Direct Testimony of Matthew Deal Docket No. DE 20-170 Page 1 of 18

STATE OF NEW HAMPSHIRE

BEFORE THE

PUBLIC UTILITIES COMMISSION

Electric Distribution Utilities

Electric Vehicle Time of Use Rates

Docket No. DE 20-170

DIRECT TESTIMONY OF MATTHEW DEAL

ON BEHALF OF CHARGEPOINT, INC.

October 13, 2021

1	<u>I.</u>	Introduction and Summary of Recommendations
2	Q:	Please state your name.
3	A:	My name is Matthew Deal.
4	Q:	By whom are you employed and in what position?
5	A:	I am Manager of Utility Policy at ChargePoint, Inc. (ChargePoint).
6	Q:	Please describe your qualifications, including your background, experience, and
7		expertise.
8	A:	In my current role, I lead ChargePoint's regulatory activity before state public utility
9		commissions regarding the development of policies and programs that expand electric
10		vehicle (EV) infrastructure and advance best practices within the EV charging industry. I
11		have drafted stakeholder comments regarding the design of EV programs in New
12		Hampshire and other states. My relevant professional experience appears in my CV, which
13		is attached as Attachment MJD-1.
14	Q:	Have you previously provided testimony in any proceedings before regulatory
15		commissions?
16	A:	Yes. I have testified before the Pennsylvania Public Utility Commission in Docket Nos. R-
17		2021-3023618 (UGI Electric), R-2021-3024601 (PECO Energy Company), and R-2021-
18		3024750 (Duquesne Light) in which I evaluated and made recommendations to ensure that
19		the EV charging programs proposed by each utility company complemented the
20		competitive EV charging market. I have also appeared as a witness regarding EV issues
21		before the Connecticut Public Utilities Regulatory Authority (PURA) in Docket No. 17-

1 12-03RE04: Public Utilities Regulatory Authority Investigation into Distribution System
 2 Planning of the Electric Distribution Companies – Zero Emission Vehicles.

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Q: Please describe ChargePoint.

A: ChargePoint is a world leading electric vehicle (EV) charging network, providing scalable
solutions for every charging scenario from home and multifamily to workplace, parking,
hospitality, retail, and transport fleets of all types. ChargePoint's cloud subscription
platform and software-defined charging hardware is designed to enable businesses to
support drivers, add the latest software features and expand fleet needs with minimal
disruption to overall business.

10 ChargePoint's hardware offerings include Level 2 (L2) and DC fast charging 11 (DCFC) products, and ChargePoint provides a range of options across those charging levels 12 for specific use cases including light duty, medium duty, and transit fleets, multi-unit 13 dwellings, residential (multi-family and single family), destination, workplace, and more. 14 ChargePoint's software and cloud services enable EV charging station site hosts to manage 15 charging onsite with features like Waitlist, access control, charging analytics, and real-time 16 availability. With modular design to help minimize downtime and make maintenance and 17 repair more seamless, all products are also UL-listed and CE (EU) certified, and Level 2 18 solutions are ENERGY STAR® certified.

19 ChargePoint's primary business model consists of selling smart charging solutions 20 directly to businesses and organizations while offering tools that empower station owners 21 to deploy EV charging designed for their individual application and use case. ChargePoint 22 provides charging network services and data-driven, cloud-enabled capabilities that enable

1 site hosts to better manage their charging assets and optimize services. For example, with 2 those network capabilities, site hosts can view data on charging station utilization, 3 frequency and duration of charging sessions, set access controls to the stations, and set 4 pricing for charging services. These features are designed to maximize utilization and align 5 the EV driver experience with the specific use case associated with the specific site host. 6 Additionally, ChargePoint has designed its network to allow other parties, such as electric 7 utilities, the ability to access charging data and conduct load management to enable 8 efficient EV load integration onto the electric grid.

9

Q: What is the purpose of your Direct Testimony?

10 The purpose of my Direct Testimony is to respond to certain aspects of the EV time of use A: 11 (TOU) rate proposals and alternative metering assessments submitted by Eversource 12 Energy (Eversource), Unitil Energy Service Inc. (Unitil), and Liberty Utilities, Corp. 13 (Liberty).

14 **Q**:

How is the remainder of your testimony organized?

15 A: Section II summarizes relevant sections of the Commission's Order in Docket No. IR 20-16 004 and ChargePoint's reactions to that Order. Section III responds to the proposals filed by Eversource, Unitil and Liberty in this proceeding. Finally, Section IV concludes my 17 18 testimony.

19 **Q**: Do you have any attachments to your testimony?

20 Yes. A:

21 Attachment MJD-1 is a copy of my CV, which describes my relevant professional • 22 experience.

1	•	Attachment MJD-2 is a copy of ChargePoint's initial comments filed in this proceeding.
2	•	Attachment MJD-3 is a copy of ChargePoint's reply comments filed in this proceeding.
3	•	Attachment MJD-4 is a copy of Liberty's response to Staff data request 1-2.
4	•	Attachment MJD-5 is a copy of Liberty's response to Request No. CLF & CENH 2-17.
5	•	Attachment MJD-6 is a copy of Liberty's outline of its proposed alternative metering
6		feasibility assessment dated February 2, 2021.
7	<u>II.</u>	Commission Policy on Electric Vehicle Rates
8	Q:	What will you address in this section of your testimony?
9	A:	In this section of my testimony, I will describe the Commission's findings and directives
10		in Order No. 26,394 in Docket No. IR 20-004, which established the Commission's policy
11		on electric vehicle rate design, and summarize ChargePoint's reactions to the
12		Commission's Order.
13	Q:	Please summarize the Commission's directives on electric vehicle rate design.
14	A:	On August 18, 2020, the Commission issued Order No. 26,394 (Order) in Docket No. IR
15		20-004, opening the instant proceeding, and requiring New Hampshire electric utilities to:
16		1) Submit separately metered EV TOU rate proposals for residential and small
17		commercial customers;
18		2) Separately address high demand draw applications, which include fleet
19		charging and public charging, in their upcoming rate design proposals; and,

 Further consider advanced metering options using embedded metering capabilities of networked EV charging stations.¹

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Q: Did ChargePoint submit comments in this proceeding?

4 A: Yes. ChargePoint submitted detailed initial and reply comments in this proceeding
addressing various aspects of EV TOU rates and EVSE embedded metering capabilities.
ChargePoint's initial comments are attached to my testimony as Attachment MJD-2, and
reply comments are attached as Attachment MJD-3. ChargePoint's comments were
anchored in the Commission's conclusions in Order No. 26,394 in Docket No. IR 20-004.

9 Q: Does ChargePoint support the Commission's direction to move forward with TOU 10 rates for residential and small commercial customers?

11 Generally, yes. Utility rate design is an effective tool for incentivizing off-peak EV A: 12 charging, particularly for residential and fleet customers. Well-designed volumetric EV TOU rates are consistent with New Hampshire energy policy including the Restructuring 13 Act which fosters "a more productive economy by reducing costs to consumers while 14 15 maintaining safe and reliable electric service with minimal adverse impacts on the 16 environment," as well as "increased customer choice," "open markets for new and 17 improved technologies," and "appropriate price signals" for both buyers and sellers of electricity.² SB 575 also supports the adoption of EV TOU rates. It requires the 18 19 Commission to consider whether rate designs affecting electric customers with EVs would 20 "encourage energy conservation, optimal and efficient use of facilities and resources by an

¹ Docket No. IR 20-004, Order No. 26,394 at 18.

² NH RSA 374-F:1, I-II.

electric company, and equitable rates for electric consumers."³ EV TOU rates with
 appropriate price signals encourage conservation, promote the optimal use of electric
 resources, and advance equity among customers.

However, as explained in more detail below, TOU rates may not be a perfect
application for certain EV charging use cases – such as public DCFC. DCFC stations are
often used by EV drivers that cannot adjust their usage to avoid the impact of higher priced
TOU time periods. This user group may include drivers traveling longer distances on
highways unable to schedule their stops to align with changes in pricing or charger
availability caused by higher priced TOU time periods.

10Q:Does ChargePoint support the Commission's direction that each utility should file a11separate proposal addressing high demand draw applications, including DCFC and12clustered level two chargers (e.g., fleet charging)?

A: Yes. The Commission found in Order No. 26,394 that the utilities should consider demand charge alternatives "in any high demand draw rate proposals,"⁴ which includes rate designs developed for the use cases of public charging stations as well as EV fleet charging. ChargePoint applauds this finding and appreciates the EV rate proposals put forth by the utilities, as demand charges remain a significant operating cost barrier to public EV infrastructure deployment. Implementing appropriate rate designs that eliminate, defer, or reduce demand charges is key to unlocking increased investment in the EV charging

³ NH RSA 236:133.V(b), as amended by SB 575.

⁴ See Docket No. IR 20-004, Order No. 26,394 at 9.

1		infrastructure needed to support EV drivers in New Hampshire as well as those transiting
2		through the state.
3	Q:	What is a demand charge?
4	A:	Demand charges are charges based on the customer's peak capacity usage, traditionally
5		used to recover the nonfuel costs of electricity. Demand charges are typically based on the
6		highest average 15-minutes of power use in a monthly billing cycle. They are designed to
7		incentivize customers to level out their load and avoid steep increases in usage that could
8		overload the distribution system.
9	Q:	Why are demand charges a significant barrier to public EV infrastructure
10		deployment?
11	A:	DCFC stations can have low load factors, with sporadic instances of high demand when a
12		vehicle or multiple vehicles are charging. Under traditional demand-based rates, site hosts
13		can face high demand charges due to the few peak charging sessions that occur each month,
14		which effectively penalizes site hosts for providing charging services in earlier-stage EV
15		markets. In some markets, demand charges can account for as much as 90% of a DCFC
16		site host's electricity cost. ⁵
17		With very few exceptions (e.g., for very small customers) commercial customers
18		are on rates that include demand charges that are based on the customer's highest measured
10		demand, measured in kilowatts (kW) in a given month. An EV charging station site host

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may only have a few vehicles use the station in a month during the early years of EV

⁵ Rocky Mountain Institute, 2017. "EVgo Fleet and Tariff Analysis." Available at: <u>https://rmi.org/wp-content/uploads/2017/04/eLab_EVgo_Fleet_and_Tariff_Analysis_2017.pdf.</u>

1 adoption. The power demand of these charging sessions will set the demand charge for the 2 month, likely resulting in a significant bill for the site host but the site host will only have 3 a few charging sessions over which to spread these costs (if the site host chooses to pass 4 along its own costs to drivers). This impact is amplified for fleets and other customers that 5 need to charge multiple vehicles simultaneously at high power levels and/or that do not 6 have the flexibility to adjust the timing of charging sessions for multiple vehicles. Thus, 7 for EV charging station sites, conventional commercial rate design often can make 8 otherwise viable and desirable projects uneconomic.

9 Furthermore, unlike traditional commercial customers on demand-based rates, 10 public EV charging station site hosts have very limited ability to manage or mitigate the 11 impact of demand charges without negatively impacting the EV driver experience. For 12 example, a factory or large commercial facility may be able to avoid turning on several 13 large loads at the same time to avoid higher demand charges. By contrast, if a public EV 14 charging station site host offers four charging ports, the site host could only avoid 15 significant demand charges by limiting the number of ports in use simultaneously or by 16 restricting the amount of power to each port, or both. Either action could negatively impact 17 the driver experience and thus defeat the purpose of expanding public EV infrastructure. 18 Simply put, high demand charges coupled with low utilization can be an impediment to the 19 widespread deployment of EV charging stations.

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Q: Have other jurisdictions implemented demand charge alternatives?

A: Yes. ChargePoint's extensive comments in this proceeding include several examples of
demand charge alternatives that have been adopted in other states. As I mentioned earlier,

1		I have attached ChargePoint's Initial and Reply comments as attachments MJD-2 and
2		MJD-3, respectively.
3	Q:	In Order No. 26,394 the Commission directed "Staff to further develop the alternative
4		metering feasibility assessment concept described in the Order, with the input of the
5		parties to the new proceeding." Does ChargePoint support the use of EVSE embedded
6		metering?
7	A:	Yes. ChargePoint commends the Commission for its decision in Order No. 26,394 in
8		Proceeding No. IR 20-004 directing the state's utilities to further consider advanced
9		metering options using the embedded metering capability of smart, networked EVSE.
10	Q:	Please explain.
11	A:	Embedded metering can enable near-term EV charging opportunities at a lower cost to
12		customers than installing a second EV-specific meter or replacing a whole-home non-smart
13		meter with an AMI meter. AMI is not necessary to utilize embedded metering, but
14		embedded metering can complement grid modernization efforts. Metering embedded in
15		smart charging stations can provide the following important capabilities to satisfy utility
16		and customer needs while maintaining security:6
17 18 19 20 21		 Precise accuracy across all supported current and temperature ranges; Measurement of energy delivered to vehicle only, separate from any other loads; Granular clock-aligned interval data; Capability to receive remote firmware updates; Real-time power monitoring;
22 23		 Secure communication between the charging station and a utility or third-party server; Local storage of charging data on the charging station; and

⁶ See Mass. Dep't Pub. Utils. Case No. 20-69, Grid Modernization Phase II, Joint Presentation on Embedded Metering of ChargePoint, Greenlots, and Enel North America, available at <u>https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/12903642</u>.

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• Compliance with cybersecurity requirements.

Two of the key benefits of using embedded metering technologies provided by 3 4 smart charging stations include substantial cost and time-savings because there is no need 5 to purchase or install a second meter. This enables immediate or near-term participation in 6 utility TOU rate programs, dynamic rate programs, and managed charging programs. For 7 the customer, the use of embedded metering provides a seamless experience utilizing the 8 built-in capabilities of the customer's smart charging station investment to communicate 9 directly with the utility, and in some cases helping the customer to realize additional fuel 10 cost savings.

11 Q: Did each utility submit alternative metering assessments in this proceeding?

A: Each utility submitted varying levels of information regarding alternative metering
 assessments in this proceeding. On February 2, 2021, Liberty and Unitil filed Alternative
 Metering Assessment outlines and Eversource submitted its outline on February 3, 2021.
 However, Unitil is the only utility that proposes to conduct an assessment of alternative
 metering capabilities of EVSE embedded metering.⁷

17 Q: Does ChargePoint have any comments on the alternative metering assessments filed 18 by the utilities?

A: Yes. Unitil has acknowledged that "EVSE capability to manage demand, provide
 measurement functionality and inform customer behavior is worthy of additional study."⁸

ChargePoint appreciates Unitil's proposal to explore and assess alternative metering

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⁷ See Docket No. DE 21-030, Unitil Energy Systems, Inc. - Filing of Rate Schedules.

⁸ See Docket No. DE 20-170, Unitil Initial Comments at 5 (Dec. 9, 2020).

1		capabilities in its pending rate case, Docket DE 21-030. That proposal is notable and
2		important, and we look forward to participating in that proceeding and the subsequent
3		results of the assessment.
4	Q:	Does ChargePoint have any additional comments on the utilities' alternative metering
5		assessments?
6	A:	Yes. In its alternative metering assessment outline circulated to parties in this docket on
7		February 2, 2021, Liberty appears to misunderstand ChargePoint's position regarding
8		EVSE embedded metering capabilities. Liberty states the following:
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		"In the case of ChargePoint charging stations with meters, it is Liberty's understanding that their meters only measure the output from the station to the vehicle that is being charged, and do not measure the not the whole site load. While the amount of whole station load that is not being metered as part of charging the vehicle might be relatively small, the utility will still have to provide a utility-owned meter before the charging may include other load on that customer's circuit shared with the charging station (e.g., parking lot lights) or other load that will not be metered. ChargePoint's offer to provide metering data for the customer who owns the station only gives that customer knowledge and data of what the station usage. Liberty notes that metering any charging load from the vehicle pulling up and plugging in." ⁹
25		decompting from the EV changing motor (i.e. EV changing load) and not the entire load
23 26		consumed at the site. At no point in this proceeding, or any other across the country, has
27		ChargePoint stated that EVSE embedded metering obviates the need for a site level meter.

⁹ See Docket No. DE 20-170, Liberty Utilities outline of its proposed alternative metering feasibility assessment (Feb. 2, 2021) (Attachment MJD-6).

1		Further, the EVSE embedded meter will capture and report on the EV charging load, and
2		the utility site level meter will capture total load consumed at the site. Under this scenario,
3		no load consumed on site will go unmetered. ChargePoint's position is that EVSE
4		embedded metering "can enable near-term EV charging opportunities at a lower cost to
5		customers than installing a second EV-specific meter or replacing a whole-home non-smart
6		meter with an AMI meter." ¹⁰
7	<u>III.</u>	Responses to Specific Utility Proposals
8	Q:	What will you address in this section of your testimony?
9	A:	In this section of my testimony, I will address certain specific aspects of the rate design
10		proposals described in the direct testimony filed by Eversource and Liberty in this
11		proceeding.
12	Q:	Do you address any specific aspects of Unitil's direct testimony or rate design
13		proposals?
14	A:	Not in my direct testimony in this proceeding. It is my understanding that Unitil has
15		submitted its rate design proposals, including a comprehensive alternative metering
16		assessment in its pending rate case, Docket DE 21-030. ChargePoint reserves its right to
17		respond to Unitil's proposals in that proceeding.

¹⁰ Docket No. DE 20-170, ChargePoint Initial Comments at 16 (Dec. 9, 2020) (Attachment MJD-2).

1	Q:	What is your overall reaction to the utilities' rate design proposals, as described in
2		their direct testimony?
3	A:	While I have concerns about certain aspects of the utilities' proposals, and believe there
4		are ways in which those proposals might be improved, at a high level I believe that the
5		proposals represent an improvement over current rates and are generally consistent with
6		the Commission's directives in Order No. 26,394.
7		<u>Liberty</u>
8	Q:	What does Liberty propose?
9	A:	Liberty submitted tariff proposals for separately-metered small commercial customer
10		applications, and for separately-metered high demand draw commercial customer
11		applications. Liberty explains that the Commission approved Liberty's residential TOU
12		electric vehicle charging tariff in Order No. 26,376 on June 30, 2020, and therefore its
13		proposal focuses on small commercial applications and high demand draw commercial
14		applications.
15	Q:	Does Liberty propose to own and operate any EV charging station in its direct
16		testimony?
17	A:	No, Liberty does not propose to own and operate any EV charging stations in its direct
18		testimony and attachments. However, in response to Staff Data Request No. 1-2, Liberty
19		states that the Company "will be owning and installing four level 3 charging stations in
20		Salem at Tuscan Village. These installations will provide an opportunity for the Company

to learn more about level 3 charging stations in busy commercial areas."¹¹ Further, in 1 2 response to Data Request No. CLF & CENH 2-17, Liberty states that "additional value in 3 owning charging stations comes through data gathering for the types of vehicle charging, 4 time of day those vehicles are charging, and utilization rates of the stations. Those types of 5 information are not available to the Company for customer-owned charging stations. At 6 this time, the Company does not have any charging station data and this type of data could 7 be helpful in designing future EV rates and offerings."¹² These responses suggest that 8 Liberty believes that the only way for the Company to obtain data related to EV charging 9 taking place in its service territory is to own EV charging stations. 10 How do you respond? **Q**: 11 It is not necessary for Liberty to own charging stations in order to obtain data regarding A:

A. It is not necessary for Elberty to own charging stations in order to obtain data regarding
 EV charging taking place in its service territory. Liberty currently has access to any EV
 charging load data taking place on separately metered third-party owned EV charging
 stations in its service territory through the utility owned meter. Additionally, Liberty could
 also access EV charging load data through a utility incentive program (such as make-ready)
 where the Company requires customers to share certain charging data with the utility. This
 is a common requirement for utility incentive programs across the country.¹³ In fact, Unitil

¹¹ See Liberty Response to Request No. Staff 1-2. (July 13, 2021) (Attachment MJD-4).

¹² See Liberty Response to Request No. CLF & CENH 2-17. (August 25, 2021) (Attachment MJD-5).

¹³ See New Jersey Board of Public Utilities, Decision and Order Approving Stipulation in the Matter of the Petition of the Public Service Electric and Gas Company for Approval of its Clean Energy Future and Electric Vehicle and Energy Storage ("CEF-EVES") Program on a Regulated basis, BPU Docket No. EO18101111 (Jan. 30, 2021); New Jersey Board of Public Utilities, Order Approving Stipulation of Settlement in the Matter of the Petition of Atlantic City Electric Company for Approval of a Voluntary Program for Plug-in Vehicle Charging, BPU Docket No. EO18101111 (Feb. 25, 2021); Connecticut Public Utilities Regulatory Authority Docket NO. 17-12-03RE04, Decision (Jul. 14, 2021).

1		has proposed certain EV charging data sharing requirements to qualify for incentives in its
2		proposed EV incentive program currently pending in DE 21-030.14 Similarly, as part of its
3		proposed make-ready program, Eversource expects NHDES to require qualified site host
4		to collect and report certain EV charging data. ¹⁵ To clarify any misconception, the
5		Commission should enter a finding that utility ownership of EV charging stations is not
6		required in order for utilities to collect EV charging data.
7		<u>Eversource</u>
8	Q:	What does Eversource propose?
9	A:	Eversource proposes a separately metered, residential, and small commercial EV TOU rate
10		and a managed charging program. Eversource notes that it has proposed a demand charge
11		alternative rate design in Docket No. DE 21-078. ChargePoint reserves its right to respond
12		to Eversource's proposed demand charge alternative rate in that proceeding.
13		Eversource's proposed EV TOU rate consists of time-differentiated rates for the
14		distribution, transmission and company-provided energy service components of rates. The
15		proposed rate has a five-hour peak period from 2 pm - 7 pm, weekdays (excluding
16		holidays), a daily mid-peak period from 7 am through 11 pm (excluding peak periods), and
17		a daily off-peak from 11 pm each day through 7 am the following day.
18		Eversource's proposed managed charging program would provide annual monetary
19		incentives up to \$150 to customers that agree to allow the Company to directly control EV
20		charging activity through networked EVSE. ¹⁶

¹⁴ See Docket No. DE 21-030. Testimony of Carroll, Simpson, Valianti, Exhibit CSV-1 at 31.
¹⁵ See Docket No. DE 19-057, Testimony of Edward A. Davis, Brian J. Rice and Kevin M. Boughan at 15...
¹⁶ See Docket No. DE 20-170, Testimony of Dennis E. Moore, Brian J. Rice and Michael R. Goldman at 12.

Q: Is Eversource recommending Commission approval to implement the proposed residential EV TOU rate?

A: No. Eversource recommends against implementing a separately metered EV TOU rate at this time.¹⁷ Eversource states that requiring the implementation of an EV TOU rate at this time would "require substantial modification to many of the Company's current enterprise systems and comparable outcomes can be achieved at much lower costs through a proposed managed charging program." ¹⁸ As an alternative, the Company recommends the Commission authorize the implementation of the Company's proposed managed charging program.

10 Q: Does ChargePoint support Eversource's recommendation to implement a managed 11 charging program rather than near-term implementation of an EV TOU rate?

12 A: ChargePoint strongly supports efforts to ensure that the development of New Hampshire's 13 EV market takes place in a manner that benefits the grid and all ratepayers. Utility rate 14 design is an effective tool for incentivizing off-peak EV charging, particularly for 15 residential customers. EV drivers as well as all utility ratepayers can realize great value 16 when EV charging behavior is incentivized to take place at times that are most beneficial 17 to the grid. Incentivizing charging behavior to take place during off-peak or super off-peak 18 periods through an EV TOU rate can lead to increased utilization of utility assets and avoid 19 the need for additional capacity and grid infrastructure.

¹⁷ Docket No. DE 20-170, Testimony of Edward A. Davis at 9.

¹⁸ Id.

13	<u>IV.</u>	Conclusion
12		party distributed energy management systems (DERMS) provider.
11		such as the embedded metering capabilities of EV charging stations, or through a third
10		this end, the Commission and the Company should consider the use of alternative metering
9		Company to continue exploring methods to implement EV TOU rates in the near term. To
8		the Company to implement an EV TOU rate now, we urge the Commission and the
7		systems."19 While ChargePoint takes no position whether the Commission should direct
6		comprehensive updates to the Company's enterprise billing and data management
5		opportunities to offer different rate options to EV customers in the future as part of more
4		program. ChargePoint is encouraged by Eversource's expectation that "there will be more
3		Therefore, ChargePoint supports Eversource's proposal to implement a managed charging
2		enterprise systems may complicate near-term implementation of an EV TOU rate.
1		However, ChargePoint understands that Eversource's current billing and other

- 14 Q: Does this conclude your direct testimony?
- 15 A: Yes.

¹⁹ Docket No. DE 20-170, Testimony of Dennis E. Moore, Brian J. Rice and Michael R. Goldman at 18.