July 15, 2025

Hon. Michelle L. Phillips
Secretary
New York Public Service Commission
3 Empire State Plaza
Albany, NY 12223-1350

RE: Case 24-E-0165: Proceeding on Motion of the Commission to Regarding the Grid of the Future.

Comments of the Vehicle-Grid Integration Council (VGIC) on Grid of the Future Potential Study and the First Iteration of the Grid of the Future Plan

Introduction

The Vehicle-Grid Integration Council (VGIC) is a 501(c)(6) membership-based advocacy group committed to advancing the role of electric vehicles (EVs) and vehicle-grid integration (VGI) through policy development, education, outreach, and research. VGIC supports the transition to decarbonized transportation and electric sectors by ensuring the value from EV deployments and flexible EV charging and discharging is recognized and compensated to achieve a more reliable, affordable, and efficient electric grid. VGIC appreciates the opportunity to provide comments on Grid of the Future Potential Study and the First Iteration of the Grid of the Future Plan.

Overarching Recommendations to Staff and Stakeholders Regarding Addressing VGI Issues

VGIC generally supports the AEU, ACE, ConEd, and O&R *Joint Principles for the Grid of the Future Proceeding*, filed July 1, 2025. One enhanced principles that VGIC recommends is close coordination across related PSC proceedings and initiatives. VGIC has witnessed several well-intentioned efforts across the country held back by a lack of coordination across similar Grid of the Future proceedings and transportation electrification-related proceedings. Specifically, VGIC highlights that the light-duty (18-E-0138), medium- and heavy-duty (23-E-0070), demand charge alternatives (22-E-0236), and proactive planning (24-E-0364) proceedings be managed in a closely coordinated manner. VGI progress often enlists relatively complex, interrelated issues that cut across these proceedings, in addition to the related EV Technical Standards Working Group, Interconnection Technical Working Group, and EV Infrastructure

Interconnection Working Group. The interconnected nature of VGI issues, as well as related DER issues, means Commissions can no longer afford to operate through siloed staff across siloed dockets. Critically, this cross-collaboration should not manifest as "passing the buck" from one proceeding/team to another. Rather, this coordination should be visible through open information sharing and clear regulatory road mapping. Certainty over the proceeding and timeframe for a specific issue to be addressed is paramount.

Comments on the Grid of the Future Potential Study: Volume I

VGIC commends the work conducted by DPS staff and Brattle in developing the three volumes of the Grid of the Future Potential Study ("Potential Study"). The study reflects significant meaningful engagement with relevant stakeholders, and VGIC believes it represents a leading framework for assessing load and DER flexibility potential. Below, VGIC offers comments on Volume I of the Potential Study, focusing on Section 7: Barriers and Solutions to Expanding Grid Flexibility.

Compensation Mechanisms

VGIC generally supports the recommendations to refine existing programs to accommodate all technology types and, specifically, update VDER tariffs and MCOS studies more frequently. While VGIC generally supports considering locational variation, we caution against over-indexing on this variation. Too much locational granularity could backfire, creating significant savings uncertainty for customers, for example, because the local grid may change relatively often due to new load or generation at the grid edge, or utility-side upgrades. This may make it more challenging for customers to make upfront investments in the equipment required to enable their participation. Alternatives could be explored that achieve a balanced locational granularity or otherwise support customer investments in enabling technologies. For example, locational value "lock-ins" can be used for a certain number of years to provide customers with the necessary certainty to make equipment investments, for example in bidirectional charging equipment.

VGIC also supports exploring optional real-time residential rates. EV customers are particularly diverse, as each driver and fleet interacts in different ways with their vehicles and, moreover, with the grid. Some customers may be interested in these types of dynamic rates, whereas others may opt for simpler program enrollment, and still others may be keen to enroll in more static time-varying rates.

Applying VDER tariff to both imports and exports and/or developing a separate tariff for bidirectional DERs, including bidirectional charging equipment, is of particular interest to VGIC. Without these or similarly scalable compensation mechanisms for

bidirectional charging equipment, New York will be unlikely to see *any* vehicle-to-grid ("V2G") capability, and especially not the nearly 2 GW of cost-effective residential V2G capacity potential by 2040 detailed in Volume I of the Potential Study.

Notably, dedicated, large-scale V2G programs are underway in Massachusetts and California. For example, the Massachusetts Clean Energy Center's V2X Demonstration Project, which aims to deploy 100 free bidirectional chargers to customers over the next several months, and Pacific Gas and Electric's Residential, Commercial, and Microgrid V2X Pilots, which aim to enroll over 1,000 customers.

VGIC believes that focused, well-designed compensation mechanisms for bidirectional charging equipment can far exceed the residential V2G potential detailed in the Potential Study. Today, each Ford F-150 Lightning Electric, all but one General Motors (i.e., Chevrolet, Cadillac, GMC) vehicle, Nissan LEAF, Kia EV9, and Tesla Cybertruck sold in New York is capable of bidirectional charging. While VGIC appreciates Brattle's approach to modeling V2G in the 2030 timeframe (i.e., 0%), we believe that given the current deployment of these bidirectional-charging vehicles, there is immense opportunity to achieve significant V2G capacity by 2030.

We posit there is a "chicken-or-egg" dynamic occurring as it relates to modeling V2G in the context of New York's future grid. If stakeholders continue defining V2G potential as *zero* "due to the early stage of technical and commercial readiness," we will never meaningfully support that commercial readiness. VGIC urges the Commission to take bold action, keeping in mind the considerable technical potential of V2G to meaningfully support the grid, to support V2G commercialization in NY. While other states like California, Maryland, and Massachusetts are pulling ahead on this, New York must act now to avoid losing a leadership role on V2G, the way the state has filled a strong leadership role for legacy stationary energy storage technologies.

Notably, the transition to promoting bidirectional charging in New York will not take much. Utilities have proven to be effective implementers of mass-market residential managed charging programs. Considering much of the marketing for bidirectional charging solutions is already driven by the automative OEMs (e.g., GM, Ford, Kia, and Tesla all have dedicated websites and even Super Bowl ads promoting this capability), VGIC believes some incremental administrative and marketing budget is needed to expand utility capabilities in the bidirectional charging space, but that it would not be an intolerable sum.

Additionally, VGIC notes the commercially-available bidirectional charging offerings have been expanding quickly in just the past 12-18 months. This trend is expected to continue, especially given recent milestones related to the standardization of

V2X AC (i.e., inverter capabilities onboard the vehicle). Meanwhile, V2X DC (i.e., inverter capabilities offboard the vehicle) equipment is much more common today. We expect the increase in equipment options to drive down purchase costs. Regarding installation and related upgrade costs, these may also decrease, as newer bidirectional charging solutions have been offering lower charging rates, which can obviate the need for panel upgrades and other electrical infrastructure upgrades.

New York's aggressive climate and environmental goals will necessitate the retirement of polluting fossil fuel resources. Since utility-scale renewable energy development faces significant financial headwinds and transmission interconnection challenges, the state **must leverage all available tools to ensure sufficient energy supply and reliability, especially in downstate areas**. For example, NYISO recently had to delay the retirement of peaker plants in New York City to ensure reliability, noting that New York City would otherwise face an expected 446 MW of capacity deficiency beginning in mid-2025.[1] Given the high real estate costs in downstate New York, VGI has immense potential to serve the state's needs since EVs and the associated charging infrastructure will already be deployed as a result of the state's EV adoption goals. Unlike most other energy resources, unlocking bidirectional capabilities from these resources will not require the acquisition of additional real estate (i.e., compared to unidirectional charging). The NYISO Gold Book 2023 EV stock forecast includes 4,800 electric buses by 2025 and 28,800 electric buses by 2030.[2] **Modestly assuming that half are school buses with 120 kWh batteries and 40 kW chargers, school buses alone would total 96 MW of capacity and 288 MWh of energy in 2025, and 576 MW of capacity and 1.728 GWh of energy in 2030.**

However, current infrastructure costs and export compensation mechanisms do not make investments in V2G-capable vehicles and chargers economically viable in New York. VGIC appreciates the Commission's decision in Docket 18-E-0138 to require the Joint Utilities to update their VDER tariffs to include V2G, which will establish uniformity across the state regarding the eligibility of V2G resources to participate in VDER. However, based on VGIC's estimates, the compensation under VDER is currently insufficient to warrant investments in V2G projects, especially in areas outside of ConEd territory. For example, using *highly generous* assumptions for each 120-kWh electric bus (i.e., batteries discharge *all* 120 kWh of stored energy across three hours of a CSRP call window for 20 days per month), fleets can earn a maximum of approximately

[1] S&P Capital IQ. "Facing New York City power shortfall, NYISO delays retirement of peaker plants." 2023. https://www.capitaliq.spglobal.com/apisv3/spg-webplatform-core/news/article?id=78946545

[2] NYISO. *2023 Load & Capacity Data Report (Gold Book)*, Table I-11a: Electric Vehicle Stock Forecast. 2023. https://www.nyiso.com/documents/20142/2226333/2023-Gold-Book-Public.pdf

$8,400 per vehicle over three summer months in ConEd territory by participating in VDER.[3] However, in National Grid territory, the corresponding best-case-scenario compensation drops to only approximately $1,800 per vehicle per summer. While VGIC has not developed similar estimates for the remaining IOUs, recent VDER statements show that the other IOUs' Value Stack credit rates are similar to or lower than those offered by National Grid, and therefore provide a similar or even lower compensation level for V2G projects.[4] Given the relatively high upfront costs of developing and deploying bidirectional charging infrastructure and the enabling equipment, which is particularly high in the current, relatively nascent market stage that V2X equipment is in, the (somewhat unrealistic) best-case-scenario VDER revenue in most New York utility territories (with the exception of ConEd) would be wholly insufficient to unlock this latent V2G capacity. Additionally, the CSRP and DLRP programs require participants to forego the DRV and LSRV components of VDER but only include a small number of events each summer, resulting in even lower per-summer compensation than what fleets can earn from the DRV component alone.

In contrast, the Connected Solutions demand response (DR) programs offered by utilities in New England provide a much more attractive compensation mechanism and should serve as a model for V2G program design. For example, National Grid's Massachusetts Connected Solutions Daily Dispatch program calls between 30 and 60 events per summer, each lasting two to three hours, and provides $200 per kW per summer in compensation based on average performance.[5] Eversource offers the same program (called Daily Curtailment), resulting in consistent compensation throughout Massachusetts.[6] For comparison, assuming the same 120 kWh of battery capacity, the compensation amount fleets can earn from V2G is between $8,000 and $12,000 per vehicle per summer in Massachusetts.[7] Similarly, Rhode Island Energy's Connected Solutions program provides $300 per kW per summer, allowing a much smaller vehicle

[3] This estimate assumes each vehicle exports its entire battery capacity over three hours for 20 days each month during the CSRP call window to maximize the DRV component, which has the greatest value. The estimate does not include the LSRV component, which is only available on a limited number of distribution circuits.
[4] Joint Utilities of New York. Value of Distributed Energy Resources (VDER). https://jointutilitiesofny.org/distributed-generation/VDER
[5] National Grid. Daily Dispatch. https://www.nationalgridus.com/MA-Business/Energy-Saving-Programs/Daily-Dispatch
[6] Eversource. Demand Response. https://www.eversource.com/content/business/save-money-energy/energy-efficiency-programs/demand-response
[7] This estimate assumes each vehicle exports its entire battery capacity over the entire duration of each event during all events called each summer. The lower estimate corresponds to a scenario with 100% three-hour events during which each vehicle exports at 40 kW; the higher estimate corresponds to a scenario with 100% two-hour events during which each vehicle exports at 60 kW.

battery (Nissan's 60-kWh LEAF) on a much smaller charger (Fermata Energy's 15-kW FE-15) to earn on average approximately $4,000 per summer.[8]

Based on these current program offerings, VGIC expects V2G investments on the east coast to likely concentrate toward New England states with Connected Solutions options. Even though revenue under the VDER tariff were comparable to the real-world results from V2G projects in New England, New York V2G site deployment will still likely lag, given the overall higher costs faced by fleets and technology providers in the state, especially in the downstate area. **Without improvements to its V2G export compensation mechanism(s), New York risks being left out of the development of V2G projects and, instead, may become home to an immense amount of a new type of *stranded asset*: latent distributed energy storage capacity locked away behind unidirectional chargers.**

With this in mind, VGIC recommends the Commission explore three paths forward to support V2G potential:

1. **Instituting a "V2G Adder" in VDER**
2. **Establishing a new V2G-specific program, which could mimic the Connected Solutions program available in other northeast states**
3. **Expanding the existing managed charging programs to include bidirectional charging customers.**

Regulatory Barriers

Firstly, VGIC strongly supports the Volume I recommendation to establish a long-term vision for grid flexibility, ensuring focus by utilities on the topic, amid other topics they must focus on in this time of transition.

VGIC believes establishing a statewide target for flexibility capability is key to supporting the grid of the future. Critically, the Commission must set technology-specific goals. Not all measures (e.g., rates and programs) must be technology-specific, but establishing technology-specific goals is a reasonable method to benchmark and track progress on a given technology against expectations for that technology. Given resource constraints, this should not be done for each technology, but just the most promising solution sets by 2030 and 2040, as identified in Volume I.

[8] Michigan Public Service Commission. EV Technical Conference. January 25, 2024. Slide 63: Presentation from Fermata Energy. https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/workgroups/technical-conference/EV-Techincal-Conference-Presentation-Day-2.pdf?rev=5d8df7e45d4d4093add720e2bb8fa9e5&hash=FFC86A3557D5EFFEF7A6D4BAF79666B5

Regarding broader regulatory reforms, VGIC generally supports providing performance-based incentives to utilities for meeting grid flexibility goals through various mechanisms, as opposed to the existing mechanisms that focus on meeting NWA goals. However, implementation must be closely monitored, as performance-based frameworks systems can be gamed by establishing benchmarks that would've been met based on existing trends.

Building on more traditional utility regulation, VGIC also supports allowing utilities to earn a return on spending on grid flexibility programs, specifically on IT investments (including DERMS platforms and/or other aggregator integrations), customer equipment rebates, upfront enrollment incentives, grid upgrades, marketing, and program administration. We believe this allowance would create a strong incentive for utilities to earnestly pursue load flexibility solutions.

Regarding assessing benefits and costs, VGIC supports incorporating other types of benefits. Specific to VGI, it is, admittedly, unlikely that a VGI measure (e.g., managed charging program or bidirectional charging credit) sways a residential customer to purchase an EV that would not have otherwise purchased one. However, VGI measures *do* have significant bearing on fleet adoption. Fleet transition decisions are driven by total cost of ownership ("TCO") calculations, and TCO is significantly influenced by the ongoing fuel cost, which VGI helps to lower far below a non-VGI scenario. With this in mind, VGIC urges the Commission to consider the local pollution and GHG reduction benefits of VGI efforts, which have a direct impact on a fleet's decision to electrify.

VGIC supports waiving cost-effectiveness for pilots and other exploratory investments, as detailed in Volume I. New York should aim to have a robust resource toolkit available by 2040, which means investing today in the capabilities that will be needed in that timeframe, as well as the deployment of the necessary technology itself. For example, if only unidirectional charging equipment is deployed in New York, then the state risks a path dependency that limits the overall opportunity for V2G potential by 2030 and 2040. Moreover, there's overwhelming precedent for exempting pilots and other exploratory investments from cost-effectiveness testing at utility commissions across the country. For example, this is how California and Massachusetts have become established leaders on BTM storage and , more recently, bidirectional charging and V2G.

Lastly, VGIC supports considering pre-approval for initiatives and allowing utilities the flexibility needed to pursue different solutions to achieve certain objectives. This pairs particularly well with VGI topics, which can present new and interesting challenges through which utilities must innovate. Moreover, adopting this recommendation supports parity with the evolving paradigm for utility investments (i.e.,

Proactive Planning). It may be hard to justify to ratepayers why the Commission can pre-approve $1 billion of proactive planning upgrades but would not apply the same principle of pre-approval to demand flexibility measures, many of which can substantially, directly mitigate future proactive planning requests. In other words, supporting load flexibility measures, including managed charging programs, bidirectional charging initiatives, and flexible service connection (either software-based or DER-paired solutions), can help to balance out the ratepayer risks imposed by proactive planning. VGIC does not believe New York should pursue one without the other.

Customer Experience

VGIC notes there is a significant opportunity to leverage industry experts with close customer relationships, like automotive OEMs, to support customer enrollment process. This is particularly important given that reaching EV customers at the point-of-sale is the most effective way to enroll them in managed charging programs and/or rates. While centering contractors for customer engagement initiatives may be appropriate for rooftop solar, which is driven in part by door-to-door sales, EVs are driven by OEMs and/or car dealerships. With this in mind, VGIC recommends that the Commission promote strategies that leverage automotive OEM customer relationships to support customer rate and/or program enrollment.

Regarding Further Research and Data Development

VGIC generally supports the further research and data development efforts referenced in Volume I. We clarify that, based on our understanding of efforts funded by NYSERDA, utilities, and/or private sector parties, there is no early large-scale pilot for MHDV V2G. There have been, and currently are, one-off demonstration projects. These demonstrate technological capabilities that have been proven for many years in New York and across the country (and the world). At a minimum, VGIC urges the Commission to establish a pilot focused not on *technology demonstration*, which would re-pilot what is already commercially available today (e.g., offerings from Ford, GM, Kia, Nissan, Tesla, BlueBird, Thomas Built, RIDE, etc.), but on the **customer engagement, incentive and compensation mechanism design, and operational integration of these resources on a multi-customer scale**. In other words, it is not that the technology needs to be demonstrated to work in New York, but that New York's ecosystem of stakeholders, including the JUs, and existing rules and regulations can effectively implement a MHDV V2G program.

More broadly, we strongly urge the Commission not to delay action while the studies detailed in this section of Volume I are addressed. For VGI, and V2X specifically, there are thousands of EVs being sold every week that could meaningfully support New

York's grid, but will continue to represent an untapped resource class unless the PSC takes bold, urgent action to enable these technologies. VGIC has no doubt that we can spend the next 25 years studying the theoretical value of VGI in 2040. What ratepayers and EV customers need is focused, urgent action to unlock VGI capabilities across the state.

Comments on Flexible Service Connection

Although both the Potential Study and the First Iteration of the Grid of the Future Plan reference flexible service connection, VGIC notes a clear gap in the framework for this solution set. VGIC believes it is critical that the Commission scale standardized, accessible flexible service connection options for customers that can leverage software or DER-backed solutions to accelerate low-cost grid connection in areas of grid constraint.

In general, the framework used in both the Brattle and DNV reports focus on deploying equipment (HVAC, EV chargers, etc.) and then using the connectivity and flexibility to manage the grid and avoid costs, namely those costs resulting from other resources or customers, like new renewable generation, or inflexible load growth from relatively inflexible EV charging, data centers, reshoring, and other electrification. This is one lens through which to view avoided costs and NWA, and is a reasonable approach that VGIC supports. However, there is another framework that is being overlooked: the ability for customers, namely multi-charger sites like fleet depots, workplace, multi-family, and some DC fast charging sites, to mitigate the bottom-up impact of *their own* connection to the grid. These have several different characteristics than the solutions and barriers discussed in the Brattle and DNV reports, but still offer tremendous value to the grid. Primarily, this value is in distribution cost deferral and avoidance. First, it relies on decisions made early in the site design and construction phase. Second, the deployment of these solutions depend not on the establishment of new programs or rate designs, but rather in the process that utilities use to guide customers through these decisions.

As detailed above regarding pre-approval for load flexibility initiatives, New York's emerging proactive planning paradigm is a significant departure from historic treatment of utility investments. Flexible service connection offers an important counterweight to balance the risk placed on all ratepayers by proactive planning. In establishing the Load Management Technology Incentive Program (LMTIP), the Commission and Joint Utilities have made great strides in supporting the deployment of technology that enables flexible service connection. VGIC reiterates its recommendation provided in 18-E-0138 to maintain LMTIP and expand technology eligibility under the program.

However, while the funding for these solutions is critical, equally important is the standardized process that needs to exist to underpin customer election of these technologies. Specifically, there must be a clear pathway for proactively or reactively identifying

customers/sites for flexible service connection. For example, utilities should easily be able to answer questions on the topic, such as: Do utilities provide make-ready site candidates with insufficient grid connections any information regarding LMTIP and flexible connection agreements (FCAs)? How many customers have asked for FCAs? What data does a utility need to provide to a customer, and vice versa, to finalize a FCA? Where does this data come from?

These process-related questions are critical to the success of LMTIP and, more importantly, the long-term success of flexible service connection in New York. With this in mind, VGIC urges the Commission to explicitly direct utilities to maintain clear and consistent flexible service connection guidance for their customers with the goal to bring flexible service connection to all customers that may choose to elect it.

Conclusion

VGIC appreciates the opportunity to provide these comments and looks forward to working with the Commission, Department of Public Service Staff, the Joint Utilities, and other stakeholders to ensure the success of New York's transportation electrification, clean energy, and resilient communities efforts. We look forward to continued collaboration with all parties on this important initiative.

Respectfully submitted,

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