



October 3, 2022

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

**RE: Case 18-E-0138: Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment and Infrastructure**

**Comments the Vehicle-Grid Integration Council (VGIC)  
on the Make-Ready Program Mid-Point Review**

**Introduction**

The Vehicle-Grid Integration Council (VGIC)<sup>1</sup> is a 501(c)(6) membership-based trade association 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 respond to the Commission's questions in the Notice of Meeting and Commencement of the Make-Ready Program Mid-Point Review.

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<sup>1</sup> VGIC member companies and supporters include American Honda Motor Co., Inc., Customized Energy Solutions, dcbe, Enel X North America, Inc., ENGIE NA, Fermata Energy, FlexCharging, FLO EV Charging, Ford Motor Company, FreeWire Technologies, Inc., General Motors, Kaluza, Nissan Group of North America, Nuvve Holding Corporation, Sacramento Municipal Utility District, Stellantis N.V., Sunrun, Switch EV Ltd, The Mobility House, Toyota Motor North America, Inc., 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/>)

### **Should VGI pilots be considered as part of the Midpoint review?**

Yes, VGI pilots should be considered as part of the midpoint review. In fact, VGI strategies, such as managed charging programs and time-varying rates, have already been successfully implemented by New York’s utilities in parallel to their deployment of EV infrastructure. However, VGIC believes there are opportunities to expand and improve upon these existing VGI strategies through additional VGI pilots and programs. Moreover, VGIC believes it is critical to implement VGI strategies alongside broader transportation electrification (TE) infrastructure investments rather than considering VGI only after these investments have been made. This proactive approach can increase customer awareness of VGI opportunities, facilitate deployment of VGI-enabling technologies, and right-size TE infrastructure, each of which have the potential to provide significant customer benefits and, in turn, accelerate TE. Moreover, incorporating VGI strategies into TE investment frameworks can reduce ratepayer costs compared to introducing VGI concepts after TE investments have already been made. The Commission has recently taken steps to facilitate VGI through recently approving the Joint Utilities’ Managed Charging Programs. However, VGIC’s September 2021 comments on the proposed Managed Charging Programs discussed certain limitations of those programs that we believe should be addressed by pursuing additional VGI-related activities (including pilots) as part of this Midpoint Review process. One of these limitations is the fact that the managed charging programs are mainly focused on residential EV customers and do not address other potential market segments.<sup>2</sup> VGIC believes that the importance of VGI for New York’s overall TE efforts warrants a more comprehensive approach that address the entire EV charging market, including residential, multi-unit dwelling (MUD), fleet, public, and workplace charging, as well as both light-duty and medium- and heavy-duty EVs.

Another limitation of the managed charging programs is that they only focused on unidirectional charging, or “V1G.” Thus, these programs do nothing to advance the additional benefits to customers and to the grid from equipment with bidirectional functionality. The

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<sup>2</sup> Comments of VGIC on Proposals for Managed Charging Programs,  
<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={519BDFD9-0F70-47F9-968E-7E1B924F7635}>

Commission should take steps to help develop the bidirectional charging market in New York. Vehicle-to-building (V2B) and vehicle-to-grid (V2G) use cases require bidirectional charging equipment. However, to date, virtually every EV charging station supported by New York's make-ready programs have been unidirectional. Going forward, support for bidirectional charging equipment would serve to complement and enhance the value of unidirectional managed charging by allowing EVs to play a more significant role in providing a variety of increasingly valuable resiliency and reliability services. Together, both unidirectional and bidirectional VGI approaches can provide the following benefits:

- **Accelerate transportation electrification** by reducing the total cost of EV ownership and, in turn, mitigating harmful pollution and reducing adverse health impacts
- **Support the decarbonization of the power grid** by utilizing batteries that reduce the need for natural gas peaker plants and facilitate additional deployment of renewable energy resources
- **Improve customer and community resiliency**, for example, during more frequent power outages
- **Aid the grid when reliability is most threatened**, for example, during increasingly common extreme weather events
- **Increase affordability of electricity** by deferring or avoiding local distribution grid infrastructure upgrades
- **Fostering economic activity** for New York-based VGI companies and their employees.

As New York pursues its clean energy transition, it will be especially important to invest in resources that can provide emissions-free local generation capacity in densely populated areas like New York City. Meanwhile, if EV adoption proceeds as some have predicted, this could amount to distributed energy storage on the GW scale. Thus, EV's with VGI functionality are poised to serve in a critical role supporting grid reliability in load areas where new generation is hard to site (e.g., Zone J). However, this will only occur if VGI-capable EVs are adequately support through appropriate policies and programs. Through aggregation, the fleet of EVs can be

appropriately managed while providing certainty that some fraction of the fleet is available for critical reliability functions (and appropriately compensated for doing so).

To this end, VGIC recommends that the Commission consider adopting a VGI Portfolio framework that contains VGI elements that the Joint Utilities can implement in the near term (as part of the second half of the make-ready program). The portfolio should be flexible enough to grow and evolve as stakeholders develop new VGI approaches and insights about which strategies are most feasible, likely to deliver value, and cost-effective. This means that the VGI Portfolio should be updated regularly (*e.g.*, every two years or coordinated with the timeline of the make-ready program).

#### Potential Components of a VGI Portfolio

The VGI Portfolio should include a broad range of components that support different VGI uses cases, including utility-administered programs, rate options, and marketing, education, and outreach (ME&O) activities. Some potential components, which may overlap with existing offerings, are described below.

- **Dynamic Charging Rate Options:** This portfolio component would provide a catalog of all the dynamic EV rate options currently offered by a given utility and could also serve as a venue for newly proposed or modified dynamic EV rate options. Some of the dynamic EV rate options that the VGI Portfolio should include are briefly described below.
  - Commercial EV Rates: This should include increasingly dynamic rate options such as 1) more dynamic demand charges (*e.g.*, based on average daily demand), 2) enhanced time-of-use (TOU) rates that include steeper on/off-peak differentials and have peak windows updated regularly to reflect changes in wholesale market prices, and 3) optional real-time or real-time equivalent rates.
  - Residential EV Rates: This should be similar to the enhanced TOU and real-time rates described above for commercial EVs.

- V2G Export Bill Credits: This would provide a bill credit to EV customers who can export to the grid during peak times.
- **Managed Charging Programs**: This portfolio component would give customers incentives to manage their charging or allow a utility or third party to manage their EV charging. Examples include off-peak charging incentives, demand response, or active managed charging programs, including those contained in the Joint Utilities' September 26<sup>th</sup> Managed Charging Implementation Plan filings.<sup>3</sup>
- **Vehicle-to-Everything (V2X) Infrastructure Programs or Adders**: This portfolio component would offset costs of bidirectional charging equipment, including EV supply equipment (EVSE), panel upgrades, transfer switches, and other electrical equipment needed to support bidirectional charging infrastructure essential to unlocking V2G and V2B use cases.
- **Resiliency Programs**: This portfolio component is designed to reflect direct investments or customer rebates to unlock grid resiliency services, including backup power solutions via V2B or V2G, or V1G during grid emergencies (*e.g.*, rolling blackouts).
- **EV Energy Management System (EMS)/Automated Load Management (ALM) Tariff for Distribution Upgrade Deferral**: This portfolio component enables EV or EVSE customers to participate in approved ALM schemes that effectively reduce local demand and related distribution upgrade costs (including “make ready” investments). Customers could be incentivized to utilize ALM by a rebate or rate discount, which may

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<sup>3</sup> See Central Hudson Managed Charging Implementation Plan, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={347887F4-8AE9-43C7-B9FB-B833950FE73A}>; Con Edison Managed Charging Implementation Plan, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={D3DFFD80-F3C2-4A3F-9209-DE58FCCEA749}>; National Grid Managed Charging Implementation Plan, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={FDCEFDDB-CA5E-4826-B308-C3312CAF281E}>; Orange & Rockland Managed Charging Implementation Plan, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={75BF1D55-087C-4E4C-904C-CDAD2B8522A2}>; Rochester Gas & Electric and New York State Electric & Gas Managed Charging Implementation Plan, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={80B025E3-42DF-44E6-A9B1-D7765832E7A5}>

be a “revenue neutral” approach versus a traditional wires solution. Additional details about this component are discussed below.

- **Customer ME&O for VGI-related offerings:** This component addresses that VGI success is critically dependent upon customer education, participation, and value realization. The available rates, programs, and relevant equipment should be communicated clearly, early, and consistently to customers and vendors.
- **Administrative Support:** This component is meant to cover the costs of administering the overall VGI Portfolio.

### **Should battery energy storage systems be added as eligible equipment for the make-ready program?**

Yes. Not only should battery storage systems be considered eligible, but other Automated Load Management (ALM) solutions should also be added as eligible equipment for the make-ready program. VGIC considers ALM, also known as EV Energy Management Systems (EV EMS), to refer to the use of behind-the-meter software (e.g., power sharing) or hardware (e.g., integrated or co-located battery storage) approaches to limit EV charging demand at the service connection to a predetermined level below the aggregated charging capacity of the EVSE. For example, a charging site with five 10 kW Level 2 chargers can use ALM to limit its peak demand to 40 kW, compared to a peak demand of 50 kW without ALM. This can help avoid or defer the need to upgrade certain customer-side and utility-side make-ready infrastructure to accommodate the new charging load. The reduced need for infrastructure upgrades can generate savings for the customer installing EV charging and ratepayers at large. Additionally, ALM can be used to overcome physical space constraints in locations where it is difficult to upgrade electrical equipment. This can rapidly accelerate installation and energization timelines. As examples of potential cost savings, Pacific Gas & Electric has worked with EV service providers to implement EV EMS solutions at multi-unit dwellings and workplace host sites as of Q4 2020 and saved between \$30,000 and \$200,000 per project.<sup>4</sup> Southern California Edison also

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<sup>4</sup> Pacific Gas & Electric, Presentation at CPUC ALM/EV EMS Workshop, Panel 2 (2021).

implemented EV EMS to deploy 168 charging stations at \$3,000 per port, significantly less than comparable deployments at \$10,000-\$15,000 per port without EV EMS.<sup>5</sup>

Encouraging customers to choose ALM solutions voluntarily can be a powerful tool for streamlining and minimizing EVSE deployment costs. During the September 20<sup>th</sup> EV Make-Ready Program Midpoint Review Kick-Off workshop, the Joint Utilities highlighted that customers in New York are interested in ALM approaches that can reduce infrastructure costs. However, these technologies are not eligible under the existing make-ready program. For the program's second phase, the VGIC recommends that the Commission consider a shared cost savings model to encourage customers to adopt ALM solutions. Specifically, customers seeking rebates under the make-ready program should be eligible to receive an incremental incentive commensurate with the estimated load reduction and infrastructure cost savings (including both utility-side and customer-side cost savings) resulting from their ALM adoption. Importantly, customers should not be *required* to implement ALM solutions. Instead, customer education strategies and a “carrot” rather than a “stick” mechanism should be used to promote ALM. Furthermore, given that stakeholders in New York have not had the opportunity to explore and discuss ALM in detail, the Commission should convene a technical conference on ALM – or include ALM as part of a broader VGI working group meeting – before the release of the Staff Whitepaper. This convening should consider suitable ALM solutions, typical configurations, minimum technical requirements, ME&O strategies, and potential rebate/shared savings models.

### **Are there other forms of advanced technologies that should be considered for eligibility in the make-ready program?**

Bidirectional charging use cases can leverage the latest battery capacity in EVs to provide backup power to customers, manage customer bills, and support the grid through V2G exports.

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<sup>5</sup> EPIC Policy + Innovation Coordination Group, Transportation Electrification Workstream Report (2021)  
[https://epicpartnership.org/resources/Transportation\\_Electrification\\_Workstream\\_Report\\_Final.pdf](https://epicpartnership.org/resources/Transportation_Electrification_Workstream_Report_Final.pdf).



V2X systems can receive export compensation through the VDER tariff<sup>6</sup> and are commercially available across several customer segments.<sup>7</sup> At a minimum, V2X equipment should be eligible for the same BTM make-ready and charger rebates as V1G equipment. However, given the immense potential of V2X to support customer needs, bolster grid reliability, and lower system costs, VGIC believes it is reasonable to offer an incremental rebate to V2X customers to partially offset the incremental upfront costs of purchasing and installing V2X EVSE and the associated equipment. VGIC believes an incremental V2X rebate is critical to spurring the nascent bidirectional charging market in New York. VGIC offers itself as a resource and hopes to collaborate closely with stakeholders to determine the appropriate incentive level for bidirectional charging equipment.

In addition, while V2X solutions have demonstrated clear benefits to both customers and the grid, the technology is new and unfamiliar to most customers. To overcome this gap, VGIC recommends that the utilities' ME&O and technical assistance teams work to educate customers on the benefits of V2X use cases, capable chargers, vehicles and associated equipment, appropriate interconnection pathways, applicable rates and programs, and any technical considerations, including opportunities to co-locate and integrate other types of distributed

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<sup>6</sup> V2G systems have been included as energy storage systems in the VDER tariffs of Con Edison, National Grid, and Orange & Rockland.

<sup>7</sup> See, for example: Steve Hanley. Clean Technica. Nissan Using Vehicle to Grid Technology to Power US Operations. November 29, 2018. <https://cleantechnica.com/2018/11/29/nissan-using-vehicle-to-grid-technology-topower-us-operations/>; Roberto Baldwin. 2021 Mitsubishi Outlander PHEV Gets Bigger Motor and Battery at Same Price. Car and Driver. February 25, 2021. <https://www.caranddriver.com/news/a35605985/2021-mitsubishioutlander-plug-in-hybrid-upgrade/>; Nuvve Corporation. Blue Bird Delivers North America's First-Ever Commercial Application of Vehicle-to-Grid Technology in Electric School Bus Partnership with Nuvve and Illinois School Districts. March 23, 2021. <https://nuvve.com/blue-bird-v2g-electric-bus-with-nuvve-and-illinois-school-districts/>; Thomas Built Buses / Daimler Trucks North America LLC (2021). The Safe-T-Liner C2 Jouley Electric School Bus. <https://thomasbuiltbuses.com/school-buses/saf-t-liner-c2-jouley>; Lion Electric. Lion Electric Announces Successful Electric School Bus Vehicle-to-Grid Deployment with Con Edison in New York. December 14, 2020. [https://thelionelectric.com/img/medias/LION\\_Press\\_Release\\_White%20Plains%20EN%20FINAL.pdf](https://thelionelectric.com/img/medias/LION_Press_Release_White%20Plains%20EN%20FINAL.pdf); Nuvve Corporation (2020). Nuvve DC Heavy Duty Charging Station Specifications Sheet. <https://nuvve.com/wpcontent/uploads/2020/04/nuvve-dc-heavy-duty-spec-sheet-1.0.pdf>; Fermata Energy. Proven Results and Cost Savings with V2G Technology. October 14, 2020. <https://www.fermataenergy.com/news-press/proven-results-andcost-savings-with-v2g-technology>; Rhombus Energy Solutions. V2G Charging, Control, and Management 50- 500kW: Bidirectional. <https://rhombusenergysolutions.com/products>; Ford Motor Company. Ford Intelligent Backup Power. <https://www.ford.com/trucks/f150/f150-lightning/features/intelligent-backup-power/>



energy resources. Given the potential complexity of interconnecting large V2X sites, the utilities' technical assistance teams should – in a technology-neutral manner – actively support individual customers and fleets through the design and interconnection process and ensure a streamlined customer experience.

**Are there any topics that the Technical Standards Working Group should address that are not already delineated in the Make-Ready Order or have not been discussed in previous TSWG meetings?**

VGIC believes that the TSWG should continue to focus on enabling networked EVSE and vehicle telematics for submetering. As noted in VGIC's recent TSWG presentation and comments, submetering is critical for New York's transportation electrification efforts by mitigating the cost barriers of charging infrastructure installations and encouraging critical V2X use cases.<sup>8</sup> In addition to technical standards for submetering and telematics standards, another potential barrier for certain VGI solutions – specifically V2X solutions – is the process for utility interconnection and any required technical standards related to that process. VGIC has worked extensively on this issue in California and has also developed recommended best practices for addressing V2X interconnection.<sup>9</sup> Given the importance of this issue, VGIC believes that the Commission should also consider addressing it through the TSWG, or alternatively through the Interconnection Working Group. However, in addressing this issue, the Commission should be careful not to “reinvent the wheel” for V2X configurations that already have a viable pathway.

**What program modifications would improve the MHD Make-Ready pilot?**

Since the Commission approved the MHD Make-Ready Pilot, New York has adopted several policies related to the electrification of MHD vehicles. In December 2021, the

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<sup>8</sup> VGIC Technical Standards Working Group Presentation, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={B2962278-93A4-4D06-87E3-8ACEE9EACDF8}>.

<sup>9</sup> <https://www.vgicouncil.org/s/VGIC-Special-Initiative-2022.pdf>

Department of Environmental Conservation adopted California’s Advanced Clean Truck rule, setting zero-emission vehicle sales requirements for the MHD sector.<sup>10</sup> In April 2022, Governor Hochul signed legislation to require all new school bus purchases to be zero-emission by 2027 and all school buses on the road be zero-emission by 2035.<sup>11</sup> However, as the Joint Utilities highlighted during the Midpoint Review Kick-off workshop, few MHD fleets have been able to participate in the MHD Make-Ready pilot, mainly because customer-side make-ready costs are not eligible under the current pilot structure. Without changes to the MDH make-ready offering, the pace of MHD charging infrastructure deployment in New York will likely fall short of what is required to meet the state’s ambitious MHD electrification goals. MHD vehicles also account for an outsized share of local air pollution, which disproportionately affects disadvantaged communities, and electrifying these vehicles will result in significant equity benefits. VGIC urges the Commission to modify the incentive structure to include both utility-side and customer-side make-ready infrastructure, as well as expand the budget for MHD make-ready to be more comparable to the Light-Duty Make-Ready Program.

Moreover, VGI, especially V2X, are particularly important for MHD charging given the larger battery capacities in these vehicles and the higher power rating of the associated charging infrastructure. Electrifying the MHD sector would enhance opportunities to implement ALM, on-site renewables and DER integration, backup power and resilience use cases, and participation in DR programs, all of which will generate additional value for fleets as well as the grid as a whole. However, in VGIC’s experience, bidirectional charging equipment is often not considered through typical approaches to make-ready funding programs or screening metrics. As discussed above, make-ready incentives for MHD vehicles should be tailored so that they can cover ALM and V2X equipment.

### **Provide comments on the potential need for residential make-ready.**

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<sup>10</sup> <https://www.governor.ny.gov/news/governor-hochul-announces-adoption-regulation-transition-zero-emission-trucks>

<sup>11</sup> [https://legiscan.com/NY/text/S08006/id/2567276/New\\_York-2021-S08006-Amended.html](https://legiscan.com/NY/text/S08006/id/2567276/New_York-2021-S08006-Amended.html)



Residential charging sites have longer dwell times and therefore have greater potential for managed charging and/or discharging, thereby using the grid more efficiently and reducing costs for ratepayers. This also means that customers who charge at home will have more opportunities to lower their charging costs through managed charging compared to those who rely on public charging. As such, the Commission should consider extending make-ready incentives to residential customers for equipment that can facilitate VGI activities, benefiting both EV drivers and the grid.

## **Conclusion**

VGIC appreciates the opportunity to provide these comments and looks forward to working with the Commission, the joint utilities, and other stakeholders to ensure the success of New York's transportation electrification efforts.

Respectfully submitted,

Ed Burgess

A handwritten signature in black ink, appearing to read "Edward A. Burgess", is written over a light blue horizontal line.

Senior Policy Director

Vehicle-Grid Integration Council (VGIC)