Maine Public Utilities Commission

Report Regarding Rates to Support Electric Vehicle Charging

Pursuant to An Act To Facilitate Maine's Climate Goals by Encouraging Use of Electric Vehicles

P.L 2021, ch. 402

Presented to the Joint Standing Committee on Energy, Utilities and Technology

February 10, 2022

I. Background

During the First Special Session of the 130th Legislature, the Legislature enacted An Act To Facilitate Maine's Climate Goals by Encouraging Use of Electric Vehicles (Act).[1] Section 4 of the Act directs the Maine Public Utilities Commission (Commission) to open an inquiry to review "alternative rate structures to support electric vehicle charging stations for nonresidential applications, including, but not limited to, for light duty vehicles, medium duty vehicles, heavy duty vehicles and transit and other fleet vehicles."

The Act requires the Commission to obtain alternative rate proposals from Maine's transmission and distribution utilities. Specifically, subsection 4(1) of the Act provides:

> 1. As part of the inquiry, the Commission shall direct each transmission and distribution utility in the State to develop and submit by November 1, 2021 one or more proposed rate schedules to support the installation and sustainable operation of existing and new electric vehicle charging stations and shall accept public comment on such rate schedules, including any proposals for such rate schedules, both in advance of and during its review of the proposed rate schedules submitted by each utility. A rate schedule proposed by a transmission and distribution utility must:
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> > A. Be designed to support electric vehicle charging and align with and support relevant strategies of the State's climate action plan adopted and updated under the Maine Revised Statutes, Title 38, section 577 and to help achieve the State's greenhouse gas emissions reduction levels under Title 38, section 576-A; and
> >
> > B. Include an evaluation of the relative direct and indirect costs and benefits associated with each proposed rate and must account for varying scenarios of electric vehicle adoption and usage.

The Act further requires the Commission to review the rate proposals and any comments on them it receives and evaluate the costs and benefits of alternative rate structures and develop recommendations "regarding the establishment of alternative rate structures to support electric vehicle charging stations for nonresidential applications." In doing so, the Act directs the Commission to consider clean transportation recommendations found in the State's climate action plan as well as reports or recommendations on clean transportation plans or electric vehicle infrastructure or use issued by state departments or agencies, as well as "the results of any completed or ongoing pilot programs in the State related to electric vehicle charging." The Commission is directed to submit this report regarding its findings from the inquiry, including any recommendations or proposed legislation concerning the establishment of alternative rate structures for these purposes.

[1] PL 2021, c. 402

The Commission hereby submits this report to the Joint Standing Committee on Energy, Utilities and Technology. The report provides background and context regarding transmission and distribution (T&D) utility rate design principles as well as a summary of State policies, plans, reports, and recommendations related to clean transportation and electric vehicle (EV) infrastructure and charging. In addition, the report provides a short description of EV charger "levels" and usage profiles, and a summary of pending Commission proceedings involving EV programs and rate structures. Finally, as directed by the Act, this report provides the Commission's recommendations with respect to establishing rate structures to support EV charging for non-residential applications.[2]

In summary, the Commission's recommends that EV rates be designed in accordance with the following principles:

- Rates should reasonably reflect the underlying cost of T&D service applicable to EV charger usage;
- Rates should reasonably reflect and accommodate differences in EV charger demand requirements and typical customer usage patterns;
- Utility terms and conditions (T&C) for "make ready" or other EV installation measures and investments should track T&C for similar system expansions and/or customer-sited installations pending the outcome of ongoing EV Pilot programs and consideration of the availability of federal or other funding sources;
- Customer education, targeted funding, or other EV-related subsidy programs should be provided through the Efficiency Maine Trust (EMT);
- EV rates should be designed consistent with (i) long-term policies and goals for electrification; (ii) efficient use of the T&D system; and (ii) existing and developing EV-related technologies.

II. Relevant Statutory Provisions; State Policies; Activities of Other State Departments or Agencies

Title 38 M.R.S. § 576-A contains the State's emission reduction goals. Carbon emissions are to be reduced 45% below 1990 levels by January 1, 2030 and 80% below 1990 levels by January 1, 2050. In Title 35-A, one purpose guiding the Commission is to "reduce greenhouse gas emissions to meet the greenhouse gas emissions reduction levels" in this statute.[3] Section 103-A directs the Commission to facilitate achievement of these goals.[4]

To meet the State's goals, reduction of emissions in the transportation sector plays a large role. The Department of Environmental Protection's (DEP) Eighth Biennial

[2] Although not required by the Act, this report also references residential EV applications.
[3] See 35-A MRS § 101
[4] See 35-A MRS § 103-A

Report on Progress toward Greenhouse Gas Reduction Goals[5] demonstrates that in 2017, 54% of Maine's emissions of greenhouse gases (GHGs) came from the transportation sector. Strategy A of Maine's Climate Action Plan *Maine Won't Wait*[6] aims to accelerate the transition to EVs in the state, estimating that Maine should have 219,000 light-duty EVs on the road by 2030 to be on track to meet the goals.

Several state agencies are working together to advance this policy. The Governor's Office of Policy Innovation and the Future and Governor's Energy Office, in concert with the Maine Department of Transportation (MDOT), the DEP, and the Efficiency Maine Trust (EMT or the Trust, a quasi-state agency), issued a Clean Transportation Roadmap[7] (Roadmap) on December 15, 2021. The Roadmap identifies various options for meeting the climate action plan including further incentives to support EV purchasing and expanded EV charging. Since 2019, the number of registered electric and plug-in hybrid vehicles in Maine has increased by more than 90 percent and the number of public EV charging stations has increased by 62 percent. The Maine Jobs & Recovery Plan and the federal Infrastructure Investment and Jobs Act are expected to provide federal funds for more charging stations in the coming years.

Providing emphasis for the importance of developing a charging infrastructure for non-residential vehicles, the Roadmap states that medium- and heavy-duty vehicles produce approximately 27% of the transportation sector emissions, second only to light-duty cars and trucks (60%). The Roadmap states that the ability to increase the deployment of charging stations was among constraints to the growth of EV use in Maine.

A consultant hired to assist with preparation of the Roadmap made several program recommendations for expanding the EV charging network, including expanding the availability of public Level 3 charging stations, providing for access to EV charging for residents of apartment complexes, and EV-ready building codes. The Roadmap suggests that providing relief from utility demand charges in the cost of charging would promote the use of public EV charging.

The MDOT's Public Transit Advisory Council 2021 Biennial Report notes that EV charging infrastructure was to be delivered in 2021 to the Biddeford, Saco and Old Orchard Beach Transit and the Greater Portland Transit District. The MDOT plans to purchase EVs for 50% of its light-duty fleet by 2025 and 100% by 2030. The goals for the medium- and heavy-duty fleet remain a work in progress.

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[5] See, http://www.maine.gov/tools/whatsnew/attach.php?id=1933469&an=1
[6] See, https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf
[7] https://www.maine.gov/future/initiatives/climate/cleantransportation

The Department of Education is currently seeking competitive grants for EV school buses and is working with school districts so that EV charging stations are included in new school construction projects.

The Commission has considered these policies and matters in forming the conclusions presented in this report.

III. EV Charger Summary Information: Charger Levels; Usage Patterns; Business Models

As shown in Figure 1, different categories of EV chargers vary in electricity demand levels and usage requirements. The differences range from chargers with relatively high kW demand levels that require relatively short charge times to chargers with relatively low kW demand levels that require long charge times.

FIGURE 1 -- TYPES OF ELECTRIC VEHICLE CHARGING EQUIPMENT

	Level 1 (110V AC)	**Level 2** (220V AC)	**Level 3** (480V DC Fast Charger)	**XFC** (800+V DC Extreme Fast Charger)
Typical Application	Residential/ workplace	Residential/ workplace (most home & public chargers are Level 2) (a)	For rapid charging along heavy traffic corridors	An emerging technology for extremely fast charging.
Typical Cost for Equpment & Installation	$300 -$4,500 (charger typically included with EV purchase or lease) (a)	$1,000 - $19,000 (networking often increases costs) (a)	$15,000 - $91,000 (a)	N/A
Time to Charge for 200 miles	2,143 minutes (36 hours) (b)	417 minutes (7 hours) (b)	20 - 60 minutes (0.33 - 1.0 hours) (a)(b)	7.5 minutes (0.1 hours) (b)
Demand (kW)	1.4 (b)	7.2 (b)	50 - 150 (a)	400 (b)
Energy (kWh)	50	50	50	50

Sources:

(a) - https://www.efficiencymaine.com/at-work/electric-vehicle-charging/

(b) - United States Department of Energy, Office of Energy Efficiency & Renewable Energy, "Enabling Fast Charging, A Technology Gas Assessment", October 2017
https://www.energy.gov/sites/prod/files/2017/10/f38/XFC%20Technology%20Gap%20Assessment%20Report_FINAL_10202017.pdf

These usage levels and patterns are important factors to consider when designing rates for EV charging since they can be indicative of how EV charging can affect the underlying costs of providing T&D service and, as such, can inform how to design rates that reasonably reflect these costs. For example, a charger that would impose a high peak demand on the system for a short period of time, e.g., one hour or

less, might indicate that a demand (kW) charge-based rate structure would be more appropriate than an energy (kWh) charge-based structure. Additionally, given the goal of the Act is to "encourage" and "support" the use of electric vehicles in Maine, differences in expected usage patterns by customers in various sectors, e.g., residential vs. public transit, may also be important practical considerations to ensure that the rates reasonably accommodate and enable customers to efficiently charge such vehicles.

As discussed below, the rate design proposals under consideration in pending Commission proceedings include options designed for Level 1, 2 and 3 chargers, as well as for residential and non-residential customers, including public and school transit fleets.

IV. Existing EV Programs in Maine

A. EV Pilots

In 2019, pursuant to An Act to Support Electrification of Certain Technologies for the Benefit of Maine Consumers and Utility Systems and the Environment (P.L. 2019 Ch. 365, Section 5), the Commission initiated a proceeding to solicit proposals and implement pilots for "beneficial electrification in the transportation sector."[8] On February 25, 2020, the Commission issued an order approving three proposals for pilot programs – two from Central Maine Power Company (CMP) and one from EMT. The CMP programs included one through which CMP would provide support for Level 2 charger installation, or "make-ready" work (Make Ready Pilot) and another that provided a new, two-part demand rate designed for Level 3 "fast chargers" (Rate B-DCFC).[9] Under the EMT program, customers would receive rebates for costs associated with installing Level 2 chargers and EMT would produce some educational materials on EVs for consumers. The EMT rebates would be funded by three sources - electric ratepayers, VW settlement funds,[10] and private matching funds from participants. In approving both the CMP "Make Ready" and EMT rebate programs, the Commission noted that the pilots would provide a comparison between the approaches.

In July and November of 2021, CMP and EMT provided status reports regarding their EV pilot programs. With respect to its Rate B-DCFC pilot, CMP noted in its July

[8] Docket 2019-00217

[9] The DCFC rate is comprised of a two-part demand charge - a non-coincident peak demand charge ("NCP") and a coincident peak ("CP) demand charge. The rate is designed to reflect the underlying cost of T&D service, while also providing potential cost savings to customers that manage their charging usage in response to the price signals it provides. To evaluate the pilot, CMP would conduct a bill impact analysis to assess the delivery cost savings under the new rate versus what would otherwise have been incurred.

[10] In 2016 and 2017, the U.S. District Court in Northern California approved consent decrees between Volkswagen and Audi (collectively VW) and the U.S. Environmental Protection Agency (EPA), California, and the Federal Trade Commission to settle allegations of installing defeat devices on 2.0 and 3.0 liter diesel vehicles sold or leased in the United States. A portion of the settlement money was provided to states to be used to reduce vehicle pollution, such as by installing public EV charging stations.

2021 update that, as of that time, there were three customers eligible for the rate, with two electing to take advantage of it. Based on the data available, CMP was able to report results for only one of those customers, which indicated delivery rate savings of about 46%, which CMP noted was in line with the savings it had estimated.

CMP engaged several companies to solicit feedback on the rate design pilot including Tesla and ChargePoint. Tesla indicated support for the rate design noting that "predicting when the coincident peak will occur for a charging station is easier than predicting when a station's non-coincident peak will occur." ChargePoint, a participant in the CMP rate pilot, noted its interest in learning more about operating a station under this rate structure. Electrify America perceives a higher level of uncertainty related to the occurrence of the coincident peak but will continue to monitor.[11]

B. Other Activity and Programs in Maine

1. Efficiency Maine Trust

A number of Level 2 and Level 3 EV charging stations are now in service or under development throughout the State.[12] These reflect projects developed with funding provided through one or more EMT-run programs as well as projects supported by private sector funds.

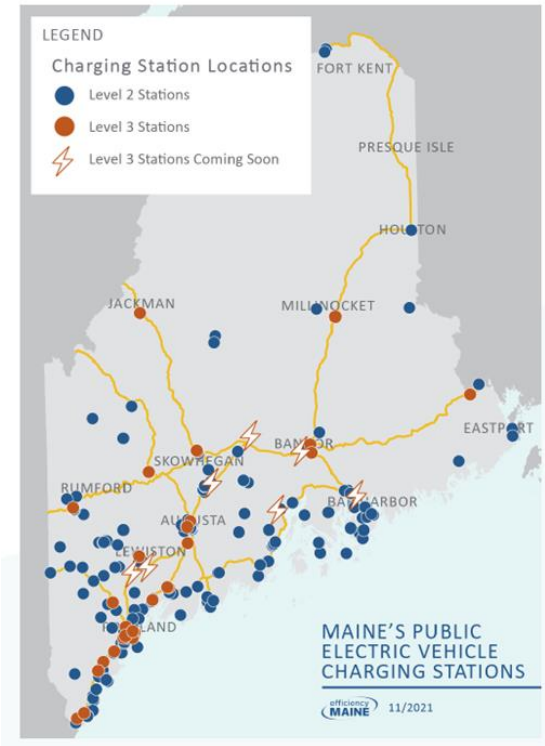


Figure 2: Charging Station Locator

[11] Finally, in August of 2021, CMP modified the language of its Tariff to clarify that new Level 2 charging arrays are also eligible to participate. The Company anticipated evolving market situations where a sufficient number of Level 2 charging stations behind a single meter could become a demand billing customer.

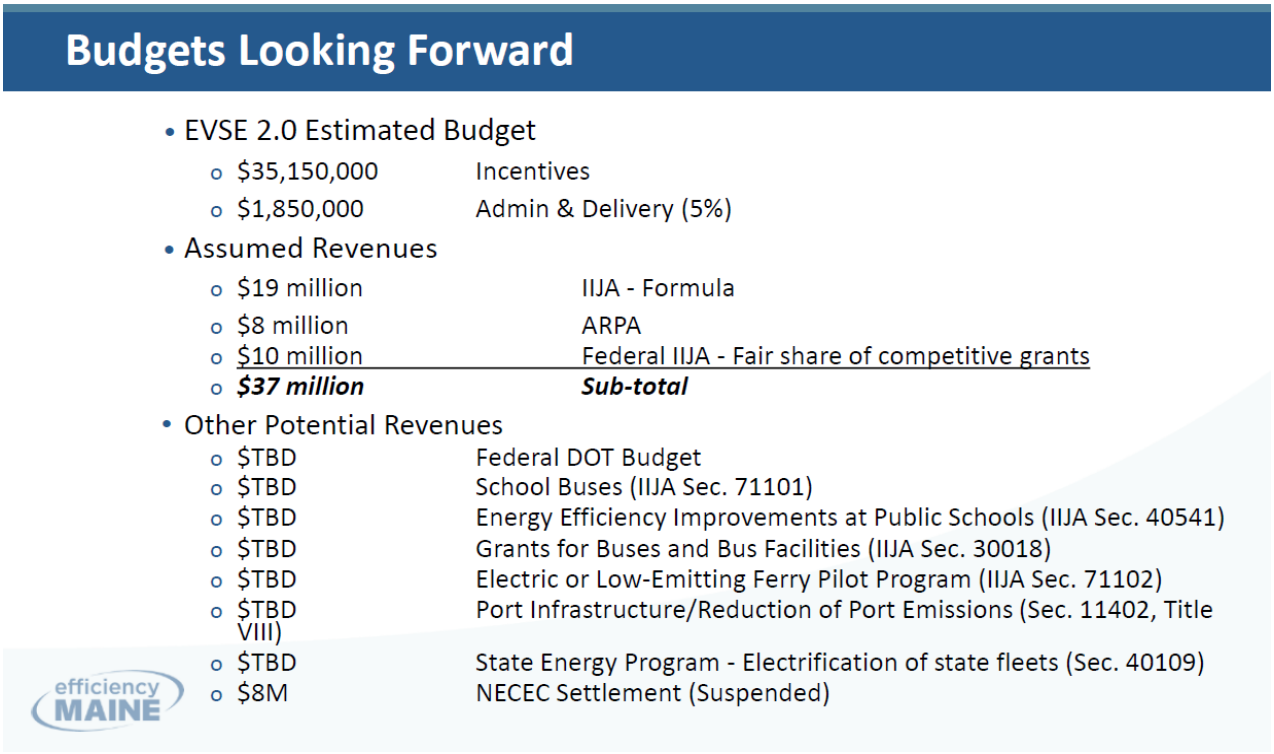
[12] Source: Efficiency Maine 01/2/2022 presentation to the Commission.

a. Efficiency Maine Trust Programs

In addition to the pilot described above, EMT has administered several programs to facilitate transition of the transportation sector to EVs. To date, funding for the EV initiatives have been from the VW settlement funds and the above-described pilot program. As part of its upcoming triennial plan (Triennial Plan V), EMT includes additional EV program investments.

In addition, according to EMT, more than $37 million in federal or other external funding sources is likely to be available in the near term to support EV charger deployment and use in Maine over the next few years. Detail about the funding sources is shown in Figure 3 below. The availability of this funding suggests that there may be little, if any, need to additionally subsidize EV charging through electric rates.

Figure 3: Efficiency Maine Trust EV Budgets[13]



[13] Source: Efficiency Maine 01/21/2022 presentation to the Commission.

EMT's focus on EVs and on helping Maine reach its target of 220,000 light duty EVs registered in Maine by 2030 (the target established by the Maine Climate Council) is reflected in EMT's Triennial Plan V for Fiscal Years 2023-2025. Figure 4 below compares the *Maine Won't Wait* goals to the EMT Triennial Plan V targets:

Figure 4[14]

Total NEW Plugs Needed 2021-2025	Public L2	DCFC
Maine Won't Wait	1,546	504
ACCII	1,072	357
AEO 2021 Ref Case	182	83
EMT TriPlan V	1,285-1,655	187-327

Appendix N to the Triennial Plan V, "Electric Vehicle Initiatives – Targets and Priorities for Future Funding Sources" provides additional details on the Trust's targets, plans, and accomplishments to date.[15] In the Plan, the Trust has proposed two scenarios for reaching the statewide target by 2025.

- **Scenario 1** is characterized by gradual growth each year from FY2022 to FY2025, resulting in a cumulative total of 25,000 EVs registered in Maine by the end of Triennial Plan V.
- **Scenario 2** is characterized by a doubling of growth each year from FY2022 to FY2025, resulting in a cumulative total of 42,750 EVs registered in Maine by the end of Triennial Plan V.

The Trust applies these targets to light duty vehicles only and not to medium or heavy duty vehicles given that light duty vehicles "constitute 91 percent of the vehicle miles traveled in the state and are responsible for the overwhelming majority of greenhouse gas emissions."[16] Moreover, the Trust points out that focusing heavily on medium and/or heavy duty vehicles at this time does not make sense given that the EV technology for those vehicles has not yet reached the same level of performance and reliability as light duty EVs (particularly in cold climates) and that the cost of medium, and heavy duty EVs is much higher than light duty EVs.[17]

[14] Source: Efficiency Maine 01/21/2022 presentation to the Commission.
[15] https://www.efficiencymaine.com/triennial-plan-v/
[16] Triennial Plan, Appendix N at 2, citing Maine Department of Environmental Protection, Bureau of Air Quality, Mobile Sources Section, personal communication with modeling personnel, February 24, 2020.
[17] *Id.* at 8.

However, with respect to medium and heavy duty vehicles (or marine EVs), the Trust explains that funding permitting, it would develop a pilot program to focus on transit buses, school buses, and medium (also known as Class 6, single unit, or straight) trucks that may include financial incentives to purchase vehicles and establish charging stations. The Trust preliminarily estimates that such a pilot would cost approximately $7.84 million.

2. Local Initiatives

Finally, several municipalities and school districts in Maine have taken steps related to the use of EVs. A sample and summary of these is provided below:

Portland

- Based on its webpage, updated on September 3, 2021, Portland has installed four Level 1 and nine Level 2 chargers in various public spaces. The city is currently planning more Level 2 and 3 chargers. Some businesses have installed chargers as well (only one Level 3 DC charger is mentioned on the website along with 8 Tesla Superchargers). Electric Vehicle Charging Stations | Portland, ME (portlandmaine.gov)
- Users of Portland's public charging stations must have an account set up with ChargePoint. The cost to use these stations is 15 cents/kWh during the charging session. Ten minutes after the charge is complete, customers are assessed 25 cent/minute fee to incentivize drivers to move their vehicles. Electric Vehicle Fees (portlandmaine.gov)
- Additional information about the EV charging in Portland is provided here: https://www.portland.gov/transportation/electric-vehicles/charging-your-ev

South Portland

- "The City is developing a new EV charging ordinance that will require new and fully reconstructed parking lots have EV charging stations in 20% of spaces and the remaining 80% be EV-capable (supplied with supportive electric infrastructure for future installation of EV charging stations)." City of South Portland, Maine | Official Website: Vehicle Electrification
- In March 2021, the Code Enforcement Office leased four Hyundai Konas City of South Portland, Maine | Official Website: Vehicle Electrification

Bangor

As reported by the Bangor Daily News, the Bangor Police Department has one electric vehicle in its fleet.
A new Bangor police car is piquing interest as the department's 1st electric vehicle (bangordailynews.com)

MDI High School

MDI High School has acquired an electric school bus funded in part with funds from the VW settlement. https://www.newscentermaine.com/article/news/education/schools-that-shine/maine-rolls-out-states-first-electric-school-bus/97-eb0cbf2e-3993-4119-8a1d-9c9d88fd556e

Maine SAD 49

Maine SAD 49 has recently received an EPA grant toward funding for an EV school bus. https://www.epa.gov/newsreleases/epa-awards-20000-maine-school-district-replace-school-bus

V. Commission Proceedings[18]

The Commission opened an investigation into general issues concerning rate design in the summer of 2021 in Docket No. 2021-00198. Some utilities and other interested parties filed comments. In September, the Commission issued an order in this docket directing all Maine T&D Utilities to file by November 1, 2021, proposed rate schedules supporting electric vehicle charging as required by subsection 4 of the Act.

On November 1, rate schedules were filed by CMP and Versant Power (Versant). Also, on that date, the Fox Islands Electric Cooperative (FIEC) requested a waiver from the requirement. Waiver requests were subsequently filed by Madison Electric Works (MEW) and Eastern Maine Electric Cooperative (EMEC) on November 5, and Van Buren Light & Power District (VBLPD) on November 8.

On November 17, the Commission issued an order indicating that it lacked the authority to grant a waiver and again directed all utilities to file the required rate schedules. Subsequently, proposed rate schedules were filed by EMEC (November 19), VBLPD (November 22), FIEC (December 1), and Houlton Water Company (HWC) (December 8).[19]

Comments were filed by EMT, Competitive Energy Services (CES), ChargePoint, Inc. (Charge Point), Conservation Law Foundation (CLF), and combined comments from Biddeford, Saco and Old Orchard Beach Transit District and Greater Portland

[18] Although not the focus of the Act, parties also provided input regarding residential EV rates. All documents generated during the Commission's investigation, including the proposed rate schedules summarized below, may be viewed in the Commission's Case Management System under Docket No. 2021-00198 at this link: Online Services | MPUC (maine.gov).

[19] To date no proposed rate schedules have been received from MEW or from Kennebunk Light & Power District (KLPD).

Transit District. With limited exception, all of these comments concerned the proposed schedules filed by CMP or Versant.

Finally, the Commission contacted the following State agencies for information on efforts to increase the availability of EV charging stations: EMT, MDOT, DEP, Maine Department of Education and the Governor's Energy Office. These are discussed in Section II, above.

As described below, CMP and Versant each proposed a suite of rates for EV charger use. According to the utilities, the proposed EV rates are cost-based and are designed to support various levels of EV chargers and types of end-users.

The following sections provide a brief description of the comments and proposed rate schedules filed by the T&D Utilities, followed by a summary of the comments of the non-utility persons.

The Commission notes that it has opened another investigation concerning rate design for multiple uses (EV, battery storage and heat pumps) that will include an examination of residential rates. This matter is currently underway in Docket No. 2021-00325.

A. Central Maine Power Company

CMP expresses strong support for efforts to reduce carbon and address climate change and believes that rate design for EV charging will help the effort. CMP notes that although its pilot programs (see Section IV, above) are not yet complete, some initial learnings informed the development of its proposed rate schedules. CMP cites the importance of creating rate designs to promote the rapid deployment of EV charging, referencing a stakeholder initiative of The Nature Conservancy (Maine Utility/Regulatory Reform and Decarbonization Initiative ("MURRDI")) that includes the recommendation that a customer's flexible use of electricity is promoted by dynamic rate design.

CMP indicated that it has proposed updated time of use (TOU) peak and off-peak time periods to be more in line with a cost of service study prepared in connection with its last rate case. These new time periods and rates are designed to send proper price signals to customers. For some of its proposed rates, CMP notes that it would need to reconfigure its metering and billing system and estimates that 15 months would be needed for this, at a cost of approximately $2 million.

CMP states that its proposed rates would minimize cross-subsidization between customers, contribute to customer understanding through simplification, provide options for customers and allow customers to lower delivery charges and contribute to the State's goals.

1. Summary of CMP's Proposed Rate Schedules

CMP notes that its rates are designed consistent with its 2018 Marginal Cost of Service (MCOS) Study. Specifically, the distribution portion is designed to reflect underlying costs that are "customer-related", "local facility-related", and "upstream facility-related". With respect to transmission, CMP reflects key drivers for both local and regional transmission costs, in particular the importance of demand at the time of system peaks.

CMP proposes to modify some of its existing rates for residential and small commercial customers, including A-TOU (optional residential time-of-use rate) and SGS-TOU (optional small general service time-of-use rate) to better align with the 2018 MCOS and transmission costs. These rates would apply to a customer's whole usage, including any EV charging. CMP also proposes updating Rate A-LM (Residential Load Management Service rate) to be more reflective of the 2018 MCOS and to open that rate to allow EV charging as an allowed separately metered technology for customers in these sectors. CMP also proposes new rate options for residential and small commercial customers that include a demand charge.

For medium and large commercial/institutional/industrial customers, CMP proposes to expand the availability of Rate B-DCFC, which is the rate currently offered on a limited basis under the ongoing Pilot Program described in Section IV above. For public transit charging, including transit buses, school buses, and ferries, CMP proposes two new rate options targeted to support the unique needs and usage characteristics of these sectors.

CMP also notes the importance of an accompanying TOU supply/standard offer product option and suggests that such a product for residential and SGS customers be considered.

B. Versant Power

Versant notes the importance of meeting the state's GHG and clean energy goals. The Company points out that its current ongoing investments in advanced metering infrastructure (AMI) and its meter data management system (MDMS) will allow for new "advanced" rate options. Versant indicates that it would be able to offer certain rates for EV charging beginning later this year or in 2023, with the more advanced rates being developed and available system-wide when the AMI and MDMS are in operation. When this metering transition is complete, Versant plans to offer similar or identical rates by class to all of its customers both north and south. For now, Versant proposes interim rate schedules for customers in the Bangor Hydro District (BHD) that use its current metering capabilities.

1. Summary of Versant's Proposed Rate Schedules

Versant proposes a "whole house TOU rate" (Residential EV Rate 1) that is an expansion of its existing Residential TOU Rate A4 (currently available only to individual apartments) available in the BHD. Service under Residential EV Rate 1 will require a meter preprogrammed to register use in peak, shoulder and off-peak periods. The cost of the meter would not be charged to the customer. This rate will be a new offering in the Maine Public District (MPD).

Versant also proposes to expand its current Residential Electric Thermal Storage Service Rate (Rate A1) to allow EV charging as an allowed technology. Service under this rate requires a separate meter (no separate fee), proof of EV registration at the metered address, behind-the-meter electrical work, as well as an on-site inspection.

For commercial customers, Versant proposes two rates (EV Rate 3 and EV Rate 4) that would be available for separately metered Level 2 public and fleet charging for public, municipal, retail, and fleet EVs. EV Rate 3 is based on the Company's current BHD Rate B1 (General Service Rate) but expands the allowed billing demand limit from 25 kW to 50 kW. Versant's EV Rate 4 is based on Versant's current General Service Rate (Rate C) in the MPD. Under Rate C, load may not exceed 50 kW during any two consecutive months November through March and may not exceed 400 kW in any month. For EV Rate 4, Versant proposes to eliminate the 400kW limit as it does not expect this to be an issue for Level 2 chargers. In addition, Versant proposes seven new rates (EV Rates 5 – 11) that track its existing rate classes in the BHD (Rates M1, M2, and D4) and MPD (Rates ES, EP, EST, and EPT) but that replace the non-coincident peak charge with a coincident peak charge. Versant notes that this rate design will provide a price signal to customers to encourage charging at times other than the coincident peak.

C. Consumer-Owned T&D Utilities

As indicated, many of the COUs requested a waiver from the requirement to file proposed EV charging rates. Chapter 402 provides no authority for the Commission to grant waivers.

FIEC stated that its operations and business strategies are consistent with the State's carbon emissions goals but that it currently lacks the technology and data to create the requested EV rates. FIEC is in the process of upgrading its metering, system analysis and rate design. FIEC plans move towards a system that would support more targeted EV charging rates. FIEC also points out that in 2020, over 65% of its energy mix was renewable and that its annual GHG emissions are lower than the 45% goal established in Title 38, section 576-A. For now, FIEC, like the other COUs, proposes to simply amend existing rate schedules to allow for EV charging.

EMEC states that there is a very low EV adoption rate in its territory and that it would need more information before designing rates so that it could do so efficiently. While it states that it would prepare EV charging rates consistent with the rate design principles, for now it simply proposes to amend existing rates to provide for EV charging. Currently, 86% of EMEC's electricity supply is renewable.

The other COUs similarly propose to amend existing rates for their various rate classes to provide for EV charging. MEW points out that 100% of its electricity supply comes from the 4.3MW solar array in Madison. HWC states that its standard offer is 86% renewable.

D. Comments of Non-utility Persons

Several parties offered comments on the proposals of the T&D Utilities. We summarize those here.

1. Efficiency Maine Trust

EMT identifies two key objectives for design of electricity rates. The rates must be as affordable as possible and rate design intended to support Maine's shift to beneficial electrification must be scalable and sustainable. EMT notes that Maine is in the early stages of this transition, with technology improving and becoming less expensive.

With respect to the proposed rate schedules, EMT expresses concerns that demand charges can impede the rapid adoption of EV and supports the efforts of the utilities to present rate schedules that reward customers who charge during off-peak periods. This can be helpful so long as the rates do not confuse customers. EMT expects to be able to help subsidize the costs of EV chargers using approximately $19 million allocated to Maine from the Infrastructure Investment and Jobs Act.

2. Competitive Energy Services

CES opposes any rate design where the retail rate is a function of a specific end use. With advanced metering infrastructure (AMI) and its ability to measure usage in small time increments, this type of rate design is obsolete. Rates should be based on the costs to the utility of serving the customer. CES states that customers should receive targeted price signals that allow customers to avoid high costs during peak usage. CES finds that CMP's proposed rate schedules with revised TOU periods does not go far enough and would further narrow the peak period. CES also approves of CMP's proposal to use the demand charge associated with the customer's average grid demand during CMP's monthly regional peak, otherwise known as coincident peak (CP), to set the transmission portion of the customer's rate in connection with its existing Level 3 charge rate (Rate B-DCFC).

CES does not believe CMP should require separate meters for EV charging for the expanded B-DCFC rate without at least amending the language of the tariff, arguing that it could lead to double charging under certain circumstances. CES argues that rather than requiring separate meters, there could be “whole facility” rate classes available for EV charging (and other end uses like battery storage and heat pumps) for CMP’s larger classes.

CES recommends that Versant’s proposed TOU periods are too broad to reasonably use an EV demand charge. CES also strongly suggests that Versant provide near real-time web information about actual system loads to customers seeking to understand and use TOU rates for EV charging.

3. Conservation Law Foundation

CLF voiced strong concerns about the effect of excessive demand charges as a barrier to expansion of EV charging, saying that the nature of fast chargers does not allow for response to price signals. CLF also expressed concern that charger site hosts be able to earn a return, especially in the near term where the prevalence of EVs on the road is low.

CLF underlined the necessity for statewide implementation of affordable chargers, including in relatively remote areas served by COUs.

4. ChargePoint

ChargePoint cites the importance of simple and predictable cost-based rates with appropriate price signals. Citing the lack of price elasticity at public Level 3 stations, ChargePoint recommends minimizing demand charges. Demand charges can have the effect of creating “charging deserts” where EV charging infrastructure development lags the rest of the region.

ChargePoint expresses concern about Versant’s “whole house TOU rate,” noting that smart EVSE (electric vehicle supply equipment) has embedded metering functions that can be used instead of a second meter.

ChargePoint supports Versant’s commercial Level 2 charging rates but expresses concerns about Level 3 charging rates. Providing an incentive to charge at night is, according to ChargePoint, a disincentive for commercial operations to move to EVs.

ChargePoint believes that Versant’s peak period is too long to provide appropriate price signals to drive behavior. With many EV users, however, behavior can be inflexible and so a rate that accounts for the customer’s need for flexibility will lead to faster EV adoption rates.

ChargePoint expresses concern with CMP's TOU rates. While it supports the proposed change in the TOU periods, it says more work is needed given the impact on customers currently using the rate.

For Level 3 chargers, ChargePoint is concerned about the ability of customers to move to off-peak to avoid the high demand charges and recommends further work to create rates more in tune with commercial customer's EV needs. Otherwise, EV adoption will be slow.

5. The Transit Agencies

The Greater Portland Transit District (METRO) and the Biddeford Saco Old Orchard Beach Transit District (BSOOB)(collectively the "Transit Agencies") will soon be doing EV pilots for their fleets of buses in order to compare EV operating costs with standard diesel buses. Under CMP's current rate design, it appears that diesel will remain less expensive.

Because the Transit Agencies must run their buses all day, and because current EV technology for buses does not allow daylong operation on a single overnight charge, these buses must charge up at some points during the day. This means they may not be able to avoid charging during peak times. Thus, the Transit Agencies welcome CMP's proposed B-PTEV rate that would no longer make demand charges subject to the coincident peak because this makes the rate more predictable. Nevertheless, modeling performed for the Transit Agencies points to diesel buses still being cheaper to operate.

VI. Commission Recommendations

The Commission recommends that EV rates be designed to reflect the underlying cost of T&D service applicable to EV charger usage taking into account key differences among EV charger demand profiles for different charger levels. Additionally, for practical reasons and to encourage and support the use of EVs in Maine, the Commission recommends that EV charger rates be designed with consideration of real-world factors related to expected or typical customer usage patterns.

The parties participating in the Commission proceeding described above appear to be in general agreement with these principles. In addition, the commenting parties stress the importance of (i) encouraging EV charger usage during off-peak times, (ii) ensuring rates that are affordable, and (iii) maintaining focus on the long-term goal of electrification in the heating and transportation sectors, which, among other things, requires focus on the efficient use of the grid. The parties also advocate the use of rates that are generally/broadly applicable as opposed to rates that would be designed and targeted for specific end-uses, e.g., EV charging.

Designing electricity rates that are “cost-based” is a basic and well-accepted premise of utility rate design guided by several relevant principles, most notably, economic efficiency and equity. To achieve outcomes consistent with these principles, rate design decisions generally involve some degree of reliance on “cost of service studies” to provide information about the cost and cost drivers of various components of utility service. Rate design decisions, however, also involve consideration and application of judgement about factors such as equity among, and understanding/acceptance by, customers as well as the administrative costs and benefits associated with changes to billing systems.

As described above, parties in the pending Commission EV-related rate design proceedings (Docket Nos. 2021-00198 and 2021-00325) have presented a suite of rate design options and a broad set of perspectives related to EV rate design. Moreover, the ongoing “beneficial electrification” pilots (Docket No. 2019-00217) and EMT programs are expected to provide useful information to guide and refine EV rate design over the next few years. Thus, the Commission recommends continuing these processes, most notably, the pending rate design proceeding, with an expectation that it would establish EV rate design principles and resulting rates sometime later this year. Finally, given the clear policy direction described in Section II, as well as the ongoing legislatively established proceedings described above, the Commission does not anticipate the need for additional statutory direction or authority at this time.

STATE OF MAINE
PUBLIC UTILITIES COMMISSION

MAINE PUBLIC UTILITIES COMMISSION Inquiry into Rate Design Issues Associated With 2021 Legislation	December 22, 2021 COMMENTS ON 2021 LEGISLATION; Proposed EV Rate Designs Docket No. 2021-00198

Docket No. 2021-00198

Pursuant to the Commission's Procedural Order dated December 3, 2021, in Docket No. 2021-00198, the New England Convenience Store & Energy Marketers Association, Inc., (NECSEMA), provides the following comments on proposed Electric Vehicle (EV) rate designs for nonresidential applications:

1) NECSEMA represents convenience store and gasoline retailers, transportation fuel distributors, and the businesses which supply them. According to the National Association of Convenience Stores, there are 917 convenience stores in Maine (727 of which sell motor fuels) employing over 14,500 people and account for over $3.3 billion in sales per year.

2) NECSEMA retail members have an essential role to play in the migration to EV and related emission reduction efforts as the public transitions away from sole use of traditional fossil fuels. Our members provide the products and services people choose, so as the public's fuel choices evolve, we will continue meet their needs; whatever their

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fuel choice is, be it electric, fuel cells, gasoline and diesel, or other renewable alternative fuels.

3) NECSEMA and certain members have participated in EV dockets in other regional jurisdictions and have participated in several state and multi-state clean transportation initiatives in New England and Mid-Atlantic states.

4) NECSEMA and its members have a strong interest in providing services to the emerging EV market, a market in which nonresidential rates for EV charging could impact economic and reliable customer services in the competitive transportation fuels market. NECSEMA is also concerned with demand charges as a barrier for host locations investing in EV charging – both initially and reinvestment in new technology as it becomes available. It is critical this barrier be resolved to provide a competitive landscape for investment and to discourage utility monopolization.

5) NECSEMA members are currently pursuing several projects to increase its electric vehicle supply equipment (EVSE) footprint in the region. These projects involve additional partnerships with leaders in the EV charging space and technologically innovative models. Members are also designing and building fueling stations to include infrastructure such as underground conduit to support EV charging stations in the future, solar power, battery storage, and demand response measures. Moreover, our members continue to evaluate opportunities to meet and anticipate the needs of its current and future customers, including by making additional EV charging available at its retail locations.

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6) As the work of the Commission, its staff, and public utility companies proceeds, we respectfully offer the following comments on development of rate designs for nonresidential charging proposals as ordered:

A) As an initial matter, the Commission should clearly establish the goals that it seeks to achieve through the nonresidential rate designs for EV charging. Only by first establishing such goals and objectives can specific designs, feasibility evaluations, or policy options be evaluated based on their effectiveness and overall costs and benefits. In particular, the Commission should:

i. State, with specificity, its goals with respect to data collection, impact on customer behavior, and impact on EV adoption metrics such as EV miles traveled and, ensure any rate impacts are fully investigated by the commission for reasonableness.

ii. The Commission should clearly outline the metrics by which it will evaluate the effectiveness of various rate designs proposed for deployment.

iii. When determining whether rate design proposals for EV customers is appropriate, the Commission's decision-making should be governed by certain core principles that have previously guided its policy with respect to grid modernization and the development of EV charging infrastructure.

B) The Commission should only approve such programs if they are demonstrated to be in the public interest, and the Commission should not approve any rate designs, policies or programs that will hinder the development of competitive markets. These guiding principles are further developed in the specific considerations described below:

i) Policies aimed at encouraging EV and EVSE growth should be based on the best available data, best practices and with an eye toward the future and a recognition that today's technology, like other technologies in other fields, will become obsolete at accelerating rates. The Commission should consider the data and information currently available from Maine pilot projects, New Hampshire, Massachusetts, and other jurisdictions. It should also ensure that it reviews and continues to review a complete and balanced record of such information and is not overly reliant on theoretical information provided by electric distribution companies and EV infrastructure providers. This will require the Commission to periodically review approved nonresidential EV rates as more actual (versus theoretical) data is collected by the utility and analyzed. The Commission must ensure i) nonresidential rate effectiveness is benefitting ratepayers, ii) the price signals in the nonresidential rates lead to increased EV adoption and economical charging discipline, iii) rates and EV use lead to the desired environmental benefit to society, and iv) a competitive landscape is cultivated to ensure future investment in emerging technologies.

ii) Any benefit-cost analysis put forth in support of proposed EV charging rate design proposals should consider the benefits, costs, and risks to include but not limited to the following stakeholders: electric utility customers (residential and commercial); EV drivers; competitive EVSE market participants (public Level 2 and Direct Current Fast Charge (DCFC) site hosts); and the electric distribution company shareholders.

iii) When evaluating whether a proposal is in the public interest, the Commission should ensure that distribution companies prioritize EV charging host site locations that are publicly accessible and that serve the public's interest at large. In addition, the Commission should review any proposed rates in the context of the current hypercompetitive vehicle fuels market, with emphasis on customer adaptation and ratepayer benefit, as well as rate transparency.

iv) Regulatory policy, including the methods by which rate designs are authorized should not favor particular technologies, charging locations, market participants, rate classes, or EVSE ownership models—especially utility ownership models—over others. Maximum effort should be made to democratize the process for current and future competitiveness.

v) For any use of ratepayer funds, the Commission should ensure that such use does not displace market activity, and that it is not used to advantage electric distribution companies and their shareholders over the market, other retail participants, or certain technologies, sectors, market participants, or business approaches over others.

7) The Commission should consider the ways in which any rate: i) impacts the competitive transportation markets including EVSE and ii) provides consistent treatment and opportunities across rate classes, charging locations, and EV site hosts.

While consistent treatment may be accomplished by offering equivalent rates across rate classes, the distribution companies might also develop proposals that offer equivalent ratepayer benefits to different groups of ratepayers, according to their specific needs. For example, where design options may provide benefits to residential customers with EVs, the distribution companies should be encouraged to also develop offerings that would provide comparable benefits to commercial and industrial (C&I) ratepayers, and to site hosts who support different EVSE technologies. See, e.g., National Grid Rate Case, D.P.U. 18-150, at 340 (describing the proposed DCFC Demand Charge Discount). Further, there should be no special rates or utility investment incentives that would unfairly benefit utility shareholders at the expense of other competing EVSE providers.

8) If the Commission authorizes nonresidential rates in connection with a targeted deployment of metering capabilities, it should only make those rates available to customers with separate EV meters, metering technology embedded in EV smart chargers, or otherwise, implement procedures that would allow the distribution companies to measure EV-specific electricity use. EV segregated usage information is critical to i) evaluate the effectiveness of the rate design and actual load profiles in connection with EV use, ii) assess transportation-specific charges and taxes, similar to gasoline taxes that currently fund roadway infrastructure, and iii) encourage retail investment by decoupling EV meters from other on-property businesses.

9) NECSEMA notes that utility rate structure is only one component of a comprehensive statewide strategy to facilitate private investment in EV public charging infrastructure.

The cost of installation and operation of the EV charging facility is the primary barrier for private investment in DCFCs. Demand charges are an important cost component but initial infrastructure investment and installation costs, including any new metering requirement, are upfront charges that impact decision-making. As a nascent industry with long-term public health benefits, it is important initial barriers, such as this, be mitigated.

10) The measured dissemination of locational grid sweet spots, areas on the utility's grid that might host electric charging stations without requiring distribution system upgrades, could be matched with current fueling location sites to determine the best locations for electric charging. This encourages the electric utility industry to work jointly with the current transportation retail fuel providers to make smart EVSE investments, both upstream and downstream of the meter. Better investment principles will likely lead to more EVSE equipment where both the grid can support load and consumers will use the charging equipment. The economic and environmental benefits associated with this cooperation should improve adoption rates for EVs.

According to technology experts, both EV companies and charging equipment manufacturers are designing future vehicles and charging equipment to match charging times to what it currently takes to refuel a vehicle with transportation motor fuels thereby creating a greater reliance on fast charging and a commensurate demand for electricity.

Respectfully submitted:

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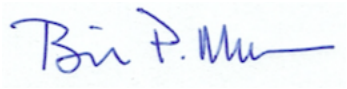

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