STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 23-_____-PET

Petition of Vermont Public Power Supply)
Authority for approval of a proposed EV/EVSE)
tariff rider program for its member utilities)

PREFILED TESTIMONY OF

SARAH E. BRAESE

ON BEHALF OF
VERMONT PUBLIC POWER SUPPLY AUTHORITY

October 16, 2023

Ms. Braese's testimony describes the program design and structure to support implementation of EV/EVSE rates for residential and commercial customers of VPPSA members and explains the features of the specific EVSE rates.

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Q1. Please state your name, position, and business address.

A1. My name is Sarah Elise Braese. I am the Assistant General Manager at the Vermont Public Power Supply Authority ("VPPSA"), 5195 Waterbury-Stowe Road, Waterbury Center, Vermont 05677.

Q2. Please provide a summary of your background and experience.

A2. My resume is attached as Exhibit VPPSA-BRAESE-01.

Q3. Have you previously testified before the Public Utility Commission ("PUC" or "Commission")?

A3. No. However, I have authored or co-authored and presented verbal/written positions before the PUC in several investigative, rulemaking and compliance proceedings including public workshops, where applicable[1].

[1] Case No. 17-4999-INV Investigation into PUC Rule 3.300, 3.200, and 3.400; Case No. 19-0855-RULE Proposed revisions to

Q4. What is the purpose of your testimony?

A4. My testimony describes VPPSA's standardized approach and strategy on behalf of its Members to comply with Act 55's electric vehicle/electric vehicle supply equipment ("EV/EVSE") rate requirements while simultaneously expanding customer access to innovative energy service programs and utilizing emerging technologies to sustain future growth. My testimony describes the current landscape around EV/EVSE load management, inherent challenges to meeting Act 55's regulatory requirements under traditional market models, core principles guiding VPPSA's proposed EV/EVSE Tariff Rider solution, and how VPPSA envisions the proposed rate structure will remain revenue neutral with respect to other retail customers and/or customer classes that do not receive service under the proposed EVSE Tariff Rider(s).

In an attempt to preserve internal and regulatory staff resources, VPPSA has initiated this proceeding utilizing a standardized template for the proposed tariff(s) that it intends to apply across each of its eleven (11) municipal member utilities. Copies of the proposed residential and commercial/industrial tariffs are provided as Exhibit VPPSA-Braese-02 and Exhibit VPPSA-Braese-03, respectively.

Q5. Please describe the key features of the overall EV/EVSE Tariff Rider program that supports implementation of the proposed EV rates.

A5. The key features of VPPSA's proposed EV/EVSE Tariff Rider program are to deliver service under a dynamic, market-informed, EV/EVSE tariff rider that measures and bills incremental loads through an hourly, formula-based cost component rate structure.

Vermont Public Utility Commission Rule 5.100; Case No. 19-0856-RULE Proposed revisions to Vermont Public Utility Commission Rule 5.500; Case No. 20-0203-INV State-wide Low-Income Rate Investigation; 21-0861-INV; Case No. 22-4869-INV PUC 2022 Investigation into EV Rates; Case No. 22-1647-PET PSD Petition to review EEU Orders of Appointments and Process and Administration Document; Case No. 22-2954-PET PSD Petition to initiate EEU Demand Resource Plan proceeding for the 2024-2026 and 2027-2029 performance periods; Case No. 22-4421-INV 2023 Renewable Energy Standard Tier III Annual Plans; Case No. 23-1364-INV PUC 2023 Investigation into EV/EVSE Rates; Case No. 23-0773-INV 2022 Renewable Energy Standard Compliance; Case No. 23-0834-INV '22-'23 Winter Performance of Vermont Utilities; Case No. 23-2220-RULE Proceeding to Design Potential Clean Heat Standard; Case No. 23-2221-INV Potential Clean Heat Standard Default Delivery Agent

Enrollment and EV/EVSE load usage are managed and reported through deployment of cloud-based technology solutions, specifically, deploying an OpenADR compliant Platform as a Service (PaaS) solution. Though currently in negotiations, the PaaS developer has already deployed similar programs and facilitates bidirectional communication pathways between the PaaS and the customer's device or authorized aggregator.

Q6. Please describe existing EV/EVSE load management programs or solutions, including any restrictions those solutions may impose on VPPSA members' deployment.

A6. During our internal research concerning potential solutions, VPPSA has upheld four guiding principles in evaluating and developing a strategy that is suitable for its members and the customers they serve: Affordability (Short & Long-Term); Sustainability & Growth; Local Energy Democracy; and Strategic Standardization. VPPSA has focused on exploring more flexible, emerging market technology solutions that are capable of meeting current (EV/EVSE) and future load management and/or energy service program needs (including but not limited to energy storage, heat pumps, or any other devices that can be optimized to reduce overall system impacts and costs), while combining the ability to provide an EV/EVSE rate and also enhance load management capabilities..

Our market research found that traditional markets and program solutions are: (1) Device dependent; (2) Require costly annual license subscriptions including additional per device cost structures; (3) Value-Share is restricted to pre-determined parties (e.g., the utility, the SaaS provider, etc.,) (4) Core functionality is Direct Command and Control and Energy Arbitrage; (5) Built on existing technology infrastructures and technology stacks (AMI, SCADA, OMS, Billing/CIS, 3rd Party License Agreements, etc.); and (6) Core motivation is ownership rights to data and usage (a symptom of direct command and control). Not only are traditional market structures exceedingly expensive to deploy in smaller utility service territories, the absence of advanced technology infrastructures or reliable access to Wi-Fi or internet creates a significant barrier to enter those markets without first making incredibly costly investments into core utility systems. Further, VPPSA members are grounded in local energy democracy, and the entire precept to commanding and controlling every device in a

customer's home or business is incongruous with supporting customer choice and access to fair and equitable service.

Q7. How does VPPSA's proposed EV/EVSE Tariff Rider program differ from traditional market strategies or programs?

A7. There are several elements of VPPSA's proposed EV/EVSE Tariff Rider program that deviate from traditional load management market strategies and programs. As previously discussed, traditional load management solutions are structured around integrating with existing core utility technology stacks. VPPSA member utilities are uniquely positioned to affordably leverage emerging market technology solutions while not undermining legacy investments in IT or OT solutions. As one element of its Strategic Technology Roadmap Initiative[2], VPPSA members have a unique opportunity to leapfrog traditional stages of investment and create an alternative path utilizing grid edge solutions that ensure sustainable growth and expansion well into the future, such as:

(1) Device Agnostic: The deliberate decisions to prioritize customer choice around device manufacturers created a structural requirement as it relates to the technology solution(s) necessary for successful implementation.

(2) Open-Source Data Standardization: The use of standardized, open-source, communication protocols through OpenADR eliminates many of the barriers-of-entry that traditional markets impose on manufacturer participation and ultimately customer choice.

(3) Platform as a Service (PaaS): Licensing and development costs for a PaaS are generally incurred during development, and require nominal annual maintenance fees, allowing future growth and expansion while simultaneously facilitating bidirectional communication mechanisms through the standard protocols. This dedication to diversity and accessibility encourages broad adoption and customer enrollment.

(4) Shared Data Rights & Usage: Bidirectional communication pathways built within the platform establish an environment where rights to data, usage, and market value can be

[2] VPPSA's Technology Leapfrog Strategy and PaaS solution is an example of a leapfrog development approach, which seeks to bypass traditional stages of development and jump directly to the latest technologies or create alternative paths of technological development with new benefits and opportunities.

openly shared across parties, including but not limited to customers, device manufacturers, and even electric vehicle OEMs through use of EV Telematics data.

(5) Dynamic, Market-Informed, Formula-Based Cost Components: The ability to design and develop dynamic – not static – rate structures offered to eligible customers through market-informed, formula-based energy cost components prevents cross subsidization by non-participating customers and preserves underlying rates.

Q8. How does VPPSA's proposed EV/EVSE Tariff Rider achieve Act 55's requirements under Section 33(c)?

A8. As previously addressed, VPPSA's proposed EV/EVSE Tariff Rider meets or exceeds Act 55's Approval Requirements under Section 33(c) as described below:

(A) support greater adoption of PEVs;

VPPSA's proposed EV/EVSE Tariff Rider Program eliminates utility-defined or prescribed device manufacturer requirements and creates tangible shared market value for participants.

(B) adequately compensate PEV operators and owners of EVSE available to the public for the value of grid-related services, including costs avoided through peak management;

Described in greater detail below, the formula-based cost-components are predominately based on market energy, transmission and capacity costs which are driven by market forces outside of the distribution system's control and are key cost drivers for system upgrades and upward rate pressure(s). Customers shall have the opportunity to avoid charging during expensive peak periods and take advantage of more economic prices provided by the markets.

(C) adequately compensate the electric distribution utility and its customers for the additional costs that are directly attributable to the delivery of electricity through a PEV rate;

One of the core formula-based cost-components of the EV/EVSE Tariff Rider Program includes market-based incremental, a slice of embedded historic, and

program costs required to deliver electric service to customers receiving service under the Rider, while still preserving existing underlying rate structures for existing load.

(D) include a reasonable contribution to historic or embedded costs required to meet the overall cost of service;

As noted above, the core formula-based cost-components of the EV/EVSE Tariff Rider Program includes market-based incremental, a slice of embedded historic, and program costs required to deliver electric service to customers receiving service under the Rider, while still preserving existing underlying rate structures for existing load

(E) do not discourage EVSE available to the public; and

VPPSA's EV/EVSE Tariff Rider program is designed to provide equitable access and encouragement to all EVSE drivers, including public charging stations. Further, this structure will enable more sophisticated development and deployment of electric vehicle fleets by establishing a level of standardization across all VPPSA member service territories.

(F) do not have an adverse impact to ratepayers not utilizing the PEV rate.

VPPSA's EV/EVSE Tariff Rider program prevents adverse impacts on non-participating ratepayers by isolating, measuring, and billing the incremental usage independent of embedded system costs for base rate class service delivery.

Q9. Please describe the structure of the proposed Residential Electric Vehicle Rider.

A9. The Residential EV Rate is structured as a rider to the base residential rate that will be specifically applicable to incremental Electrical Vehicle (EV) load at market informed incremental rates. There are multiple reasons for implementing the EV rate as a rider using incremental rates. This approach allows the responsibility for incremental costs associated with EV charging to be assigned to those causing the cost. Applying incremental, time differentiated rates based largely on marginal costs observed in the markets provides a

strong load management signal to customers. In addition, because market based incremental costs will be consistent across members, VPPSA believes that the proposed EV rate can be replicated consistently across members greatly reducing implementation and administrative burden. Due to its incremental, market-based cost nature, the Residential EV Rate will be easily replicated for other rate classes with minor adjustments.

Q10. Please explain the eligibility requirements for the Residential EV Rate.

A10. Customers wishing to take EV charging service under the Residential Electric Vehicle Rider are subject to all terms and conditions of the distribution utility's rate schedules, unless otherwise specified in the Residential Electric Vehicle Rider. Customers are required to enroll, providing certain account information prior to commencing service. The customer's EVSE, EV Telemetry, or Authorized Entity must measure, record, and transfer interval (hourly) usage data to the distribution utility's Authorized Service Provider under the OpenADR 2.0a, 2.0b or 3.0 Data Standards, demonstrating bidirectional communication capabilities to send and receive real time data transfers, including interval usage data and hourly price signals. Reliance on OpenADR Data Standards provides flexibility with respect to metering requirements not available through traditional utility metering.

Q11. Please describe how the day ahead pricing and billing information is presented to the customer.

A11. The Residential EV Rate will provide for market informed, hourly pricing on a day ahead basis for EV charging load. Day head pricing information will be automatically communicated directly to the enrolled customer on a pre-determined, regular schedule to facilitate optimized charging. Current and historic pricing information will be publicly available. For billing purposes, the monthly incremental EV/EVSE kWh energy usage and total amount due for that usage will be separately identified on the customer's utility account bill.

Q12. Please describe the cost components of the shape of the market informed, day ahead pricing structure.

A12. The pricing structure is an hourly, day ahead rate that relies on four main components. The starting point for the rate is the 24-hour set of Day Ahead LMP's (DALMP) determined and published by ISO-NE each day. Using the ISO-NE day ahead dispatch prices ensures that every day the Residential EV rate reflects current conditions in the New England energy markets, providing hourly price signals to guide consumer choices. Hourly per kWh adders reflecting peak market transmission and capacity costs, program delivery costs and a modest contribution to fixed costs reflecting a limited "slice" of embedded distribution O&M and A&G costs are overlaid on the day ahead energy prices. In particular, the adders related to peak transmission and capacity will be relatively more static, changing only as needed, and will be concentrated in the range of hours typically containing monthly transmission and annual capacity peaks. Other embedded costs making up the contribution to fixed costs will be spread more broadly across all hours. The "shape" of the resulting pricing profile for each day will reflect a combination of the most recent conditions in the energy market and provide a strong incentive for consumers to choose to manage their EV charging load away from peak hours. Due to unknown variables still under analysis, VPPSA is currently refining the non-energy aspects of the hourly pricing and expects to finalize the initial pricing profile as soon as feasible, during this Petition's approval process.

Q13. Please discuss the timeline for implementation and any implementation risks that are foreseen.

A13. The planned timeline is for the bi-directional communication platform to be available for testing by end of Q1 2024 and full implementation no later than June 30, 2024. Negotiation of contracts with the technology solution provider are currently underway; while the technology underlying the communication platform has been proven in use in nearby states, using a similar approach to that proposed in this filing, there is always the potential for unexpected complications. Further, although VPPSA plans to centralize data management

associated with members' EV/EVSE rate implementation, integration of billing data into individual members billing systems may require some software customization. At this time VPSPA does not anticipate any significant delays but will monitor individual member's progress closely.

Q14. Please summarize your testimony.

A14. In summary, my testimony has described VPPSA's standardized approach and strategy to comply with Act 55's electric vehicle/electric vehicle supply equipment ("EV/EVSE") rate requirements while simultaneously expanding customer access to innovative energy service programs and utilizing emerging technologies to sustain future growth. My testimony describes the current landscape around EV/EVSE load management, inherent challenges to meeting Act 55's regulatory requirements under traditional market models, core principles guiding VPPSA's proposed EV/EVSE Tariff Rider solution, and how VPPSA envisions the proposed rate structure will remain revenue neutral with respect to other retail customers and/or customer classes that do not receive service under the proposed EVSE Tariff Rider(s).

VPPSA member utilities are uniquely positioned to affordably leverage emerging market technology solutions while not undermining legacy investments in IT or OT solutions. VPPSA Leapfrog Strategy is a plan to help VPPSA and its members to adopt new technologies and innovations in the electric utility sector. The plan aims to enable VPPSA members to "lead and leapfrog" the industry by providing reliable, affordable, and sustainable power to their customers and "leapfrog" traditional stages of investment that create an alternative path utilizing grid edge solutions and support members' core guiding principles. VPPSA members intend to use this opportunity to launch one element of a much larger scope of leapfrog development. While this Tariff Rider structure depends heavily on the technology platform (PaaS), and vice versa, through use of open-source data standardization (widely adopted and accepted across the growing flexible load management industry and environment) and shared data rights and usage (data sharing initiated by and through the customer or its authorized representative) the structure should work.

Q14. Does this conclude your testimony?

A14. Yes, this concludes my pre-filed testimony.

EXHIBIT LIST

Exhibit VPPSA-Braese-01	Braese Resume
Exhibit VPPSA-Braese-02	Proposed EV/EVSE Rider [RES] Template
Exhibit VPPSA-Braese-03	Proposed EV/EVSE Rider [C&I] Template