

Initial Comments of the Vehicle-Grid Integration Council On Electric Vehicle Charging Programs

IR 22-076

March 21, 2023

The Vehicle-Grid Integration Council (VGIC)¹ is a 501(c)(6) nonprofit trade association focused on accelerating the role of smart EV charging and discharging (collectively, vehicle-grid integration or “VGI”) through policy development, education, outreach, and research. Scaling VGI is an essential part of transportation electrification and will help accomplish the following key policy goals:

- **Benefit drivers and fleet owners** by reducing the cost of ownership.
- **Decarbonize the transportation sector** by accelerating EV adoption.
- **Support decarbonization of the power sector** by providing essential grid services as renewable energy and distributed energy resource penetration increases.
- **Increase affordability** by reducing electricity bills for all customers.
- **Improve community resiliency** and security during planned and unplanned grid outages.
- **Foster economic activity** through innovation, competition, and market transformation.

With the proper policy and regulatory support and coordination, these goals can be achieved, and EV drivers and fleets in New Hampshire can play a critical role in the acceleration of both transportation electrification and grid decarbonization. **Our vision for VGI encompasses the following key elements:**

- **Ensure customer mobility needs are satisfied.** Drivers and fleets can participate in various VGI services without compromising their mobility needs.
- **Managed charging will benefit EV drivers and fleet operators:** Drivers and fleets will be given the opportunity to align charging with the times of day when electricity prices are low, reducing operating costs by as much as 50% compared to unmanaged charging. Lowering the total ownership cost will accelerate overall EV adoption by drivers and fleet managers and, in turn, sector-wide decarbonization.
- **EVs offer community resilience benefits by providing emissions-free emergency power during blackouts:** During blackouts caused by extreme weather or other power

¹ VGIC member companies and supporters include American Honda Motor Co., Inc., BorgWarner, bp pulse, Customized Energy Solutions, dbel, Enel X North America, Inc., ENGIE NA, Enphase, Fermata Energy, FlexCharging, FLO EV Charging, Ford Motor Company, FreeWire Technologies, Inc., General Motors, GridWiz, Hoosier Energy, Innovation Core SEI, IoTecha, Kaluza, Kitu Systems, Ninedot Energy, Nissan Group of North America, Nuvve Holding Corporation, Peak Power, Sacramento Municipal Utility District, Stellantis N.V., Sunrun, The Mobility House, Toyota Motor North America, Inc., Utilidata, Veloce Energy, Inc., Wallbox USA Inc., and WeaveGrid. The views expressed in these Comments are those of VGIC, and do not necessarily reflect the views of all individual VGIC member companies or supporters. (<https://www.vgicouncil.org/>)

outages, EVs can utilize bidirectional charging capabilities to send energy to a building or home (i.e., vehicle-to-building or V2B), serving as a generator and providing safe backup power for households and essential community services.

- **Charging infrastructure dollars go further:** Smarter management of EV charging will help minimize investments in utility infrastructure to support economy-wide electrification, which reduces the overall cost burden on all electric utility customers, and avoids significant delays associated with upgrading distribution system infrastructure.
- **EVs provide valuable reliability services to the grid and get paid for it:** Unidirectional managed charging (“V1G”) can provide demand response services and bidirectional vehicle-to-grid (“V2G”) charging can enable EVs to feed power back to the grid to provide peak shaving and other grid services. Providing these services can unlock new revenue streams for EVs, lowering the total cost of ownership.

VGIC appreciates the opportunity to submit these opening comments on EV charging programs in IR 22-076. While IR 22-076 proceeding includes a generally broad scope related to EV charging and demand response programs, advancing VGI would help deliver additional benefits to EV owners and the grid in New Hampshire, as discussed above. As an initial matter, given the importance and potential benefits of VGI, VGIC recommends that the Commission identify advancing VGI as an explicit goal for investor-owned utilities. VGIC also provides the following specific suggestions to help achieve this goal:

1. **Transportation electrification investments made through EV charging programs should incentivize VGI capabilities where and when it makes sense.** VGI stands to offer substantial public benefits as EV deployment scales up. However, for these benefits to be fully realized, it is critical that VGI capabilities be considered and prioritized in EV charging programs, rather than after-the-fact. VGIC recommends that the Commission encourage VGI capabilities in EV charging programs where and when it makes sense for customers. For example, there may be significant opportunities to incorporate VGI capabilities at Level 1 and Level 2 charging locations with long dwell times as well as DCFC sites serving fleets. One overarching strategy to support VGI is ensuring customers can enroll and participate in EV charging programs using their networked charger or vehicle (i.e., leveraging on-board telematics). Leveraging both capabilities yields greater benefits in terms of customer choice and total load flexibility.

Additionally, export compensation options should be made available for customers using V2X bidirectional charging infrastructure or EV chargers paired with energy storage. As referenced above, V2X bidirectional charging systems can support grid reliability and community resilience. Today, V2X bidirectional charging systems use V2X-Direct Current configurations, meaning that a bidirectional inverter situated within a DC charger is used to enable V2X bidirectional power flow. As a result, these systems and the associated electrical equipment are more expensive than unidirectional charging equipment.

Therefore, in addition to the ongoing compensation mechanisms needed to promote beneficial grid behavior, VGIC recommends EV charging programs consider pathways to offset the upfront incremental costs of enabling V2X bidirectional power flow.

2. EV charging programs should include both rates and programs that encourage VGI.

In order to unlock EV load flexibility (including both managed charging and V2X discharging), utilities must offer rates and programs that incentivize EV customers to shift charging to low-cost periods and export power to buildings or the grid during peak periods. This can be accomplished through time-of-use rates, dynamic (i.e., real-time) pricing, demand response, V2G export credits, and other approaches. To maximize participation, each utility should have a suite of offerings to accommodate the wide range of EV customer types and use cases. Notably, V2G can serve as a core strategy for school bus electrification, as electric school buses are uniquely positioned to serve as a reliability and resiliency resource using commercially available bidirectional vehicles and EVSE, while also unlocking additional revenues for school districts.

3. Utilities should prepare for the coming wave of commercially-available VGI offerings by educating fleets, homeowners, workplaces, and other customer groups.

The anticipated rapid deployment of electrified transportation across the US requires considerable outreach and education to minimize infrastructure costs and maximize benefits to all ratepayers. In particular, education and outreach to fleets is critically needed to inform fleet managers of the potential value of fleet electrification. For many fleets, converting to electrified transportation is a significant undertaking that lies outside of their existing expertise. Given the potential complexity of VGI, more policy support is needed to direct funding toward educating fleets – as well as other customer types – not only of the benefits of electrification in general, but the enhanced value proposition that VGI technologies can offer. These value propositions include new potential revenue streams from grid services, reduced charging infrastructure costs, reduced charging energy costs, new bill management options, and enhanced resilience of critical facilities. The marketing, education, and outreach activities implemented under EV charging programs should ensure fleets and other customer groups understand the opportunities and challenges of electrification, as well as their choices for implementing VGI strategies from the outset.

4. VGIC supports making charging infrastructure as widely accessible as possible and ensuring quick energization timelines for unidirectional chargers and expedited interconnection procedures with better alignment to V2X capabilities for bidirectional chargers. One promising solution towards this goal is to allow and incentivize Automated Load Management (ALM) in public buildings, charging depots for commercial vehicles and fleets, and other publicly accessible and/or shared charging infrastructure that may benefit underserved and disadvantaged communities.

Many low-income and disadvantaged communities are served by outdated utility infrastructure (substations, transformers) that may require significant and costly

upgrades to be able to accommodate EV charging load and/or V2G exports. The use of ALM can help mitigate these infrastructure upgrade costs by reducing the collective peak load at one site, therefore making charging infrastructure more affordable for disadvantaged communities. ALM is a VGI solution that is particularly well-suited for multi-charger sites such as publicly accessible commercial buildings, shared fleet charging, workplace charging, multi-unit dwellings and other non-single family home sites, where low-income customers may be more likely to charge.

Specifically, ALM refers to the use of either 1) software-based approaches that share electrical capacity among EV supply equipment (EVSE), or 2) battery-integrated EVSE or co-located energy storage systems, to avoid or defer the need for additional electrical capacity and infrastructure on both the utility and customer side of the meter. VGIC believes that ALM can stretch charging infrastructure investments and ensure more chargers are installed in more places. We recommend EV charging programs promote the use of ALM to enable charger deployment at a site that may otherwise be cost-prohibitive or space-prohibitive due to potential utility distribution system upgrades. Optional ALM solutions should be encouraged and incentivized when they are shown to be comparatively cost-efficient versus traditional utility system upgrades. VGIC advises against mandating ALM requirements on charging infrastructure, as this may result in inequities by limiting charging capability for customers. Instead, VGIC recommends ALM be allowed and incentivized (i.e., a “carrot” rather than “stick” approach) for so that deploying ALM solutions become a viable option for those that wish to deploy, such as fleet operators. VGIC recommends that an optional, technology-neutral ALM incentive be included in EV charging infrastructure programs.

VGIC appreciates the opportunity to submit these initial comments on EV charging programs in IR 22-076. We look forward to further collaboration with the PUC and other agencies and stakeholders in New Hampshire on this important initiative.

Respectfully submitted,

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