days to provide additional grid buffering capabilities to decrease the risk of power failure at the charging station and beyond. In addition, Z5's partner KCE is utilizing Z5 batteries to enable a completely mobile, islanded microgrid for onsite production of hydrogen for use to support DC fast charging (through a 480V, 3-phase output) or to support hydrogen fueling.

Fast Charging: As EVs continue to proliferate, EV adoption will expand into the medium-and-heavy duty vehicle market, as well as capture a greater share of the personal transportation and light-duty vehicle market. With deeper penetration of these markets, the demand for power at high-traffic charging stations along the nationally designated corridor will rapidly increase. These power demands will be challenged

by not only a mismatch of grid supply with location, but also with the mismatch between need for energy and the time required for utilities to upgrade grid infrastructure. Therefore, we view using NEVI funds to better equip high throughput charging locations with grid buffering capability as paramount. Z5 batteries curtail the load surge created by increased demand on distribution grids due to rapid adoption of EVs across the spectrum of vehicle type. KCE's mobile microgrid solution can serve as a short-term solution to bridge the time required for utilities to upgrade local infrastructure in support of scaled DC fast charging.

Expanded Access: While there is a considerable focus on high-traffic charging locations, there is also an opportunity to use NEVI funds to expand access to EV charging. One of the most important considerations in funding EV charging infrastructure in rural areas is the source and extent of grid power supply. Many rural areas are powered by energy cooperatives that do not have the same access to capital as urban and suburban utilities. With less access to capital, many rural electric power cooperatives cannot increase their grid capacity to build out the necessary distribution infrastructure to supply charging stations with needed power. This will be especially pertinent to rural corridors that contain major highways and freight routes, such as I-10 and Alligator Alley.

What are the biggest challenges or barriers that should be addressed to expedite reaching the goals of the NEVI program?

The biggest challenge to reaching the goals of the NEVI program will be securing additional funding and support through public-private partnerships. The funds that NEVI provide are a great foundation off of which to build, but long-term arrangements between charging infrastructure companies and public utilities and departments such as FDOT are needed to ensure the long-term viability and growth of the national EV charging network.

To overcome this barrier, we recommend FDOT begin early stakeholder engagement in an effort to map out when and where public-private partnerships will be needed to support existing and future EV charging infrastructure funded through the NEVI program.

Partnerships and Business Models

9. Please provide your organization's viewpoints on contracting methods for DCFC infrastructure, including leasing and/or revenue sharing agreements.

In order to be successful, there needs to be a myriad of contracting options available for DCFC infrastructure, including but not limited to third party off-take agreements and third party financing agreements, including operating leases.

Operation, Maintenance and Data Sharing

15. What are your current or planned fee structures and what payment mechanism do you accept?

Our solution is designed to support all existing EV charging hardware and software. It does not involve a direct consumer payment mechanism.

Strategies for Low Utilization

19. What strategies can FDOT utilize to encourage deployment of DCFC EVSE into rural underserved or disadvantaged communities?

To achieve equitable distribution of EV charging infrastructure, FDOT must consider what technologies will allow them to supplement the existing power grid in an on-demand fashion. One potential solution to this power gap is the Z5/ KCE mobile, islanded microgrid solution that comprises a turn-key 20 ft containerized solution for providing megawatts of fast EV charging power. This solution will allow electric vehicles to charge quickly and efficiently at “traditional” EV charging stations in areas of the state where the power grid may not be sufficient to support fast charging or high-volume charging.

To avoid stranded assets, FDOT should identify traditional vulnerabilities associated with installed transportation infrastructure (such as normal wear and tear) and ensure that rural, underserved, and disadvantaged communities have the technical expertise to conduct routine maintenance and repair. To have charging infrastructure unusable after 2 years because of lack of technological knowledge would be a waste of resources and would discourage the adoption of EVs in disadvantaged or rural communities.