Fermata Energy

BEFORE THE STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

IR 22-076

ELECTRIC DISTRIBUTION UTILITIES

Investigation of Whether Current Tariffs and Programs are Sufficient to Support Demand Response and Electric Vehicle Charging Programs

Fermata Energy Reply Comments

I. Introduction

Fermata Energy submitted Initial Comments in IR 22-076 on March 21, 2023.

Background: Fermata Energy is the nation's leading provider of commercially proven vehicle-to-everything (V2X) technology that enables vehicle-to-grid (V2G), vehicle-to-building (V2B), and vehicle-to-load (V2L) services, which we are operating at customer sites across the United States. We provide a complete V2X solution which includes charger options, a cloud-based software platform, system design, and a network of strategic partnerships to leverage electric vehicles (EVs) as a new and widespread type of mobile energy storage solution. As an equipment manufacturer and service provider, Fermata Energy is one of very few technology companies actively working to advance commercial implementation of V2G technology.

II. Reply Comments

Fermata Energy appreciates the New Hampshire Public Utilities Commission opening this investigative docket to evaluate whether current tariffs and programs are sufficient to support demand response and electric vehicle charging programs. As Fermata Energy and other parties stated in their Initial Comments, there are a number of areas where the PUC can significantly accelerate progress for Vehicle Grid Integration (VGI) throughout the state, while also supporting expanded access to clean transportation. While bidirectional charging technology and VGI might be wrongly characterized as a niche technology with limited potential to deliver grid and mobility benefits to NH ratepayers, it is important to note that many of the points that Fermata Energy proposed in our Initial Comments were echoed and supported by multiple parties.

To summarize, Fermata Energy is in alignment with other parties on the following specific recommendations:

1. **Agree with Conservation Law Foundation, Eversource, and Other Parties that Demand Response (DR) Programs, Such as Connected Solutions, Should Be Expanded Throughout NH.** Furthermore we agree with Eversource that DR program design should include both an upfront incentive and pay for performance compensation: *"Combining the upfront incentive with the ongoing pay-for-performance DR incentives clears market barriers for larger battery storage projects and enables the development of assets that can contribute to mitigation of demand peaks..Market barriers for projects like storage and even EV adoption can be ameliorated through DR incentives. In fact, as mentioned previously, a DR incentive program can make a C&I Program viable business case for installing a device that would not exist otherwise."*[1]
2. **Agree with Community Power Coalition of NH, VGIC, and Other Parties that Distributed Energy Resources (DERs) Need Access to Dynamic Pricing**. Fermata Energy concurs with Community Power Coalition of NH that DERs should have access to real time pricing to support automated load management, transactive energy rates, and demand response: *"Access to real time pricing, down to 5-minutes intervals, can provide the greatest value to demand response for all DERs capable of responding at such granular intervals, which could include a lot of vehicle-to-grid distributed and automated demand response in coming years."*[2]
3. **Agree with Several Parties that a Combination of Both VGI Rates and Programs are Needed to Support NH's Transportation Electrification Goals:** To leverage the full potential of VGI resources, particularly bidirectional charging technology, both VGI Rates and programs are needed. As VGIC stated in their Initial Comments: *"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."*[3] Eversource also notes that: *"Rate design can be used in conjunction with DR."*[4]
4. **Agree with Conservation Law Foundation and other parties that "To fully take advantage of demand response programs, New Hampshire customers need access to widespread advanced metering infrastructure ("AMI)."** Not only will expanded access to AMI support the growth of automated demand response programs and

[1] Eversource Initial Comments, pages 2-3.
[2] Community Power Coalition of New Hampshire Initial Comments, page 10.
[3] VGIC Initial Comments, page 3.
[4] Eversource Initial Comments, pages 3-4.

transactive energy rates, it will also enable VGI assets and VGI systems operators to optimize energy usage at the building level. Access to AMI can help V2G service providers to evaluate and analyze the revenue potential of behind-the-meter V2G services, such as demand charge management, and the potential to value stack behind-the-meter services with other VGI value streams.

5. **Agree that ratepayer funding for EV charging infrastructure and Make Ready is needed.** We agree with the Conservation Law Foundation that *"Because EV charging station development will result in significant benefits for New Hampshire's economy, there is justification for using ratepayer funding for EV charging infrastructure."*[5]
6. **Agree with the Conservation Law Foundation "The Commission should consider the potential for bring-your-own-device ("BYOD") technology to enable the adoption of demand response programs."**[6] We recommend the Commission to consider BYOD programs for commercial and residential customers, and to include VGI assets as eligible devices. BYOD programs can enable support of demand response and transactive energy schemes. Green Mountain Power's (GMP) successful BYOD program is a prime example of how a utility can successfully use customer-sited storage to lower its system-wide peak and deliver lower energy costs for customers (see GMP's Tesla Powerwall pilot program, launched in 2019) through demand response. In 2020, Fermata Energy deployed its FE-15 bidirectional charger at GMP's headquarters.[7] GMP's work with Fermata Energy built upon its existing storage pilot to explore the ability of Fermata Energy's V2X technology to provide cost-effective storage for system-wide peak shaving. As Green Mountain Power shared: *"This innovative V2G work builds on GMP's successful customer programs with batteries – like Tesla Powerwalls in customers' homes and utility scale power packs at solar sites. GMP turns to this growing network of stored energy during peak demand times on the grid to help lower costs for customers and carbon emissions."*[8] Fermata Energy's work demonstrates that V2G assets, as part of a BYOD program, can become an embedded part of a utility's DER management strategy using integrations such as the one Fermata Energy performed with Virtual Peaker.

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[5] Conservation Law Foundation, page 6.
[6] Conservation Law Foundation, page 5.
[7] Fermata installed its charger at Green Mountain Power's Colchester headquarters in October 2020. The project has been testing system-wide load management using Fermata's FE-15 bidirectional charger, a 2019 Nissan LEAF currently part of GMP's fleet of employee vehicles, and a software integration between Fermata and Virtual Peaker. GMP uses Virtual Peaker (VP) to perform system-wide peak shaving using Distributed Energy Resources (DER) like water heaters, home batteries, thermostats and EV chargers. GMP receives a system demand forecast and schedules peak shaving with assets controlled by Virtual Peaker's cloud service. Virtual Peaker's cloud communicates with Fermata's cloud to schedule V2G dispatch for the devices that Fermata controls.
[8] "GMP Saves Money for Customers with V2G," https://greenmountainpower.com/news/gmp-saves-money-for-customers-with-v2g/, December 3, 2020.

Initial Comments Show a Growing Recognition of the Potential of V2G Technology to Provide Grid Benefits for NH Ratepayers: While the Commission did not specifically ask about or mention V2G technology as a topic of consideration in its Order of Notice for IR 22-076, it is noteworthy that out of the ten parties that submitted initial comments, a total of five parties (Unitil, Community Power Coalition, VGIC, Conservation Law Foundation, Fermata Energy) specifically mentioned V2G as an emerging technology worthy of further consideration. The Conservation Law Foundation rightly notes that V2G technology can deliver many of the same grid services and resilience benefits that other DERs can: *"Discharging electricity back to the grid by way of V2G can actually be used to reduce overall peak load. Other benefits of V2G include avoiding distribution infrastructure upgrades, integrating renewable energy resources, reducing the cost of electric supply, and increased grid reliability and resilience."*[9] The Conservation Law Foundation concurs that *"Because of the numerous benefits to the grid and ratepayers from V2G, the Commission should further explore this technology and ways to incentivize its use."* [10] To properly incentivize V2X technology, the Commission must first investigate the current market, regulatory, and technical barriers impeding its scale adoption. Should the Commission be interested in exploring this technology and ways to further incentive its use, we would suggest an Investigative Docket consider the following questions:

- What long-term, visionary goals and commercialization policies, such as those for renewable power generation and energy storage, exist for VGI and V2G in the state?
- How could VGI access a level playing field, including access to utility and ISO-NE revenue streams available to stationary storage and payment schemes to adequately compensate for the value of V2X?
- How could the Commission address slow approval processes (e.g., interconnection and other utility approvals) for VGI?
- How could the Commision address higher incremental costs for purchase and installation of V2X bidirectional chargers that present a barrier to adoption for many consumers?

III. Conclusion

Fermata Energy appreciates the opportunity to provide these reply comments and looks forward to continuing to work with the Commission, staff, and other stakeholders to ensure the success of New Hampshire's transportation electrification efforts.

Respectfully Submitted,

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[9] Conservation Law Foundation Initial Comments, Page 7.
[10] Ibid

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