



Submission to the State of Florida Department of Transportation  
Request for Information (RFI) DOT-RFI-22-9114-PB

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## Information Requested:

### General

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?

#### **Answer:**

AmpUp is an electric vehicle (EV) software company and network provider that enables drivers, charging station site hosts, and fleets to charge stress-free. Our technology gives station owners the ability to efficiently manage multiple charge stations and locations in one platform. Features such as reservation smart scheduling, real-time station status data, and mobile app integration guarantee a convenient user experience. AmpUp is a hardware-agnostic and software-first company that is integrated with over 20 original equipment manufacturers (OEMs) across the globe, which produce both Level 2 and DC Fast Charging (DCFC) stations. We currently have over 3,000 chargers linked to our network and serve over 250 sites nationwide. The number of charging station deployments we can build and install with our hardware and installation partners depends on a myriad of factors. Installation timeline is subject to change based on preferred installer's availability, resources, familiarity with the EVSE stations selected, and approvals needed for station make-ready work (e.g., city permits, utility inspection, supply chain delays, etc.). If hardware is available and the project demands little to no make-ready infrastructure construction, deployments can happen within one to two (1-2) weeks. More complex projects, however, can take anywhere from four to twenty (4-20) weeks, depending on supply chain constraints, workforce availability, and existing infrastructure.

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.

#### **Answer:**

In our experience, about 80% of EV charging occurs at home and at the workplace on Level 2 stations; however, NEVI funding supports DCFC charging along highway corridors. The parameters developed by the federal government for DCFC deployment - such as the required distance between highway chargers, charger location distance from the highway exit, and the required number of charging ports, among other criteria - are reasonable and will facilitate a convenient and user-friendly charging experience for EV drivers utilizing interstate highways.

To maximize the NEVI funding opportunity, we encourage the State of Florida to require all hardware and software participants to be OCPP-compliant and open network-compatible, which is consistent with federal guidelines. The OCPP protocol allows for communication between charging hardware, software, and consumers. OCPP-compliant chargers ensure seamless and ongoing upgrades for network services, a crucial component to station and operational cost optimization. We believe and advocate that consumers are empowered by choice. New clean energy ecosystems and their users should not be unnecessarily locked to a proprietary network provider if and when dissatisfied with the service. This is especially important where deployments

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are funded by rate- and taxpayers; the public should not find themselves in long-term vendor lock-ins or carry the burden of high costs to replace proprietary stations with truly open-network alternatives. OCPP protects utility and consumer investments by allowing the flexibility to select and utilize any combination of hardware and software.

In addition, connectivity is critical to optimized station performance. While many hardware options offer Wi-Fi, we recommend models that operate with SIM cards for maximum uptime results on account of more reliable wireless communication. Stations with SIM cards can be installed, provisioned, and commissioned more readily. With respect to data privacy and security, 4G LTE-based SIM cards are typically more secure than stations utilizing Wi-Fi-based connectivity. Moreover, local Wi-Fi network options may not be consistent with charging station ownership and may lead to increased operational costs.

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

**Answer:**

As is the case for new infrastructure development, one of the biggest challenges or barriers in expediting the goals of the NEVI program are supply chain delays and a lack of skilled workforce for EV charger deployment and maintenance. Should the Florida Department of Transportation issue a bid or request for services with respect to the DCFC network deployment, we believe the Department should allow for flexibility in deployment timelines but require winning or selected participants to demonstrate how they can and will meet delivery given these challenges. We discourage a centralized ownership model of the network by utility companies, which often create proprietary, closed networks. In our experience, these centralized ownership models lead to slower EV adoption and vendor lock with respect to networks and related services. We encourage the State of Florida to develop a multi-stakeholder ecosystem where many hardware makes and models, as well as network providers, can equally compete and serve different consumer needs.

**Site Location**

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?

**Answer:**

In theory, those using the network of DCFC chargers funded by the NEVI program are EV drivers utilizing the interstate highways and corridors. If these drivers are travelers, it makes sense to deploy stations adjacent to services and amenities that augment the travel experience and lead to more locally based economic development. If EV drivers need to wait 20 to 30 minutes to charge their vehicles, it is likely that they will utilize that time to grab something to eat or freshen up. Deploying charging stations next to restaurants, food and coffee kiosks, bathroom facilities, small parks with pet facilities, and stores where basic supplies (e.g. toiletries, water, etc.) can be purchased provides economic opportunities to that location and creates a comfortable and reliable experience for EV drivers.

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

**Answer:**

As an EV software and network provider, we typically do not maintain processes related to land use requirements or business development opportunities for determining DCFC site locations. However, we work with several engineering firms and project management companies who may have better insight and we would be willing to make those introductions.

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?

**Answer:**

As firm believers in the principle of fair access and choice for all EV drivers, AmpUp sees potential for many types of DCFC sites to succeed in the future. Access to DCFC charging stations along highways and interstates in traditional locations like highway corridors and near highway exits will be most critical but ensuring access to DCFC across a variety of locations is paramount in creating a healthy ecosystem for EV drivers. Proximity to amenities like rest stops, dining, hotels, gas stations and many other types of properties will be critical to ensuring that drivers have optionality as well as access to activities and accommodations while their vehicles charge.

AmpUp is generally agnostic as to how different micromobility technologies will be adopted and utilized in the future. Many disruptions are certainly possible and AmpUp is excited to see ways in which our software powering electric vehicle mobility could enable or pair with disruptions in other types of mobility. But, ensuring that drivers have access to the broadest possible range of charging options and locations will ensure the smoothest transition to broad electric vehicle usage regardless of what comes to pass on the micromobility or other transportation fronts.

## **Partnerships and Business Models**

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.

**Answer:**

Our company's software is integrated with over 20 original equipment manufacturers (OEMs) across the globe, which produce both Level 2 and DC Fast Charging (DCFC) stations. Most partnerships utilize partnership agreements. AmpUp also participates in a variety of RFPs directly and indirectly in support of hardware and installation partners across the US. These RFPs are typically issued by utilities, municipalities, and other organizations, both private and public, who are seeking to add a variety of EV charging options and services. Winners of RFPs are typically required to sign agreements with the utility companies or the organization who issued the RFP.

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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.

**Answer:**

A successful partnership for AmpUp involves working with dedicated hardware partners and installers who are committed first and foremost to operating high-quality EVSE infrastructure. AmpUp's Community Manager (CM) software platform allows our partners to reliably operate their charging stations 24/7 and ensure convenient charging experiences for their customers. Charging station operators are responsible for determining siting and usage rates, setting pricing, maintaining the stations, and generally managing their own business model and profitability. The primary threat for most operators is determining where to locate stations in order to maximize utilization and generate enough revenue to make the initial investments economically viable. If stations are underutilized or less profitable than expected due to uncertainty around EV adoption and usage, it could certainly cause many independent EV charging businesses to struggle financially or even fail.

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.

**Answer:**

In our experience, the site host and/or related property manager makes the investment to deploy charging stations. Site hosts include public institutions (universities, utility companies, state agencies) and private entities (hotels, restaurants, gas stations, etc.). Many of the installations are supported with government grants or utility incentive programs. Site hosts pay an annual subscription fee for our networking platform, which allows the site hosts to manage charging session reservations and collect revenue, which, in turn, is used to achieve a return on investment (ROI). AmpUp uses a proprietary calculator to estimate a charge station project's ROI. We designed this tool to better serve clients who sought guidance on estimated electricity cost, hardware costs, software costs, and what price to charge drivers. The tool neatly displays customer inputs to provide an estimated monthly return and a ROI breakeven point for each site.

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.

**Answer:**

We believe that Florida does have the necessary workforce to operate and maintain DCFC EVSE charging sites, especially if the charging network is a multi-stakeholder ecosystem wherein competing hardware and networking companies can operate. In our experience, we have not only seen a positive increase in the quantity of jobs in the EV market, but also in the quality and nature of EV-related work. Employment in vehicle electrification results in well-paid, skilled, and rewarding positions that do not necessarily require a traditional education path or even extensive apprentice training, but passion to learn and willingness to grow with others in this emerging sector. EV-related jobs offer valuable and varied positions from raw material sourcing to hardware manufacturing to vehicle sales to network customer support, and every function in

between. We believe that more specialized work will emerge, specifically with respect to the difference between electric vehicle supply equipment (EVSE) field technicians and EVSE electricians. To date, charging station deployments rely heavily on the work of electricians to install wires, panels, and outlets to the stations and to support related installation work during construction. However, we believe there will be a growing dependence on the work of field technicians who help commission, provision, and maintain stations to networks. EVSE field technicians develop their careers in the field and are knowledgeable about electrical concepts (voltage, amperage, etc.), Open Charge Point Protocol (OCPP) standards, and wireless communication (e.g. testing Wi-Fi or 4G LTE connectivity on modems). They understand how to pull and read diagnostic data from hardware and can work with installation partners and network customer support to bring stations online and troubleshoot existing problems. Such talent is critical to providing turnkey solutions in repeatable processes across the state and regardless of project size.

## Equipment

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.

### Answer:

Timelines vary greatly depending on the availability of the installer, the delivery times for selected hardware, the number of charging stations installed, the number of site locations, and whether or not construction involves trenching, boring, and concrete work - this is especially true for DCFC hardware, which currently has a very long lead time. AmpUp works with the site host and installer to find the most cost-effective and timely solution. Typically, average design and construction of an installation project consists of the following steps and timelines:

Task	Duration	Parties
Site inspection	One (1) week	Installer/site host
Project coordination	One (1) week	All parties
Hardware order and delivery	Four to eight (4-8) weeks	All parties
Make-ready construction	Four to six (4-6) weeks	Installer/site host
Station installation	One to two (1-2) days per station	Installer/site host
Software onboarding/training	One (1) week	Network provider/site host
Ongoing support	Ongoing	Mostly network provider

***\*Installation timeline is subject to change based on preferred installer’s availability, resources, familiarity with the EVSE stations selected, and approvals needed for station make-ready work (e.g., city permits, utility inspection, supply chain delays, etc.).***

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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.

**Answer:**

Several of the hardware OEMs with whom we partner are Buy America-compliant.

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.

**Answer:**

As seen across many other sectors of the US economy, supply chain bottlenecks and sourcing issues have complicated the ability of many companies to reliably obtain, install, and commission DCFC infrastructure within previously expected timelines. Delays for some models of DCFC equipment are rumored to be as long as 50 weeks which causes complications for utilities, installers, hardware vendors, and other parts of the EV charging supply chain.

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?

**Answer:**

As a software and network provider, AmpUp is vigilant about data security and privacy. All customer data including personal information, payment information, and transaction history are backed up on Amazon Web Services (AWS). All infrastructure is hosted on Amazon Web Services (AWS) which is Service Organization Control (SOC) 2 Type II compliant. This auditing mechanism ensures the highest control and best practices with respect to the confidentiality of information, privacy of personal information, and the security, processing integrity, and availability of systems.

All payment and customer data meets PCI/DSS compliance and local data compliance (e.g. General Data Protection Regulation (GDPR), California Consumer Privacy Act (CCPA), etc.). No payment account information including credit cards or ACH is stored in the AmpUp databases or logs. AmpUp uses a trusted third-party payment partner who manages all card information in a secure cloud environment. All communication between the mobile app and the cloud service is encrypted. We adhere to the highest E2E data encryption standards and utilize Transport Layer Security (TLS) 1.2 encryption to ensure end-to-end security of data sent between applications over the Internet.

AmpUp has adopted and implemented several corporate policies pertaining to privacy and security, including detailed guidelines and procedures for access control, data management, operations security, risk management, information security, and incident response and disaster recovery plans. Access to confidential data such as personal identifiable information (PII) is restricted to specific employees or departments, and these records can only be passed to others

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with approval from the data owner or a company executive. Confidential customer data is encrypted in transit over public networks, and never used or stored in non-production systems/environments. Mobile device hard drives containing confidential data, including laptops, are encrypted. AmpUp employees are required to use multi-factor authentication to access company networks. User passwords are stored using SHA-512 hash with random salt. Information about technical vulnerabilities of information systems being used are obtained (e.g., via a vulnerability scanner), evaluated, and appropriate measures taken to address any associated risks. Best practices are enforced to prevent CSRF, XSS, and SQL injection through code review.

We frequently test our software with third party security firms and are capable of testing our partners' charge station hardware remotely. AmpUp participates in charging technology events such as the Open Charge Alliance's PlugFest to test how our system securely integrates with various OCPP hardware.

### **Operation, Maintenance and Data Sharing**

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.

**Answer:**

AmpUp's flagship station management platform, called Community Manager (CM), is software that helps charging station owners manage their chargers. CM provides several features to enhance the station site host experience for all use cases. Those who use charging stations under our CM tool have various payment options. EV drivers can pay for charging sessions via: an in-app mobile application payment, toll-free phone calls, QR codes, and/or RFID cards. Depending on the hardware make and model, customers can also pay with credit cards. These contactless payment options allow for socially distanced charging by the public, ensuring caution and safety for EV drivers and station managers. With respect to fee structure, or how much station managers charge for sessions, managers can adjust the price of charging sessions based on a flat electric rate, time-of-use rates, holidays, or any other important event influencing demand and customer experience. Site hosts can set preferential or even no pricing for certain users or vehicles and can utilize dynamic pricing for categories of station users. Station managers can charge overstay or idle fees when and where necessary to help encourage an equitable charging ecosystem for everyone. Site hosts have the option to determine fee structures that are time-based, energy-based, or power-based.

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.

**Answer:**

When a charge station issue arises for either a site host or a driver using the AmpUp mobile app, customers can call AmpUp as a first-line of response to resolve networking issues, application issues, and sometimes hardware issues. AmpUp's software provides a method by which the site



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host or our customer service team can remotely reset the charging station hardware. This feature has resolved many issues tied to networking trips in the past.

Site hosts and AmpUp's account managers can use internal tools to live-monitor the health of charging stations and detect hardware and software issues. These tools capture important station status data, including online/offline status, network connectivity strength, real-time energy loads, and account activity. In case malfunctioning EVSE hardware cannot be repaired via AmpUp's remote support services, AmpUp will work with equipment manufacturers and local installers to resolve the issues as soon as possible.

AmpUp provides complementary customer service to all Community Manager (CM) site hosts and EV drivers. Our dedicated account managers are available by phone 24/7. We commit to a 24-hour response time for all email or in-app inquiries. AmpUp customers can find our support phone number and email address in multiple places during their charging experience, including our website, CM tool, mobile app, and the QR sticker applied to the charge station.

The typical lifecycle of DCFC stations depends on the make and model. We work with several hardware OEMs who offer a range of product warranties depending on project scope and site host needs.

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

**Answer:**

AmpUp's flagship station management platform, called Community Manager (CM), is software that helps charging station owners manage their chargers. CM provides several features to enhance the station site host experience for all use cases, including both private and public stations. Community Manager captures real-time statuses of individual stations or groups of stations, and offers real-time and historical performance metrics, including but not limited to: the number of charge stations occupied and vacant; the length of charge sessions per user; current load (kW) of charge stations; total energy (kWh) of charge stations; total revenue/fees collected; and sustainability metrics such as GHG emission impact based on the total number of kWh dispensed from the charging site. Other important data points captured by our software include utility and compliance metrics such as vehicle connect/disconnect times, driver IDs, average charge session duration, rolling average power, and peak power readings.

AmpUp can provide site hosts with data and performance reports on a regular basis in several formats (e.g., basic .csv files or attractive PDF documents enhanced with infographics). We provide 15-minute meter interval readings consistent with many utility projects and programs. These reports can be sent to the Florida Department of Transportation-sponsored central data repository. We would be willing to work with the Department to develop a data template that could be used by all stakeholders - mainly the network providers - in the DCFC 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.

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**Answer:**

FDOT should outline minimum standards that should be adhered to by site hosts, hardware vendors, installers, and operators to ensure that end-users have convenient and reliable charging experiences no matter which vendor they choose or where they decide to charge. For example, a large problem currently plaguing the EV charging industry in the US is the number of stations which are offline or out-of-commission after installation due to faulty or inadequate hardware or software. Minimum standards around equipment quality, certifications, safety and guaranteed uptime would go a long way in ensuring that drivers can trust the EVSE infrastructure being deployed throughout their state. Regarding outages or station malfunctions, AmpUp's app allows drivers to report these issues in minutes and receive 24/7 customer support in the event that these situations occur.

Due to potential issues raised such as emergencies or power outages, AmpUp also believes that all stations should be equipped with LTE due to the added resilience compared to a Wi-Fi connection. During an outage or emergency, a station with Wi-Fi could be rendered unable to communicate with the network and pass along details about the specific issue whereas LTE connection ensures station uptime during these events. LTE also ensures a greater degree of security by allowing information transmitted over the network to be encrypted whereas information sent over a Wi-Fi connection remains vulnerable to being compromised.

**Strategies for Low Utilization**

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.
  - a. Guaranteed number of projects for economies of scale
  - b. Short term operation and maintenance agreements (5 years or less)
  - c. Long term operation and maintenance agreements (longer than 5 years)
  - d. Any others?

**Answer:**

It is most important to station owners and installers that upfront costs, especially for ports in challenging or underserved locations, can be reduced or even entirely covered through rebates or subsidies. Many favorable state and utility incentive programs typically cover interconnection and distribution upgrades, equipment costs, and possibly installation labor or networked software costs. In terms of achieving economies of scale and efficient use of time and resources for both utilities and operators, setting a minimum number of ports per project site could reduce per-port costs as well as future-proof the site for growing EV adoption in the future. Guaranteeing a minimum operation and maintenance period, such as five years, also ensures that the incentives will go toward the continued operation of the stations and prevent installers from building stations to capture rebates with no intention of operating them for the long-term.

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

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**Answer:**

We believe that charging station infrastructure deployment to underserved and disadvantaged communities should be realized in tandem with adoption of EVs in these areas. As the state deploys infrastructure to these communities, it can augment the experience by providing public resources and educational materials on used EV marketplaces, information on long-term maintenance costs (compared to traditional internal combustion engine vehicles), and resources on access to federal and state funding or tax incentives that encourage EV adoption. We encourage the Florida DOT to select hardware and software vendors who can help achieve more equitable adoption of electrified transportation. To ensure equitable access to clean energy by everyone, AmpUp offers a low-income assistance program that waives networking fees for eligible sites for a period of time. We utilize the U.S. Department of Energy's Low-Income Energy Affordability Data (LEAD) tool to determine eligibility but will readily work with our clients on a case-by-case basis to deliver clean energy to disadvantaged communities.

## Specific Information Requested

Interested vendors may respond to some or all the following topics, based on their proposed role in the creation of a DCFC EVSE network:

- 1. Summary of Experience:** FDOT is interested in a summary that describes your organization's experience with DCFC EVSE.

**Answer:**

AmpUp is an electric vehicle (EV) software company and network provider that enables drivers, charging station site hosts, and fleets to charge stress-free. Our technology gives station owners the ability to efficiently manage multiple charge stations and locations in one platform. Features such as reservation smart scheduling, real-time station status data, and mobile app integration guarantee a convenient user experience. AmpUp is a hardware-agnostic and software-first company that is integrated with over 20 original equipment manufacturers (OEMs) across the globe, which produce both Level 2 and DC Fast Charging (DCFC) stations. AmpUp's SaaS solution has been deployed for many customers across the United States requiring installation and management of multiple electric vehicle chargers. Some of our key clients include JLL, Cushman Wakefield, CBRE, Holiday Inn, Best Western, National Grid, Green Mountain Power, and Pacific Gas & Electric. Other important customers are EV fleet operators who use our product to manage their fleets and track real-time and historical charging metrics that better inform sustainable business decisions.

- 4. Software Information:** FDOT is interested in information on software components included and needed to create a typical DCFC system.

**Answer:**

Another key use-case for DCFC infrastructure is in enabling companies, governments, and many other types of organizations to electrify their fleets. AmpUp's best-in-class software platform also includes specialized features for government and corporate fleets to track and learn from historical data in order to provide optimal vehicle routing and logistics management for any job.

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The tool collects vehicle level reporting and telematics such as battery temperature, state of charge (SOC), GPS location, acceleration, and speed in real time. Fleet managers can use this data to better track and manage transportation assets, making more informed decisions on preventative vehicle maintenance.

**6. Project Approach:** FDOT is interested in the approach that your organization would take to deliver the DCFC EVSE.

Although AmpUp is a national company operating in all 50 states, we partner with local installers and contractors on each project due to the unique value and expertise they can provide. To help the state of Florida achieve its DCFC goals, AmpUp's approach would involve engaging local stakeholders and installers to ensure that we can deliver reliable solutions throughout the state in a timely and cost-effective manner. As a premier software and network solutions provider, we will work with our partners to resolve issues as they arise and ensure that every driver using a station powered by AmpUp has a reliable and convenient charging experience. Please get in touch with us if you have any questions or would like to learn more about what we have to offer to the state of Florida. Our Government and Utility Team can be reached at [gnu@ampup.io](mailto:gnu@ampup.io).