



Response to Florida DOT Request for Information

June 28, 2022

1. Please describe your organization's involvement and experience with DCFC infrastructure. What are your long-term EV plans? How many chargers and/or charging stations are you able to build, install, and/or maintain on an annual basis?

Electrify America is the nation's largest open network of DC fast chargers for electric vehicles, with 3,338 ultra-fast 150 kW and 350 kW chargers across 773 locations nationwide. Since installing our first charging station in May 2018, we have opened 3-4 new stations per week on average across the country. We are expanding rapidly, and plan to have at least 10,000 chargers at 1,800 locations across North America by the end of 2025. The vast majority of our stations are installed under an owner-operator model, where we build, install, maintain, handle electric service, and perform all other turnkey operations for the charging station.

Our EV plans are available on our website (<https://www.electrifyamerica.com/our-plan/>) and outline a dual strategy of investing in long-distance highway corridors, as well as targeted investments in key metro markets. In Florida specifically, we have 180 ultra-fast chargers across 39 sites either build or under construction, with corridor investments along I-4, I-10, I-75, and I-95, and metro investments in the Miami, Tampa, and Orlando metro areas.

2. Where does your organization see the biggest opportunities for the utilization of NEVI funds? This could be in terms of innovative technology solutions, partnerships, and/or targeting geographic locations.

The biggest opportunity for use of NEVI funds is to deploy high-power, ultra-fast, and future-proofed charging infrastructure that can effectively serve EV drivers for years to come. This is a once-in-a-generation opportunity to build out the infrastructure that can serve as the basis for mass-market adoption of EVs, and ensuring that infrastructure is ultra-fast, reliable, and built using non-proprietary standards is critical to success.

In particular, 350 kW charging has emerged as the gold standard for future-proofed EV charging stations, and was strongly backed by the Alliance for Automotive Innovation, which represents 98% of the cars and light trucks sold in the U.S., in their comments to U.S. DOT on the NEVI program.¹ Advances in battery technology have led to a rapid increase in vehicle charging speeds, which increased nearly four-fold over the past six model years from approximately 50 kW in 2016 to nearly 200 kW in 2022. Vehicles such as the Lucid Air are already capable of 350 kW charging, while products from automakers like Kia and Hyundai are already in the 225-233 kW range, significantly faster than

¹ See Alliance for Automotive Innovation, "Recommended Attributes for EV Charging Stations." Available at: <https://www.regulations.gov/comment/FHWA-2021-0022-0175>



the 150 kW minimum established under the NEVI program, and additional 350 kW vehicles are slated for release in the coming years. Meanwhile, advances in charger technology and design have minimized the cost premium associated with 350 kW charging, making this technology an economical solution to future-proofed design.

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

Permitting and utility interconnection timeframes represent significant barriers to station deployment, which delay installation, increase soft costs, and even lead to cancelled projects. Average permitting timeframes for Electrify America's projects in Florida run 110 business days, or 22 weeks, which is 67% longer than the national average and adds nearly half a year to project timelines. Left unaddressed, these issues could significantly slow the progress of NEVI installations or leave gaps in the charging network where local permitting challenges cannot be overcome. Luckily, there are excellent permitting resources developed in other states that outline best practices for EV charger permitting, which if adopted could significantly address the permitting issues in Florida.²

Poor station reliability will also be a barrier to the goals of the NEVI program, if EV charging providers are not able to keep equipment in good working order as required. Electrify America has found that uptime, one metric required under the proposed minimum standards, does not tell the entire story around reliability. Specifically, while uptime indicates that a charger is powered on and is communicating with the charging network, it does not indicate that a vehicle arriving at the station will be able to charge. Communication errors between the vehicle and charger, power faults, physical damage to connectors, and other issues may prevent a vehicle from successfully charging even while a station is "up." Therefore, Electrify America has found that EV charging provider capabilities, such as 24/7 technical and diagnostic monitoring of infrastructure, fleets of roaming test drivers to periodically test each station in person, and vehicle interoperability testing to address any communication issues between chargers and vehicles, are better predictors of whether an EV driver arriving at a charger will successfully obtain a charge.

4. Please describe what you believe makes an ideal DCFC location including amenities as well as any risk factors that should be considered. How would you rank the relative importance of these factors?

Electrify America believes that the ideal corridor charging location has at least one 350 kW charger and three 150 kW chargers, upgradeable to support higher power levels in the future. Co-located amenities, such as restrooms, food and beverage for purchase, or access to other retail are also a high priority, along with site lighting, safety, visibility, accessibility, and utility power access. The biggest risk factor is likely access to power – Electrify America has found that, even within a single real estate

² See, e.g., NYSEDA, 2020. "DC Fast Charger Streamlined Permitting Guidebook." Available at: <https://www.nyserda.ny.gov/-/media/Files/Programs/clean-energy-siting/DC-Fast-Charger-Guidebook.pdf>



parcel, utility interconnection costs can vary by half a million dollars or more between different locations within the parcel. Working with utilities from the outset to identify where power can be delivered without costly upgrades is a must in managing station costs.

5. Please describe your process, including market research, land use requirements, and business development opportunities for determining a DCFC site location.

Electrify America uses a proprietary geospatial model to identify factors that result in a successful charging site, including the “supply-demand gap” between available charging in a certain geography and projected need for charging based on current and future vehicle deployments. We also look at the factors listed in the previous response, such as utility power availability, lighting, safety, visibility and accessibility, as well as working through our master real estate agreements with more than 50 large-scale property owners nationwide to develop attractive sites.

Land use requirements will vary depending on the size of the installation, need for battery storage, and whether adjacent green space is available in which to locate the electrical equipment pad. Electrify America installs a standard ADA-accessible spot at every location that we build, which is wider than a normal parking space, and therefore requires converting two spaces into a single space to meet ADA width requirements. Combined with different charger designs, such as those that include chargers between parking spaces due to space constraints at the head of the stall, this can require 5-6 parking spaces’ worth of land to develop a four-dispenser site. Where green space is not available in which to locate the equipment pad, 3-4 additional parking spaces may be necessary for the equipment to power the site. Site designs featuring pull-through spaces require a much larger footprint and reconfiguration of parking than charging stations with pull-in design, and further increase the land requirements to develop a site as well as station costs.

6. What do you think the DCFC site of the future looks like? Will location to amenities be as important or will micromobility be used to get to the amenities? What innovations/disrupters are coming?

Electrify America issued a press release in March 2022 specifically addressing the “charging station of the future” and the designs we are piloting for future stations.³ These include solar canopies and awnings, reduced equipment footprint, onsite battery energy storage systems, and an even greater focus on amenities, such as customer waiting areas. Co-location with amenities will continue to be important for DC fast chargers, especially as average vehicles charging speeds continues to increase and recharging times approach gasoline refueling speeds. Vehicles such as the Lucid Air are already able to add 200 miles of range in just 12 minutes of charging on a 350 kW charger, leaving little time to take micromobility to nearby amenities, and more vehicles will be capable of equal and greater speeds in the future. Disruptors such as solid-state batteries or other advances in cell chemistry will lead to

³ See: <https://media.electrifyamerica.com/en-us/releases/175>



faster charging sustained longer over the charge cycle, getting drivers back on the road even more quickly, and minimizing any incremental time requirement relative to gasoline.

7. Please explain any previous partnerships regarding EV infrastructure your organization has had including which parties initiated the outreach and what, if any, contracting mechanisms were used. These should include public and private entities as well as utility owners.

Electrify America has contracted through a wide range of mechanisms to deploy our public network and various other projects. In our typical model, we work through our network of more than 50 large-scale real estate hosts to lease a small parcel of land in an existing parking lot, then design, build, own, operate, maintain, and secure electric service for the station built on that parcel. However, we have also partnered with local mom-and-pop stores, public entities such as the Sacramento International Airport and the Ohio Turnpike Authority, transit agencies such as Sacramento Regional Transit and Yolo County Transit District to install medium- and heavy-duty shuttle and bus charging, NFI Industries to develop high-power charging for heavy-duty drayage operations, and utilities such as Arizona Public Service and New York Power Authority as the installation partner for their networks. We are able to accommodate any business model, including different options for site and equipment ownership or other factors.

8. Describe what makes a successful business model and partnership. Also, please describe threats that can lead to a business and partnership's failure. These can be examples from current and/or previous partnerships.

Electrify America has had great success developing attractive sites by working through a national network of real estate partners as well as local businesses. However, several things need to go right in order for a station to be built – the site host must be enthusiastic about the installation, the necessary permits must be obtained, utility power must be secured, and so on. The biggest threat to program structure that we see based on the shortcomings of previous incentive programs is speculation. Some states have offered incentive programs where funds can be reserved on a first-come, first-served basis. As soon as the program launches, the funds are reserved within minutes, even for projects where the developer hasn't even confirmed the interest of the site host, access to the property, or whether power can be delivered to the site. As a result, many of the sites end up never being built, and the funds are returned to the funding pool years later without a station being developed.

States can effectively guard against this potential pitfall by requiring developers to confirm site host interest via letters of intent, or show periodic progress towards station development, such as completion of design, submission of permits, and beginning of construction, to prove that funds are leading to actual development of charging stations and not simply reserved for speculative projects.



9. Please provide your organization's viewpoints on contracting methods for DCFC infrastructure, including leasing and/or revenue sharing agreements. Have you implemented any cost/revenue sharing models for the operation of DCFC EVSE? If yes, please share what you can about the terms of those partnerships.

Electrify America has used a wide range of contracting methods, as discussed in the previous response, including different ownership models and division of responsibilities between the site host and charging provider, and models both where Electrify America leases a parcel and where we install equipment on land that remains in control of the site host. While we cannot share confidential details of our existing contracts, we would be able to accommodate a wide range of contracting models, including models potentially including cost and revenue sharing.

10. Does Florida have the workforce required to operate and maintain DCFC EVSE charging sites? If not, please describe what you think is required to develop it.

Operation and maintenance of charging stations typically involves information technology work, such as system configuration, networking, software updates, and ensuring that different components of the charger, payment systems, and backend are communicating with one another. This work is usually non-electrical in nature and is performed on de-energized systems. A misconception about charger operations and maintenance is that the work is electrical in nature or performed by electricians, but this is often not the case except for certain specific repairs.

More charger maintenance technicians will undoubtedly be needed in the future, and Electrify America has sought to meet that workforce need both through the development of equipment- and network-specific training materials used with our own technicians, as well as through funding electric vehicle and charger maintenance programs through partners such as the Los Angeles Cleantech Incubator, Bakersfield Community College, and White Mountains Community College.

11. On average, how long does it take to install a DCFC from start to finish? This includes site determination, design, permitting, site preparation, utilities, and installation.

Electrify America's site development process typically takes six weeks to design and six weeks to build a charger. However, permitting and utility interconnection are highly variable and determined by factors beyond our control. As discussed earlier, average permitting timeframes in Florida are 22 weeks, while utility energization is typically completed 15 weeks after Electrify America completes construction at a site. Efforts to bring down these timeframes, which add months on either end of a charging station development, are critical to an efficient deployment of infrastructure under the program.



12. Are you currently able to meet the requirements of Buy America for DCFC infrastructure projects? If not, please explain your plans to meet the requirements and any potential issues.

To our knowledge, there are no volume domestic production lines producing DC fast charging equipment compatible with the minimum requirements of the program. Our own suppliers are working diligently to meet Buy America requirements and developing domestic production capabilities, but these new factories will not immediately be able to produce equipment at the quantity and quality demanded by the national program. Electrify America has advocated for a 2-3 year transition period during which companies working in good faith to stand up domestic production can supply some internationally-produced equipment to meet the requirements of the program and avoid equipment shortages or delayed build-out. Preliminary guidance from the Made In America Offices suggests that the federal government may also be considering limited public interest waivers or other measures to avoid equipment shortages in the early years of the program, as suppliers bring volume domestic production capabilities on line.

13. Are there any components required for DCFC infrastructure that are in short supply that could delay the goals of the NEVI program? Please describe what steps you have taken or what processes you have implemented to ensure the continuity of your supply chain.

While Electrify America has ordered thousands of chargers to cover current and near-term equipment needs, federal determinations around Buy America and any applicable transition period will be critical to ensuring that charger supply is sufficient to meet demand from the national program. We are also hearing from utility partners that increasing timeframes for equipment such as transformers will potentially affect near-term energization timelines.

14. Please describe how your organization mitigates cybersecurity vulnerabilities. Is this consistent with industry standards? If not, where are the differences? Do you follow national cybersecurity standards including National Institute of Standards and Technology (NIST) Cybersecurity Framework? Do you comply with Florida's 60GG-2 for ensuring the security of your infrastructure? What other technologies do you offer for an end-to-end secured operation?

Electrify America uses a range of cybersecurity protections across its network, including PCI DSS Level 1 for credit card transactions, ISO 15118 standards for session and payment authentication on the Plug&Charge standard, and enterprise-grade cybersecurity through Amazon Web Services regarding our network back-end. We can provide more information on cybersecurity approach upon request.

15. What are your current or planned fee structures (time-based, energy-based, power-based, etc.) and what payment mechanism do you accept? Please explain any issues you have encountered or identified.



Electrify America prices electricity by the kilowatt-hour in every jurisdiction where utility regulations permit, and we find that customers also strongly prefer this payment structure. We charge the same flat fee per kilowatt-hour in all states that allow this pricing model, regardless of dwell time or power level of the vehicle. We also offer a membership plan, which for a monthly fee of \$4 provides approximately a 30% reduction in kilowatt-hour prices.

Electrify America seeks to support as broad a range of payment methods as possible, in order to make the charging experience convenient and easy for customers. We have a credit card reader that support swipe, tap, and EMV chip on every charger we install, which also accepts prepaid credit/debit cards. Additionally, we support Plug&Charge across our network, Google Pay, Apple Pay, payment via our mobile app, and we can also initiate sessions by taking a credit card number over the phone. We strongly support the inclusion of credit card readers and Plug&Charge in the proposed minimum standards, as we believe these two methods are crucial to ease of access for EV drivers in the future.

16. Describe the typical maintenance for your organization's EVSE infrastructure as well as the maintenance schedule including any required hardware and software updates. Please include the typical lifecycle for your DCFC and what performance measurements are monitored.

Electrify America maintains a 24/7 network operations center (NOC) that provides technical and diagnostic monitoring across the entire network, identifying problems before they are encountered by customers and often fixing them remotely. In-person maintenance is performed regularly by technicians specifically trained on Electrify America's hardware and software platform, and additionally we field 13 teams of roaming test drivers who travel from station to station to identify any issues with the chargers or site. Our interoperability testing laboratory continuously validates that new EV models successfully communicate with the chargers, and we periodically deploy over-the-air software updates across the entire network to increase compatibility, make our charging interface more user-friendly, or otherwise improve the performance of the system. A wide range of custom metrics are monitored internally by the NOC team, which are proprietary to Electrify America.

17. How would your EVSE share data to a FDOT sponsored central data repository? What type(s) of data can you provide?

Electrify America will be prepared to meet the data sharing requirements outlined in the federal minimum standards NPRM and anticipates that it will be able to share all the data elements contemplated in the proposed standards. Electrify America urges states to exercise substantial caution in using shared data from EV chargers to deploy additional stations in higher-utilization areas, as high-performing stations are typically necessary to offset lower-utilization stations, and building additional stations in high-performing areas can undermine the performance of profitable stations and threaten the economic viability of the larger charging network.



18. What should FDOT do to ensure the end-users of EVSE infrastructure have the most convenient and reliable charging experience? Please include how emergency evacuations and power outages should be addressed.

Battery storage sufficient to keep a station operational during a power failure may be technically feasible, but is likely prohibitively costly and bulky to be deployed at most sites. The overwhelming majority of battery storage systems are deployed to address utility demand charges and provide limited peak shaving or reduced grid interconnection needs, but are not sufficient to move all electricity use off-peak or keep the station running for significant periods of time during a power failure. Similarly, renewables integration such as on-site solar panels can help to offset some fraction of site energy use, but is not sufficient to keep a station operational in the event of a grid failure. Florida should exercise caution in setting requirements for EV charging stations in the event of a power outage, as battery storage to support this application may necessitate millions of dollars in additional capital costs per site, in addition to real estate requirements that significantly limit where stations can be deployed.

19. FDOT is looking to provide DCFC in rural and disadvantaged communities that may have a lower return on investment and is interested in how to make these projects more desirable to potential applications. What strategies can FDOT utilize to encourage deployment of DCFC EVSE into rural, underserved, or disadvantaged communities? When answering please include information on driving factors.

The combination of low utilization and high demand charges poses the greatest financial risk to economically sustainable operation of charging stations. Florida might consider including location in rural, underserved or disadvantaged communities as a positive criteria in a scoring framework for proposed projects, or allow operators to propose a level of operational subsidy necessary during the five-year allowable period for operations support.

20. To increase utilization rates to rural, underserved, or disadvantaged communities what considerations or innovation solutions should be considered?

The biggest driver of utilization is increased vehicle adoption. Electrify America relies on the National Association of State Energy Officials' (NASEO's) PEV Policy Impact Rubric as the most complete and recent study on the effect of complementary policies on electric vehicle adoption.⁴ NASEO's research found that vehicle purchase incentives are in the top tier of policies in terms of effect on vehicle adoption, and several states have specifically implemented programs targeted at used vehicles or lower-income populations to help deploy more electric vehicles within rural, underserved and disadvantaged communities. The rubric contains a wide range of other policies as well, categorized by

⁴ National Association of State Energy Officials, 2021. "Plug-In Electric Vehicle (PEV) Policy Impact Rubric." Available at: <https://www.naseo.org/news-article?NewsID=3583>



relative efficacy. Any measures that Florida undertakes to make the state more EV-friendly and support the growing ZEV market will support increased utilization across the network.