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To: **All Parties of Record**

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Re: **PUC PROJECT NO. 54233**

Technical Requirements and Interconnection Processes for Distributed Energy Resources (DERS): *A Response to party comments regarding New 16 TAC 25.210, Amendments to 25.211 and Repeal and Replacements of 25.212*

Date: August 8, 2025

Dear Commissioners and parties of record,

Vehicle-Grid Integration Council (VGIC) commends the Public Utilities Commission of Texas (PUCT) staff for developing proposed enhancements to the interconnection rules for distributed energy resources (DERs). VGIC is a 501(c)6 non-profit member-based association focused on growing the market for flexible electric vehicle (EV) charging and discharging. We conduct research, education, and advocacy to unlock the value of EVs to achieve a reliable, affordable, and efficient electric grid.

A core technology of Texas' future grid is grid-parallel bidirectional charging systems, or "vehicle-to-grid" (V2G) systems, which are available in two configurations: V2G Direct Current (V2G DC) and V2G Alternating Current (V2G AC). V2G DC systems are a combination of hardware and software in or around the EV supply equipment (EVSE) for the purposes of communication with and programmed flow of energy into and out of the vehicle battery in support of electrical loads or systems offboard the EV that are operating in parallel with the grid where the electricity coming out of the vehicle is direct current that must be converted to alternative current by an external inverter. V2G AC systems are a combination of hardware and software in or around the EVSE and EV for the purposes of communication with and programmed flow of energy into and out of the vehicle battery in support of electrical loads or systems offboard the EV that are operating in parallel with the grid where the electricity coming out of the vehicle is alternating current, having been converted in the vehicle through the use of inverter capabilities onboard the vehicle.

Based on our interpretation of the staff discussion draft, the proposed language captures both grid-parallel V2G system types (DC and AC) as part of the "Certified Equipment" definition in section 25.210(b)(1) of the discussion draft. This is because both V2G DC and V2G AC systems can comply with the underlying IEEE 1547 standards and the applicable (including emerging) UL 1741 standards referenced in "Certified Equipment." For example, V2G DC systems are certified to UL 1741 and, depending on the model, SA or SB. V2G AC systems can be certified under one of two pathways. One is the emerging UL 1741 SC standard for charging equipment that pairs with vehicles designed to SAE J3072. This standard, once published, will ensure the requirements of IEEE 1547 are met. The other pathway is to certify a charger and vehicle together as a "DER

System," which is an existing concept detailed in IEEE 1547, as well as UL 9741. UL is currently developing a DER Systems Certification Requirements Decision (CRD) that manufacturers can pursue for this matched-pair certification approach. Since all pathways are rooted in IEEE 1547, the "Certified Equipment" definition in section 25.210(b)(1) of the staff proposal seems to sufficiently incorporate V2G equipment.

Given the relatively limited deployment of V2G systems to date, VGIC foresees a potential gap in the implementation of these rules as they relate to V2G systems. To address this, we recommend that the PUCT direct distribution service providers (DSPs) to include relevant interconnection procedures for both V2G system types (AC and DC) to ensure alignment with the PUCT "Certified Equipment" definition. In other words, VGIC respectfully requests that the PUCT require DSPs to establish a clear process for V2G AC and DC interconnection, given we interpret these systems to fall within the proposed definition of "Certified Equipment." In the below sections, VGIC offers additional detail on the state of the bidirectional charging market and the broader imperative to ensure DSPs appropriately incorporate V2G in DER interconnection rules.

The market for bidirectional charging solutions is growing quickly due to increased availability of certified systems across several customer classes and an increase in consumer interest. Texas is one of the fastest-growing states for EV adoption, with a >50% YOY increase in adoption. The scale of opportunity for Texas to tap into latent energy storage capacity currently locked away in its increasing fleet of EVs cannot be overstated. Critically, these resources are, first and foremost, customer mobility resources. However, the amount of time vehicles typically spend parked idle, combined with the increase in battery capacity and durability, results in immense potential for EVs to support grid resilience and reliability in the face of broader energy system transitions.

Currently, small residential bidirectional charging systems are available from Ford (i.e., Ford F-150 Lightning Electric), General Motors (including nearly every fully battery electric Chevrolet, Cadillac, and GMC vehicle), Tesla (i.e., Cybertruck), Nissan (i.e., LEAF), and Kia (i.e., EV9). Chargers and associated equipment for bidirectional charging systems are also available from dcbel, Wallbox, Fermata, Sunrun, Heliox, InCharge, and Tellus Power Green. Meanwhile, nearly every modern electric school bus delivered across the country is capable of bidirectional charging, including solutions from Thomas Built, Blue Bird, IC Bus, Green Power Motors, Pheonix Motorcars, Lion Electric, and RIDE. Stellantis, Rivian, Volvo, Volkswagen, BMW, Hyundai, Polestar, Mecerdes-Benz, Lucid, Emporia, ChargePoint, SolarEdge, Enphase, and Autel have also announced bidirectional charging solutions that are expected to be made available soon.

Based on VGIC's experience in grid-parallel bidirectional charging system (i.e., V2G systems) market development since 2020, there are four common barriers that impede customer adoption:

> **(1) Interconnection:** i.e., "*Will my utility know what to do with an interconnection application for this solution?*"
>
> **(2) Compensation**: i.e., "*Will I have the opportunity to lower my bill or maybe even receive payments from my energy supplier?*"
>
> **(3) Upfront Cost:** i.e., "*Will the system be affordable?*"
>
> **(4) Technical standards**: i.e., "*Will the system be safe and reliable?*"

Ensuring V2G systems are appropriately incorporated into the DSPs' DER interconnection processes can help overcome each of these key barriers and, in turn, unlock a low-cost toolkit to support customer resilience, grid reliability, and widespread affordability. As evident in other states, it is critical to explicitly provide customers and installers with clear guidance and an appropriately updated form or interconnection application portal for their V2G system.[1] Notably, little to no change to the interconnection rule itself – outside of this directive – may be needed. With this in mind, **VGIC recommends the PUC explicitly direct DSPs to establish clear processes, guidance, and appropriate forms/application portals for V2G systems eligible as "Certified Equipment" compliant with "applicable sections of UL-1741 and IEEE-1547 standards."**

In summary, VGIC strongly supports the incorporation of V2G systems into DER interconnection rules given the potential benefits of economic efficiency, public health improvement, grid reliability, and customer resilience. We believe that this initiative will play a crucial role in facilitating the deployment of bidirectional charging infrastructure across the state, advancing Texas's commitment to an affordable and profitable energy future.

Thank you for your consideration. We look forward to a favorable decision that will benefit both Texas' economy and the choice of electric customers.

Sincerely,

Zach Woogen
Executive Director
Vehicle-Grid Integration Council

[1] Utilities in other states have taken this step. Major reforms are not typically required to interconnection rules to incorporate grid-parallel DC or AC bidirectional charging systems. However, without Commission direction, utilities have not been providing customer with appropriate forms and applications for grid-parallel bidirectional charging systems (i.e., V2G systems).