STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

July 14, 2020 - 9:20 a.m.

[Remote hearing conducted via Webex]

RE: IR 20-004
ELECTRIC DISTRIBUTION UTILITIES
INVESTIGATION OF ELECTRIC VEHICLE RATE DESIGN STANDARDS, ELECTRIC VEHICLE TIME-OF-DAY RATES FOR RESIDENTIAL AND COMMERCIAL CUSTOMERS
(HEARING)

PRESENT: Chairwoman Dianne Martin, Presiding
Commissioner Kathryn M. Bailey
Commissioner Michael S. Giaimo

Jody Carmody and Doreen Borden, Clerks
Eric Wind, PUC Remote Hearing Host

APPEARANCES: Reptg. Eversource Energy
Jessica Chiavara, Esq.

Reptg. Unitil Energy Systems, Inc.:
Carleton B. Simpson, Esq.

Reptg. Liberty Utilities:
Michael J. Sheehan, Esq.

Reptg. Residential Ratepayers:
D. Maurice Kreis, Esq., Consumer Adv.

Reptg. PUC Staff:
Brian D. Buckley, Esq.

Court Reporter: Susan J. Robidas, NH LCR No. 44

I N D E X

P R O C E E D I N G S

CHAIRWOMAN MARTIN: We're here this morning in IR 20-004, which is the investigation into rate design standards for electric vehicle charging stations and electric vehicle time-of-day rates. We're here to consider and take comments.

I need to make the necessary findings because this is a remote hearing. As Chairwoman of the Public Utilities Commission, I find that due to the State of Emergency declared by the Governor as a result of the COVID-19 pandemic, and in accordance with the Governor's Emergency Order No. 12, pursuant to Executive Order 2020-04, this public body is authorized to meet electronically. Please note that there is no physical location to observe and listen contemporaneously to this hearing which was authorized pursuant to the Governor's Emergency Order. However, in accordance with the Emergency Order, I am confirming that we are utilizing Webex for this electronic meeting. All members of the Commission have

the ability to communicate contemporaneously through this platform, and the public has access to contemporaneously listen and, if necessary, participate. We previously gave notice to the public of the necessary information for accessing the hearing in the Order of Notice. If anybody has a problem, please call (603)271-2431. In the event the public is unable to access the hearing, the hearing will be adjourned and rescheduled.

Okay. Let's start by taking roll call attendance of the Commission. When each Commissioner states their presence, please also state whether there is anyone in the room with you, and if so, please identify them.

My name's Dianne Martin. I am the Chairwoman of the Public Utilities Commission, and there is no one with me.

Commissioner Bailey.

COMMISSIONER BAILEY: Commissioner Kathryn Bailey, and I'm in a room by myself. Good morning, everyone.

CHAIRWOMAN MARTIN: Thank you.

Commissioner Giaimo.

COMMISSIONER GIAIMO: Good morning. Michael Giaimo. I, too, am in a room by myself.

CHAIRWOMAN MARTIN: Okay. Great. And I want to recognize Brian D. Buckley to give some background.

MR. BUCKLEY: Great. Thank you, Madam Chair. So as you mentioned, we are here today to receive comment on the Staff recommendation of April 3rd in Docket 20-004. A little background on how we got to where we are on today.

On August 11th, 2018, SB 575, a bill establishing requirements for and restrictions on electric vehicle charging stations went into effect. Among other things, SB 575 requires the Commission to determine within two years of its effective dates whether certain rate design standards for electric companies and public service companies should be implemented for electric vehicle charging stations. It also requires the Commission to determine whether to

implement electric vehicle time-of-day rates for residential and commercial customers.

In light of the passage of that bill, Staff provided a recommendation that the Commission solicit comment on a number of issues related to electric vehicle charging time-of-use rates, as well as a number of other issues. The Commission did so. As a result of the review of those comments, Staff then filed its April 3rd recommendation, which we are here to receive further comment on today.

So I think the plan for today's hearing, as set forth in the secretarial letter establishing the hearing, is to hear from each participant for a period of ten minutes or less, and then we will open it up for Commissioner questions of the participants, if they have any.

I will note that, in addition to the list of participants that was provided to the Commission in advance of this hearing, there are two more participants that were not on that list, the first being the City of

Lebanon, which will be represented by Assistant Mayor Clifton Below, and second being Liberty Utilities, which I believe will be represented by Michael Sheehan and possibly Heather Tebbetts.

Staff thinks that the recommendation largely speaks for itself. It doesn't feel the need to review the various recommendations therein. And now I think I can hand it back over to Madam Chair to receive comment from the various parties.

CHAIRWOMAN MARTIN: Okay. Thank you, Mr. Buckley.

I'm going to read you the list I have just to make sure we're not missing anyone and also to give you an idea of the order when we'll get to you. Also want to clarify that I'm going to open it up for questions from the Commission following each presenter so that we can ask and answer questions when the person is presenting.

So I have Eversource, then Unitil, then the Office of Consumer Advocate, then the Department of Environmental Services,

then Chargepoint, then Clean Energy New Hampshire, then Conservation Law Foundation, then Greenlots, then New England Convenience Store and Energy Marketers Association, then City of Lebanon, then Liberty Utilities. Is there anyone missing?

[No verbal response]

CHAIRWOMAN MARTIN: Okay. Great. Seeing none, let's get started. We will start with Eversource.

MS. CHIAVARA: Jessica Chiavara, counsel for Eversource. Good morning to the Commissioners, Madam Chair, and all the other parties in attendance. Today I'm going to make introductions and then turn it over to those parties.

Today we have Ed Davis, director of Rates for Eversource, who will be presenting our initial remarks. And then we have two other Staff members on hand to answer questions from the Commissioners and the other parties in attendance. We have Kevin Boughan, manager of Research and Business Development, Strategy and Policy for

Eversource, and Michael Goldman, director of Regulatory Planning Support and Evaluation with the Energy Efficiency Group for Eversource. And with that, I'm going to turn it over to Ed Davis to make his comments.

MR. DAVIS: Good morning, and thanks for the opportunity to participate and provide additional comments today.

You know, we have participated fully through the docket, both in the technical sessions and written comments. We've endeavored to provide meaningful input, share our experiences and insights, and engage in a dialogue to explore the topics being addressed in this investigation. We believe in our written comments on the Staff recommendations that we have also prepared those comments in that same spirit of participation. I'll highlight where we have general alignment and also areas where we may have some differences or where there are areas that we think could benefit from further examination, exploration and discussion. We hope that by participating

today we'll help address the Commission's questions, provide further information in support in assessing the recommendations. And we'll look forward to your questions. Thank you.

CHAIRWOMAN MARTIN: Okay. Do we have any other comments from Eversource?

MR. DAVIS: I think at this point we're basically, you know, depending on questions or areas of further exploration, that we had hoped to, you know, be ready and then talk to any of the questions either directly within comments or anything related to those that might fall out of that. So we basically stand ready for that. Thank you.

CHAIRWOMAN MARTIN: All right. Thank you.

Questions from the Commissioners? Commissioner Bailey, do you have questions?

COMMISSIONER BAILEY: Yes. Can I just get a minute to open up their comments, please?

CHAIRWOMAN MARTIN: Of course.

COMMISSIONER BAILEY: I thought,

Mr. Davis, you were going to tell us a little bit about where you disagreed with Staff. And so just to summarize that, if you could do that while I'm opening up your comments, that would help me.

MR. DAVIS: Sure. I'll just try to get the highlights. I don't know if I'm going to hit every point. But I think, first of all, there's some general alignment on where this is heading and on the ideas on time-of-use rates. And I think you're also -- you know, the alignment on trying to focus on, given this is, as we've heard, a nascent market. It's very early in terms of the deployment of electric vehicles. And we are in different places, not just Eversource, but each utility, on where the current rates are versus what the goals and objectives might be. I think it's important that we think about public charging, all the different sectors, whether it's residential, you know, at home, etc.

And I think, further, the concepts that kind of I think formed the foundation of

the whole set of recommendations cost-based ratemaking, different time-of-use structures, we may be getting a little ahead of ourselves in what the detailed structure might need to be. And that might vary by the type of charging and the configuration. So I think we are certainly learning. We have our experience from what we've done so far in the other states and obviously with the industry as we work with colleagues.

There are a few different areas that I think probably need certainly more discussion and exploration. The idea of separate classes or separate metering points, separate services, you know, we commented along the lines of, for example, for years, through a number of decades we have had separate services for things like water heating. I think that had become a basis for deciding, well, should we have rates that are designed for the whole house or the whole business, rates that should be separately metered and designed for that purpose and -- (connectivity issue)

(Court Reporter interrupts.)

CHAIRWOMAN MARTIN: Mr. Davis, you're coming in and out.

MR. DAVIS: I apologize. I'll go slower and --

CHAIRWOMAN MARTIN: I think it may be a connection issue. Keep talking and we'll see if we can continue to hear you. We lost you for a minute.

[No verbal response]

CHAIRWOMAN MARTIN: No, I don't think we can hear you at the moment.

Ms. Chiavara, do you want to take over or -- you're on mute.

MS. CHIAVARA: Sorry about that. I don't have Ed's comments. I can contact him and let him know that he needs to try to reconnect or something.

CHAIRWOMAN MARTIN: Okay. Another option we can do is move on to the next person on the list or the next entity on the list and come back to Eversource once the connection issue is fixed.

MR. DAVIS: Can you not hear me

now?

CHAIRWOMAN MARTIN: I can see you now. Why don't we proceed and we'll see if it happens again. If so, we'll go out of order.

MR. DAVIS: Okay. Can you hear me now?

CHAIRWOMAN MARTIN: Ms. Robidas, do you know where you last heard to give him an idea?

(Record read as requested.)

MR. DAVIS: That was very close. At that point I think I was just talking to that there may be different designs for all these different type of applications. I think there's a very targeted focus on, for example, having a so-called three-part rate for seasonal differentiation or a particular price differential and also peak period definitions. So I think those are areas that might air for more review of the purpose, you know, for each of those types of charging.

The feasibility of those, I think that certainly has been raised in the

comments -- or in the recommendations I should say. The idea of having company-owned meters versus third-party metering, I think that's an area where we think the most important thing is to have Commission jurisdictional utility-owned metering. I think that was an area of concern of ours.

I also think that there's some time lines in here that are a little aggressive, where we're not exactly sure where we necessarily want to go with certain applications. I think those are reflected in our comments.

I think in some ways the question of the demand charge is an open issue. The idea of deciding or developing end-use specific rates -- again, I mentioned controlled water heating, where we've had those in place for years. That was raised as an exception. I think that does provide a framework possibly for certain applications. But there's a lot of questions around that: What does it cost? How do we charge for that service?

And I think the really important, fundamental, underlying issue might be when you look at developing rates and the fact that we are in an unstructured environment where we have separate distribution, transmission, energy supply and other types of charges, not all of those charges vary by time. That, I think, is a question that should be addressed when you look at any rate design for any application. The question of are we setting rates in a particular way to incentivize a particular type of charging behavior compared with assuring that we have a balance with cost-based ratemaking, and what are the basis for those costs. And I'm not so sure that we agree so much as I think those are areas that are not developed or understood. And I do point out in our comments where many costs are not necessarily time-varying.

So there's a lot of challenges, and so we need to provide some insight and experience from developing time-of-use rates and where we need to probably dig in deeper

and better understand that.

I also want to point out that we don't necessarily have to go to a three-part rate, per se, as an absolute standard, that there may be applications for that. So I think we need to explore and discuss that further.

And I think those are the highlights, Commissioner. I probably have missed a couple of items. I think there's a lot of things we offer as positives or areas to maybe steer the discussion and expand it a little bit. But those are kind of the fundamental areas in terms of rate design.

I did want to say, though, that when I mentioned it's possibly the idea of incentivized rates, things like demand charges are cost-based. They have a purpose. Structures like not having a demand charge or having some charge or rate mechanism that doesn't fully recover costs, you know, again, we haven't -- we're early in the market here. But when you design a rate that's discounted, for example, or that's priced differently

than the way costs are incurred, there's always an inherent question or need to look at who's supporting that, is there cost shifting, things like that. So, again, if we're looking at cost-based ratemaking and trying to balance that with rate design objectives, time-of-use rates do make sense. We just need to look at that for each type of service more comprehensively to better understand the underlying cost components in deciding what path to go down for rate design.

The last comment I want to make is we always have to look at feasibility. I just want to call that practical considerations. What's do able? What might make sense that should be done in a short run versus the long run? For example, a two-part off-peak rate structure might be something we can implement now. A longer-term goal might be to go to a different rate structure. Is it feasible to do that? When can we do that? What are the costs, the economics of that? Pretty important considerations here.

COMMISSIONER BAILEY: Okay. Thank you. Can you talk a little bit -- well, let's start with the two-part peak, off-peak.

Why is it difficult to design rates that would encourage customers to charge electric vehicles during the night?

MR. DAVIS: So let me clarify, please. The two-part rate is something we have in place today. And we can differentiate pricing, whether it's volumetric pricing or demand-based pricing, between peak and off-peak periods. So that's not difficult. We have a longstanding structure today in terms of the peak period. So I think what we're looking at here is, as I mentioned, short run versus long run. A two-part rate with a different peak period, maybe a shorter one, maybe a higher peak to off-peak differential, those are the kinds of structures that could be implemented in the short run.

Recommendations go further to look at three-part rates. So you might have an off-peak, a shoulder and a peak period as an

example, question of whether those would be volumetric or demand-related. But those are not structures that we have in place today. They're not -- they take some development. There's metering and meter data and billing and a process that has to happen. So that's something that could not be implemented immediately, at least not on any large-scale basis, perhaps on a more manual basis. But that's something that should be looked at.

And then there's questions within that about what should the pricing be, the price levels, the price differentials, which costs are -- which rates would be time-differentiated and which would not be. Some costs are not. They're more fixed. Some are more variable. Some vary by time. Also the peak to off-peak, the price levels, price differentials and the duration of those periods. So those are all questions that would need to be answered in the design part of this. But the implementation of that that's something -- that kind of structure, as an example, would take longer and would

involve more systems, meter data, et cetera, to develop and implement.

COMMISSIONER BAILEY: How long do you think it would take to develop a time-of-day rate that was meaningful? Can you talk a little bit about the Staff recommendation that the peak be only four hours?

MR. DAVIS: So I guess there's a couple dimensions to that. One is just having a four-hour period, and then to the extent there's a demand charge, the investigation looking at possibly having a coincident demand. So that gets a little more complex with that second item. But in terms of the duration, in some ways it's a matter of trying to measure those costs, trying to identify what costs vary. And given the four-hour period, you select, try to optimize, for example, try to get a cost curve. Let's say it's for, well, energy supply. It's a very common question of should we differentiate the energy service part of rates and have a four-hour period.

Currently we have flat rates. If we were to have a two-part rate where you had peak and off-peak and you chose a four-hour period, we would, I assume, want to choose that period where energy costs are the highest or where capacity costs are incurred. And so that would be an exercise in trying to obtain that.

Now, the immediate challenge is we have default service and competitive supply. And you have to -- the utility would have to procure power so that the suppliers are pricing the power for the four-hour period and for all the other hours, just as an example. And then if a customer switches to competitive supply, you would expect -- and this is a real challenge, trying to get that customer's supply rates to be differentiated on that basis as well.

So you try to align the structure with the different types of service. So I just talked about energy supply. We talked about transmission. We could do the same thing looking at cost curves. Identify when

transmission costs occur in a given month or throughout the year and see if that fits within that same targeted four-hour window. Distribution costs, the same thing. We have run marginal cost studies where we have identified a very long, flat peak period for some of our costs. And as an example, not all of those costs are time-differentiated. And the same thing is true for transmission and even generation supply.

So we want to choose the period, see if, among all those components of service, you can have a four-hour window where you can identify costs attributable to that period versus the other periods and further determine which costs may not be time-varying and how you deal with that structurally. So those are just examples, more kind of on a high-level structural approach.

In terms of implementing and the time to do that, I mean, I think by designing it, choosing a window, that would require then an assessment of what meter data would

we need, how would we collect that, how would we process it, what changes to our billing process do we need to implement, things of that nature. I don't have a direct answer. I don't know how long that would take. I think that's kind of what this recommendation is calling for, potentially a feasibility study to evaluate that.

COMMISSIONER BAILEY: Have you implemented time-of-day rates in any of your other states?

MR. DAVIS: Absolutely. In Connecticut, for example, more than ten years ago we actually had some regulatory processes, hearings, different dockets opened up, where we first evaluated all of the underlying costs and determined which are time-varying. So, as with New Hampshire, we have unbundled transmission, distribution, energy supply. We have other components that are also time-differentiated. And so looking at those, we have, since the '80s, 1980s, have had time-varying rates. And we've always had mandatory. And then more -- as

time went on, more C&I customers have switched and been placed on mandatory time-of-day rates. And we have had optional time-of-day rates for residential and small C&I customers. So we've had those for many years.

Ten years ago, we did a review to update the costs, refresh underlying costs. For example, in our residential classes we have an optional rate for residential customers, whether heating or non-heating. Customers can switch to that rate. We have a meter data process that brings in data for the peak and off-peak periods. And we have differentiated costs for transmission, energy supply. We have a component called FMCC. It's federally mandated congestion charge. And those prices, when you add up the price differential from those components and you compare the peak to off-peak, in total, they're on the order of around 13 cents difference between peak and off-peak.

The other important part of that investigation ten years ago was to determine

new time periods. We had 16-hour peak windows. Those are legacy left over from when we owned and operated intermediate and peaking fossil plants primarily, and that was our cost curve for supply. We designed rates around that 16-hour period. So, again, this is actually over ten years ago. We determined there would be an eight-hour window, and so 12 noon to 8 p.m. became the new period within which we would set prices for peak, and every other hour would be off-peak-based.

Challenges with energy supply, as I mentioned a few minutes ago, were the same. And that's actually where we got a lot of experience on this issue. We procured supply asking for peak and off-peak prices. We did not get that. Or when we did get pricing, they were set the same.

As a policy matter, the utility commission decided, through collaborative discussion, that we had to impute a mandatory peak to off-peak differential for supply. Residential, that's 3-1/2 cents -- and that's

in place today, it still remains -- whereas the actual prices in the market between peak and off-peak are much lower than that. So for energy supply, that's how we tackled that.

For all the other components, we did cost analyses to determine which costs were more -- which costs were attributable to the peak period and which were attributable to the off-peak period. So we designed rates around that.

We have had time-of-use rates in Massachusetts. We do have peak and off-peak demand charges. We have moved away from time-of-day volumetric charges. And again, we're an unbundled state there as well, but we retain and measure peak-period billing demands, and we design rates and bill accordingly. And that applies to both distribution and transmission components of service. So we have a lot of experience with that.

Obviously with the advent of distributed energy and other resources,

particularly net metering, you know, we've had to look at the time periods. There's ongoing investigation on how to possibly price things differently, more granularly, whether it's peak or off-peak, or even hourly, as low as hourly.

In Connecticut, we do have some customers, when they net meter, we do actually differentiate peak and off-peak periods and net over those periods.

So those are examples where we actually have I'd say longstanding time-of-use rates that we've implemented for a large number of our customers in the C&I categories, and optionally for a relatively small number, but still available, for residential and a number of C&I customers.

COMMISSIONER BAILEY: So what do you think you need to decide or to determine is feasible in New Hampshire with all that experience in the other states?

MR. DAVIS: Well, you know, we do have time-of-day rates in New Hampshire. We're in a rate case now, and that's a topic

in that case. But I think the same kind of analyses would need to be done to determine what a new period would be. I think we do need to look at -- and my Connecticut experience I think had been well over two years' work just to get the cost data evaluated -- but to understand and decide where we might want to move -- for example, if we want to choose a new time period. Our marginal cost standard in a rate case, for example, indicates 12 noon to 8 p.m. Or 11 a.m. to 7 p.m. might be the more appropriate time period for some of our distribution costs. Transmission I think would fall within that period. We'd have to evaluate that. That's not a big analysis there. I almost think what I described for energy supply is probably the same kind of questions and structures that we would need to look at there.

So I think, you know, it would take analysis, evaluation. I think setting our goals and objectives so we can pursue that would probably be the most important, you

know, starting point for that, so we can determine where do we want to go. So, for example, if we want to pursue a three-part rate or a different two-part rate with different time periods, which has been vetted in this docket and in this investigation, and if we set those goals, then I think we would pursue those.

I don't want to lose sight of when you look at these types of things, you also look at the other dynamics. For example, in this investigation we're looking at managed charging or controlled resources and how that plays, how these different costs -- time period, how that interplays and affects each of the components. If you choose a period, what does that mean for metering and billing. And also how we incur costs and how we recover and charge customers for those costs, the kinds of information, billing systems, all those things come into play. Very important things to consider.

COMMISSIONER BAILEY: How do you reconcile the imputed rate in Connecticut

with the default service, the supply, the energy supply rate that you bid?

MR. DAVIS: So we procure -- we have two types of procurement. One is for a six-month period for residential, small and medium C&I. Then we have monthly pricing procured quarterly for our large C&I customers. And so those supply costs come to us. I think they're priced peak and off-peak. I can doublecheck that. But we pay directly what the cost of supply is based on actual load settlement, and we set our rates according to those prices. So it's a passer price reconciled by looking at the differences and flowing that through as an adjustment to each subsequent period as you procure, charge customers, develop rates, implement those, and track and identify the differences. So it's basically a tracking mechanism.

COMMISSIONER BAILEY: So you procure the default service based on peak rates and off-peak rates? You have two different rates?

MR. DAVIS: We do. And we price it accordingly for the large C&I customers. For small C&I, we price it based on the prevailing rate structure. And as I said earlier, we're imputing -- actually, for some residential we impute 3-1/2 cents. And actually for the other customers, small C&I, typically under 500 kilowatts, we impute a 3-cent differential in those rates. So given those, we charge customers and bring in revenue based on those prices at the retail side. On the wholesale side, we obviously will pay the cost that's priced to us. And if there's any differences, you know, we will reconcile that and pick that up at a future period.

COMMISSIONER BAILEY: And do you know what the general rate differential is? Is that what you said was the 13-1/2 [sic] cents rate differential, a wholesale differential?

MR. DAVIS: No, the wholesale is 3-1/2 for residential and 3 for non-residential.

COMMISSIONER BAILEY: Wait. Excuse me a second. I want to make sure I understand this.

So the wholesale rate that you procure is always a 3-1/2 cent differential? Isn't it a market rate?

MR. DAVIS: Yeah, let me restate.

So it is a market rate, yes. We are procuring based on what the supply contract determines. So it's a market rate. But for setting prices at the retail customers, we price based on this imputed price differential. So it's not a perfect match between the cost, the price that we pay for the supply, so the wholesale cost, and the actual price we pay for charging residential customers for that service.

COMMISSIONER BAILEY: So what --

MR. DAVIS: Customers who are taking that supply -- those who take competitive supply, it depends on the contract prices for those arrangements.

COMMISSIONER BAILEY: Yeah, I'm just asking you about default service. So I

understand that the rate that you charge is 3-1/2 cents difference.

MR. DAVIS: Correct.

COMMISSIONER BAILEY: What is the wholesale rate, the cost of energy? What's the general difference between peak and the off-peak period?

MR. DAVIS: I don't know the number currently. But I've seen numbers that have been fairly low, a penny. At times they've been higher. Sometimes they'll go to two, three cents. It varies by month. We procure by month. I think prices have been low, and the price differential's been relatively low for some time now. That's just a function of the market.

COMMISSIONER BAILEY: And what's the difference between the peak and the off-peak? What are the hours that you solicit?

MR. DAVIS: Yeah, we define our peak as 12 noon to 8 p.m. That is a universal time-of-day peak period. So whether it's energy supply or any other

component where we have a time-varying rate, we use 12 noon to 8 p.m. And that came out of our evaluation, you know, ten-plus years ago, where the PURA Staff, we worked together and analyzed market data, tried to identify where the cost curves were and which period made more sense. And again, it's a long window. We set our demand charges on that same period as well.

COMMISSIONER BAILEY: I think Commissioner Giaimo has a follow-up question for you.

COMMISSIONER GIAIMO: I do. Thank you. We normally don't alternate and go back and forth, but I don't want to lose track of this thought, and we're on topic here.

So for your default solicitation, is there one number that comes out and then and adder of three cents?

MR. DAVIS: No. What we do is we solicit based on, you know, the procurement rules that we have. So we'll solicit and get bids and accept prices exactly as accepted and as the supplier has bid at the wholesale

level. That's our price. That's exactly what we pay for that supply. So we take that supply, and we know what the pricing is and what our costs are, and we redesign the rate for each customer class so that the peak differential between peak and off-peak is 3-1/2 or 3 cents. And then it's a revenue-neutral design. So it's exactly matching what our costs are for supply. But we just adjust the peak to off-peak differential for that period that I mentioned, 12 to 8, to come up to the same revenue and we go from there.

COMMISSIONER GIAIMO: Thank you. That's an important clarification.

MR. DAVIS: Good question, yeah.

COMMISSIONER GIAIMO: And how familiar are you with New Hampshire's default service procurement, and to what extent would the Company need to do something similar?

MR. DAVIS: So I haven't -- I'm not super close to it at the moment. But we do not impute such a rate. So I think it's pure pass-through is my understanding. So

whatever our pricing is, we will set the retail price. And it's a flat cent per kilowatt hour. It's easy enough for any given period to choose a peak period, impute such a rate. I will say, if for some reason we were unable to obtain supply from a wholesale supplier, we would go to the market. So we would have to then pull in those costs and do the same kind of process. But it's a relatively straightforward rate design process to say here's my total costs on a flat cent per kilowatt hour for a given class and redesign the rate for a given time period and at a given price differential. It's kind of like baby algebra, basically.

COMMISSIONER GIAIMO: That makes sense. Thank you.

And one other question. I just want to make sure I understand. Massachusetts and Connecticut, there are only two-part rates, not three-part rates; is that correct?

MR. DAVIS: That's correct.

COMMISSIONER GIAIMO: Thank you.

COMMISSIONER BAILEY: I think I'm finished with my time-of-use rate questions. I have other questions on other topics. Do you have any other questions, Commissioner Giaimo, on time-of-day that you want to ask now, or Chairwoman Martin, or should I move on?

COMMISSIONER GIAIMO: I think you can move on.

CHAIRWOMAN MARTIN: You can move on.

COMMISSIONER BAILEY: Okay. Thanks.

So let's talk a little bit about third-party metering. Can you explain to me what your concern is there?

MR. DAVIS: You know, well, I think in our comments I covered -- tried to address that issue. There's a lot of -- you know, we basically rely, for lots of reasons, on consumer protection, control of the data, cyber security, and basically the need to rely on and use that meter information for all the business transactions. Having

utility metering in place for electric service that we provide, you know, is really important to us.

Third-party metering, you know, I don't know a lot of about the potential issues that come up. But some of the issues fall into the area of security; fall into the area of uniform systems; the ability to gather information, manage that, utilize it for all the different purposes in the services we provide; the reliability of that equipment. The information that customers and the company utilize from those meters are among the sets of the kind of areas that I think, you know, we could certainly follow up and provide more detail. Pardon me. I'm trying to find in my comments where we addressed this issue a little bit.

But I think we really think that having utility-owned and controlled meters under the jurisdiction and review and control, you know, under regulatory control, and that provides all the necessary measures, security information, and provides and

supports the services that we provide for electric service, wouldn't just be for the purpose of measuring the electric vehicle charging, but all the services we provide to provide electricity. Again, I'm just trying to find my comments here to further elaborate on that.

COMMISSIONER BAILEY: Well, would it make a difference if it was a utility-grade electric meter that was required and it was only to support an EV charging station?

MR. DAVIS: Well, the idea of utility-grade and the standards that that dictates I think have always been important. I think that would still be the case; so what's known as utility-grade or revenue-grade metering and the standards, the accuracy, all the technical requirements that go with that.

And, you know, as we move forward, cyber security is an issue, for example. I clearly -- I was even on a call yesterday where we were just reviewing potential for

suppliers to obtain meter data. And again, the question -- you know, we always review that: How secure is that information? And customers rely on that. We rely on that. That's our real point of interface. So having accurate and timely measurement, having the appropriate data and managing that.

And, you know, we talked earlier about water heating as an example of separate service, something that's contemplated in the recommendations here potentially for separately metering electric vehicles. Well, those meters are utility-grade meters on those services. And they're managed, they're maintained, they're reliable. They're set to a certain utility standard and accuracy and other requirements. So I think there's a lot of -- that and other important factors that come into play. And we do have a concern if we were to need to use or rely on third-party metering as opposed to the company-owned meters.

COMMISSIONER BAILEY: Are

third-party-owned meters used in any other of your service territories for any other service at this point?

MR. DAVIS: Well, you know, we came up -- I think there's third -- for example, most net metering, like solar facilities, for example, will have a meter on those because they'll measure kilowatt hours, for example. I know we had, for example, a need to rely on metered data when we started net metering in Massachusetts a number of years ago. And there was a reporting requirement, but there was missing data. There was lags in reporting. There were a number of issues that were raised that made our use of that data difficult. But that really wasn't what we used for providing utility service. That was more for calculating credits and things of that nature, or just for trying to understand the usage characteristics. So I think we found those to be a very unreliable process and very, very spotty.

Generally the answer is no, though. I think we do have some production meters in

Connecticut, for example, that we rely on, but those actually are utility-specified meters. We install those. We read those. And that assures that we're getting proper, accurate and timely information. It is controlled. It's secure. And it allows us to provide monthly, in that case, net metering credits. So it's just an example of kind of a secondary meter behind our regular revenue meter. There are sub meters for customers who master meter. But those are not something we rely on necessarily. But it allows us to provide a master meter service, and then the owner of the facility would utilize those meters. But really, by and large, we do not have that kind of situation.

COMMISSIONER BAILEY: What's the Company's position on having a Company-owned meter that is separate, maybe with some specific time, more specific time-of-use rates applied to it for EV charging?

MR. DAVIS: Just to clarify, would that be a situation where we have a main service coming into a house or building or

business and to be a second meter deeper into the facility --

COMMISSIONER BAILEY: Yes, just to meter the electric vehicle charging.

MR. DAVIS: So if that's not a separate service, there's a number of things. I know there's concerns about getting access and working on customer equipment. So I'm not going to necessarily have a position on this, but I'd be glad to take that back and follow up. But that's a concern.

I think, as we said earlier a little bit, but this kind of gets into, well, how would that work, and would we be taking a meter and subtracting a meter reading off of that main meter and charging one service for the difference and charging differently or crediting or some other mechanism for the charging load itself and designing rates accordingly for that. So you've got -- you're working with two meters, more complex billing, more complex data, calculations. Meter data has to be subtracted, has to be time-based now. So you've got a lot of

complexities, a lot of dimensions to address and try to implement that kind of a structure. So that's something I think we would have to look into. And I think it's not necessarily something that's not doable or that wouldn't be useful and applicable for a particular application, but I think we would have to come back and understand better what we're trying to accomplish. But in that simple example we just discussed, I think that's something I would certainly want to take that back and give you more information on that.

COMMISSIONER BAILEY: Okay. That would be good.

Would it make sense to have a separate service drop and a separate meter for a charging station, or would that just be outrageously expensive?

MR. DAVIS: Well, no. See, it's a separate service. And like I said, we do that for water heating, as an example. So we actually have that in place in New Hampshire today, or something similar to it. You know,

there's questions on how do you charge, what's the rate design for that, what's the cost for that service. But I think that's something that we already have an established form of service that would have a second separately metered end-use charge device on the service to that situation with water heating. So I think that's something I had even taken up in our technical session as a discussion point, because it gives us an existing framework that we can work off of. So I think that's an option. It may not be appropriate in all cases, or it may get complex -- for example, if you're designing it for one purpose, but then you add other loads to it. I think the more common expectation might be you would have electric vehicle charging, but you might almost put storage, some kind of interactive device, you know, for that purpose. But I think we would just have to look at, you know, how exclusive is that service, what does it take to provide that.

The other thing is you get into

things like if you're adding charging, it's like any other additional load. Are you going to have to re-evaluate the service? Are you going to have to expand your service size or even the conductors on the street or the transformer? All those come into play. Kind of like in a line extension consideration, but it's more important. It is a service upgrade indeed. So it's a lot of other kind of operational and engineering elements that go with that.

But in terms of rate design, like I said, we have a structure today that can be used as a framework to explore that further with the water heating rates.

COMMISSIONER GIAIMO: And do you have the same issues that you described with the water heating rates that you'd have to work out, I mean, you know, the netting of the charges and whether the meter for the hot water heater is behind the service meter, or is it a totally separate service?

MR. DAVIS: If it's a separate service, we don't have those issues. I would

also say we don't know a lot about the load patterns and all that. So when you're doing cost analysis, you obviously also need to understand the charging characteristics. But that's more of a rate design problem. That's really more a separate service. Let's identify what's involved in providing the service, and then the cost for providing that will help provide guidance, along with customer usage characteristics.

COMMISSIONER BAILEY: Wouldn't it make sense to design the rates to get the load shape that you want?

MR. DAVIS: Again, this is almost the question of the carrot and stick. So we could design rates with an intended outcome or behavior. Doesn't necessarily provide a guaranty, but it certainly would be designed based on our, you know, cost to provide that. But again, knowing the pattern and the characteristics if we design it to an assumed characteristic -- my suggestion in this kind of case is it's a new load, a new type of service, and it could be different depending

on whether it's business or home, for example. You put an initial design out and you track and monitor those costs. I think even in the recommendations there was a concept of let's get, you know, 500 services in place, and let's look at the data from that. So you might do a phased approach. You design it, as you indicated, with some assumptions. And then you understand how that works, how customers respond to that, whether that's the right design, and work from there.

COMMISSIONER BAILEY: Okay. Thank you. I will accede to my colleagues. I've taken up enough time. Thank you very much.

MR. DAVIS: You're welcome.

CHAIRWOMAN MARTIN: Thank you.

Commissioner Giaimo, do you have other questions?

COMMISSIONER GIAIMO: I just have one more question on this, and then I'll defer to the Chair.

What I heard was that Eversource thinks that some of the time lines associated

in the recommendations are too aggressive. And I think one of the points there was with respect to the 90-day turnaround for a feasibility study. Is there a longer time period, Mr. Davis, that the Company would be amenable to turn that study around?

MR. DAVIS: Commissioner, I'm just trying to understand. I guess I'm thinking, as you're asking the question, that what are we trying to assess in that kind of a study? So I think part of what I struggle with I think in trying to look at those time lines is what are we trying to accomplish in that study. So I think if you're talking about metering or you're talking about rate design or -- I think you have to look at all the economics and all the factors that go into a feasibility study here. So I don't have a direct answer. I don't know if there is a particular time line. I guess it depends on what the goals and objectives are. And maybe if we could -- if there's a particular aspect of the recommendations that we wanted to focus on --

COMMISSIONER GIAIMO: Okay. Since we're talking about metering, maybe we'll just isolate it to metering. Third-party metering within 90 days if it's possible. Is that possible?

MR. DAVIS: Third party. Okay. I think 90 days -- I mean, feasibility studies I understand are often relatively 90 days or even a little longer. But I don't know everything that's involved with having to evaluate a third party. You're talking about both understanding whatever the third-party specific devices are and how they operate, and the bigger question: How does that integrate or not with our equipment? There's a lot of extra work when you start looking at equipment that's not ours and that we're not familiar with and how that might work.

So to me, it's almost like there's still questions about, you know, what is that equipment? What are we trying to accomplish with that? And I think if the goals are clearer, we could probably better identify what type of study would be -- you know, what

would be involved in the study and the amount of time we would need. But I think it's kind of premature to be able to answer that without some of those questions answered. And there's probably additional questions, in my experience. And I think Mr. Goldman is with us today, and I know he probably has some experience with energy efficiency space analyses for implementing certain types of programs that might involve metering. But I don't think we would be able to give you a solid answer today without better knowing what all is involved and what we need to go off and start looking at.

COMMISSIONER GIAIMO: Okay. Well, thank you, Mr. Davis. I appreciate the time.

CHAIRWOMAN MARTIN: I had a question about that same issue, and I'm trying to decide -- I guess it sounds like Eversource is saying that the feasibility study is not reasonable, and you're saying -- in that time frame it's not reasonable. And you're saying that's because you don't have enough information to actually know what

you're studying. Do you have any suggestions as to how we could get to that place so it would be reasonable?

MR. DAVIS: Yeah, I think the most important thing is having enough of an understanding of specifically what the objectives might be or just the overall goal. You know, it's almost by example. I'm reviewing the comments. We had a 120-day period, but there was a 90-day period that the Commission was referring to.

So I guess I don't perform feasibility studies, so I don't know everything that goes into those. But generally I would expect we would really want to have a more targeted or defined set of goals and objectives that we would want to evaluate. And I almost feel that one way to approach it would be to give a solid example of what we might -- you know, try to basically set up a configuration and say, well, this is the kind of approach we might want to take. I certainly think we could come back with some comments and better

suggestions. I could consult, you know, after this hearing, probably give you a more articulate and better-defined suggestion, set of suggestions that might be helpful in your evaluation in trying to address this question.

CHAIRWOMAN MARTIN: Okay. I think that would be useful and certainly helpful to hear from anyone else, not at the moment but when you're presenting on this issue.

So it's not the 90 days or the actual time frame that's the issue for Eversource. It's overall what are you actually doing as part of this study.

MR. DAVIS: I think that's part of it. And I think the 90 days is kind of once you know what you want to accomplish, you set up the time frame, whether it's 90 days or a different period. But it's really more what are we trying to assess. And there seems to be so many questions that we're still wrestling with here. Where are we trying to go with this? So we have recommendations for I think sort of specific sort of blocks or

types of rate designs or applications, but I think there's still a generally high-level form of feasibility study. We definitely need much more definition around that. And then, depending on what we're trying to tackle, what we need to evaluate, that would help us inform the amount of time needed to do that and who all is involved. I mean, it could be quite resource-intensive.

CHAIRWOMAN MARTIN: Okay. Thank you.

If there are no other questions from the Commissioners, I think we'll move on to Unitil.

MS. CHIAVARA: I'm sorry. Madam Chair, may I ask one question?

CHAIRWOMAN MARTIN: Yes.

MS. CHIAVARA: I just wanted to clarify. There's some items now that have come up throughout Mr. Davis's comments. And the questions that -- the items that you want us to follow up on and provide additional information, what form should those take, and how should we follow up? Or are you going to

issue another secretarial letter at a future time? I was just wondering if there were any action items that I should take note of.

CHAIRWOMAN MARTIN: Why don't we leave the record open to receive written public comment on those items until -- is next Monday long enough? That would be the -- (connectivity issue)

MS. CHIAVARA: Ed, is next Monday okay?

MR. DAVIS: Yes.

CHAIRWOMAN MARTIN: Okay. Mr. Kreis.

MR. KREIS: I request the opportunity to respond to those comments. I'm guessing that I and perhaps other parties won't necessarily agree, based on what I've already heard from Mr. Davis this morning, with the positions that Eversource is going to take.

CHAIRWOMAN MARTIN: That's a fair question. At this point I'll get my calendar so we can all be on the same page on the schedule. So the 20th, Monday the 20th, for

the written comments that are in addition to comments made today, and responses by Friday, July 24th. Okay? All right. So let's -- (connectivity issue)

MR. SIMPSON: Chairwoman Martin, this is --

(Court Reporter interrupts.)

MR. SIMPSON: Chairwoman Martin, this is Carleton Simpson from Unitil. Monday, the 21st, may present a challenge, given the vacation season. I would respectfully request until perhaps the 24th, which is the Friday, for written comments.

CHAIRWOMAN MARTIN: Mr. Buckley, do you have any reason why that's not a reasonable time frame for this?

MR. BUCKLEY: I think that is probably reasonable. I think it's also important to keep in mind that there needs to be an order on the rate design standards specifically by August 18th, according to SB 575. So I think that is also important to keep in mind as we're thinking about this.

CHAIRWOMAN MARTIN: Okay. Thank

you.

All right. We'll go with 7/24 for the additional written comments and 7/31, which is a Friday, for the responses.

Okay. Mr. Simpson, I think we're back to you now.

MR. SIMPSON: Thank you. Well, good morning, Chairman Martin, Commissioner Bailey, Commissioner Giaimo. Again, for the record, my name is Carleton Simpson. I'm an attorney representing Unitil Energy Systems, Incorporated. I appreciate the opportunity to speak with you today regarding the Public Utilities Commission Staff recommendation that was issued on April 3rd in IR 20-004. And again, we appreciate the opportunity to provide written reply comments subsequent to today's hearing and to respond to questions and other parties' comments.

As directed by the May 28th secretarial letter scheduling this hearing, I'll focus my initial comments on the subject matters where Unitil's perspective may differ from the Staff recommendation, but I will

also offer areas of support and alignment.

I'll start with cost of service. The Staff recommendation provided that, to the maximum extent practicable, EV charging rate designs shall reflect the marginal costs of providing EV charging services. A marginal cost of service study is a useful analysis in helping to establish the proper price signals through rates and to inform customer behaviors. However, utility ratemaking is primarily an exercise in recovering the utility's embedded cost of service through the rates charged to its customers. Therefore, marginal cost-of-service-based revenues should be adjusted by rate class specifically to recover the utility's full cost of service while minimizing cross-rate class subsidization. Some flexibility regarding the timing of EV TOU rate proposals could help to align these efforts with rate cases to ensure is that the full cost of service is studied and determined.

Jumping to the appropriateness of

time-of-use rates. Similar to Staff, Unitil strongly supports the availability of time-of-use rates for electric vehicle charging. EV-specific options should include rates for electricity imports and exports, however, as vehicle-to-grid technology evolves and becomes commercially available. The ability for EV customers to export energy out of vehicle batteries necessitates further investigation, and that's something that I think we should keep in mind as we move forward.

With regards to alternative metering, Public Utilities Commission Staff recommended that all electric distribution companies perform a feasibility assessment to determine opportunities for the utilization of interval metering from devices other than the utility meter. Unitil wants to emphasize the necessity for utilities to rely on tested, validated and certified metering. All utilities have rigorous requirements for the procurement of meters certified to known standards along with testing programs to

ensure accuracy over the useful life of the meter.

With regards to the energy, transmission and distribution components, Staff recommendation called for issuing guidance that any separately metered EV charging rates include a time-varying component for energy, transmission and distribution. Unitil would like to better understand the Staff's justification for time-varying distribution charges from a cost causation perspective. Utility distribution-related costs are fixed in nature and are incurred to meet customers' non-coincident peak demands and do not necessarily have time-varying cost characteristics which can be captured. In most cases, demand charges better reflect the manner in which a utility's transmission and distribution costs are incurred for larger customer classes. At a minimum, Unitil would encourage the Commission to avoid making a determination to time-varied distribution charges until a sufficient level of load

research data is available to evaluate the load characteristics for EV customers as a stand-alone rate class.

In addition to the areas that I've addressed, the Staff recommendation spoke to rate consistency amongst utilities and provided that separately metered EV rates should have three periods, have an average price differential between off-peak and peak of no less than three to one, and have a peak period no longer than four hours in duration. Time periods should be reflective of costs, and customers should be able to choose between options that meet their needs for the relative differential size. The notion of predetermining a price differential may be contrary to cost-based rates. And Unitil would ask how these recommendations coincide with the only currently approved electric vehicle time-of-use rate in New Hampshire, which is offered by Liberty Utilities.

Jumping to demand charges. For applicable customer classes and high usage applications, such as clustered charging or

DC fast EV charging, the use of demand charges is appropriate to reflect the cost causative characteristics of a utility's fixed costs. Demand charges also would encourage the adoption of energy storage, smart charging and vehicle-to-grid functionality. Critical peak pricing may represent a worthwhile addition to demand charges and the identified time-of-use ratemaking concepts. Staff also recommended issuing guidance for all utilities to file feasibility assessment of incorporating peak-coincident demand charges into rate designs. Unitil would note that demand charges based on customers' coincident peak demands do not necessarily align with distribution-related cost causation principles as non-coincident peak demands can cause distribution-related capital costs and O&M costs to be incurred by the utility.

With those areas being identified, I'd like to speak to areas of agreement briefly. On declining block rates, Unitil agrees that declining block rates would add

unnecessary complexity to the ratemaking process and make it more difficult for customers to react to time-of-use rates.

Looking at whole facility versus separately metered installations, Unitil also wants to provide customers with a suite of rate options tailored to meet their needs. Given the dynamic nature of the transportation market and variety of travel and parking needs, no one option will be suitable for all customers alike.

Looking at load management, load management techniques represent an important consideration for electric vehicle rate design. Unitil believes that utilities are best positioned to perform load management activities, and such offerings would align with current programs.

And a final area of note that was absent from the Staff recommendation that we included in our initial comments relates to make-ready infrastructure. I just want to note that EV make-ready programs would facilitate the development of the EV charging

market by increasing the availability of publicly available charging stations. These programs would align with the state's policy objectives and have been supported by stakeholders as outlined in the July 2019 New Hampshire Department of Business and Economic Affairs report, Evaluating Electric Vehicle Infrastructure in New Hampshire. The most common policy recommendation identified in the report was approval of reasonable utility make-ready investments as necessary investments in the distribution system. And Unitil would encourage the Commission to consider make-ready programs as an integral component in the statewide electric vehicle strategy.

With that, I have no further comments and would be glad to answer any questions. Thank you.

CHAIRWOMAN MARTIN: All right. Thank you.

Commissioner Bailey, do you have any questions?

COMMISSIONER BAILEY: I do have

questions. But should I ask them after we take a break, or are we good?

CHAIRWOMAN MARTIN: Sorry. I didn't realize it was 10:30. Let's stop and take a ten-minute break until 10:42.

(Brief recess was taken at 10:32, and the hearing resumed at 10:46 a.m.)

CHAIRWOMAN MARTIN: Okay, Ms. Robidas, let's go back on the record. And we were with Commissioner Bailey.

COMMISSIONER BAILEY: Thank you.

Mr. Simpson, I guess I'll go in the order in which you spoke of things.

About the marginal cost of service, your position is that we should use a marginal cost of service for EV charging metering or rates?

MR. SIMPSON: Our position would be that in order to properly develop an EV rate design, that it should be conducted within the full cost of service study done within a rate case. So our preference would be to develop these rates within a fully litigated rate case.

COMMISSIONER BAILEY: In a fully litigated rate case that allocates all the costs above marginal costs to different services.

MR. SIMPSON: Yes. Correct.

COMMISSIONER BAILEY: That's a little different than an embedded cost of service study; right?

MR. SIMPSON: That's my understanding, yes.

COMMISSIONER BAILEY: I'm sorry. I may have misspoke. Did you say that you thought we should use an embedded cost of service study or...

MR. SIMPSON: No. Looking back at my notes here. No, I was speaking to recover the embedded costs within our rates, you have to conduct a full cost of service study.

COMMISSIONER BAILEY: And the full cost of service study includes sunk costs; right?

MR. SIMPSON: Yes.

COMMISSIONER BAILEY: And would you include -- what kind of sunk costs do you

anticipate as being necessary to a charging rate?

MR. SIMPSON: I'd like to take the opportunity to provide more detail from some of our internal folks in our written comments, and I can speak to that question in our written comments provided on the 24th.

COMMISSIONER BAILEY: Okay. Thank you.

About the third-party metering, if we required that -- and I'm not suggesting that I've decided personally that we should do this or not. But if we decided that we thought third-party metering was the way to go, and we required that those third-party meters be tested, validated and certified according to your standards, would that help your concern?

MR. SIMPSON: That would address some of the concerns. But we would still have concerns regarding cyber security, you know, ongoing maintenance, availability of the equipment. You know, our programs are, of course, regulated by the Commission, and

we feel that the appropriate venue for metering would be through the utility. And, you know, regarding the assessment that's requested within the Staff recommendation, we don't have much in terms of previous data or programs to speak to, so we'd like to learn a bit more about what would be helpful from the Commission's perspective to learn about with regards to alternative metering, as we just have a lack of information in this area.

COMMISSIONER BAILEY: Do you have any concern about a separate service meter for EV charging --

MR. SIMPSON: No. I think that that's certainly a valid and strong option for customers, as some customers, you know, will have the ability to have a separate service, other customers may not. And Unitil wants to try to provide multiple options for customers to adopt electric vehicles, whether it's a whole house or a whole facility or a separately metered separate service installation. There are benefits and possibly drawbacks to both. But with a

separate service and a separate meter, that's a known structure, and we believe that we would be able to serve that service.

COMMISSIONER BAILEY: And if you had a separate service with a separate meter, do you anticipate that the charge that's associated with the customer charge that's associated basically with the distribution system, the flat rate, a flat monthly fee, would that be the same, or would it be a different rate?

MR. SIMPSON: I think that would be something that we'd have to determine in the ratemaking of that class.

COMMISSIONER BAILEY: Based on cost of service?

MR. SIMPSON: Yes.

COMMISSIONER BAILEY: Okay. You said that the demand charges better reflect costs than time-of-use rates for large C&I customers; is that right?

MR. SIMPSON: I was saying that demand charges are appropriate for large installations to reflect the fixed costs

required to serve those customer types.

COMMISSIONER BAILEY: How large do you mean when you say that?

MR. SIMPSON: That's a question I'd want to follow up on with our operations and our regulatory folks.

COMMISSIONER BAILEY: Okay. Thank you.

MR. SIMPSON: And I will in our comments.

COMMISSIONER BAILEY: Okay. Will you also ask them -- or maybe you know this. What's your position about demand charges for residential customers? Are those necessary?

(Court Reporter interrupts.)

MR. SIMPSON: Unitil's not advocating for demand charges for residential customers at this time.

COMMISSIONER BAILEY: Okay. Can you go over what you said about -- it was shortly after you talked about clustered charge -- demand charges for clustered charging stations and DC fast charging stations. And you said something about

coincident peak demand.

MR. SIMPSON: So demand charges -- there was some notes in the Staff recommendation regarding demand charges based on customers' coincident peak demands, and I just wanted to note that those coincident peak demands might not necessarily align with the distribution-related costs because serving those customers can cause capital-related costs and O&M costs over time that are not time-specific. So at this time, time-varying the demand charges is something we think would require further investigation.

COMMISSIONER BAILEY: Did you say time-varying demand charges or --

MR. SIMPSON: Is that what your question -- I thought that was what your question was regarding? No?

COMMISSIONER BAILEY: Well, I mean, you're saying that a demand charge shouldn't be based on a coincident peak because there are costs that are not associated with the coincident peak; is that right? But there are some costs that are associated with the

coincident peak that could be reduced if you didn't expand the coincident peak or you reduced it; correct?

MR. SIMPSON: I will have to follow up on that question as well. I apologize.

COMMISSIONER BAILEY: Okay. All right. Thank you. That's all the questions I have.

CHAIRWOMAN MARTIN: Commissioner Giaimo, do you have questions?

COMMISSIONER GIAIMO: I have what I think are two relatively quick questions.

Mr. Simpson, thank you for your comments, and thanks for participating today.

You were discussing with Commissioner Bailey about third-party meters. And I thought I heard you say that one of your concerns, or you have at least two concerns with respect to maintenance and cyber security. If a third party actually agreed to satisfy the requirements of Unitil, would that allay your concerns?

MR. SIMPSON: I think we would want to see that. The level of testing and cyber

security and validation and procurement that the utility metering provides is what we would want to provide for customers.

COMMISSIONER GIAIMO: Okay. So it sounds like that is the sort of thing that may be able to be worked out.

And my next one is my next and my final thing. I guess it's more of a comment. I want to make sure I understand it right.

Reading from your testimony -- or I'm sorry. Reading from your prefiled comments, which I think you referenced earlier in your actual testimony, you said -- or your statement was, "The Company believes that a suite of rate offerings tailored for different customer types and uses may be appropriate." So I just want to make sure I'm understanding that.

You're suggesting something more than what Eversource was discussing earlier and what they're offering in Connecticut and Massachusetts. It's more than just the two-part product. It would be a three-part product, or something even greater than that;

is that correct?

MR. SIMPSON: That there would be -- there could be options for customers to choose from, in terms of how that customer gets service, whether it's a whole facility time-of-use rate that includes their EV load and all of the rest of their load; could be a separate meter specific to electric vehicle usage rate, again, with a three-part or two-part rate. Essentially each customer's behavior and travel needs will be different and the ability for that customer to take service will be different as well. So we want to try to provide a suite of options for customers that meet their lifestyles, help them minimize cost, help us to mitigate peak demands, and encourage electrified transportation in the state.

COMMISSIONER GIAIMO: Thank you for that clarification and expanding on your comments. That's all the questions I have. Thank you.

CHAIRWOMAN MARTIN: Okay. Thank you.

Mr. Simpson, at the beginning of your comments you mentioned a concern about the ability to export energy from the EV battery. Is that a concern that there's data to support, and can you give me a little more information about that?

MR. SIMPSON: So this is a very nascent part of the market. But certainly in the long run, vehicle-to-grid technology is a very key area, as we're making significant investments, customers are making significant investments in electric vehicles, that could offer not only transportation but grid services. And I wanted to note that as we consider dedicated rate designs for electric vehicles, that we look to the future of possibilities for vehicle-to-grid technology and that the rate design for imports of energy to charge electric vehicle batteries may not be identical to the rates for exporting energy from those EV batteries.

CHAIRWOMAN MARTIN: Okay. Thank you for that. I don't have any other questions.

We'll move on to the Office of the Consumer Advocate.

MR. KREIS: Sorry. It took me a moment to unmute myself.

The Office of the Consumer Advocate enthusiastically supports the recommendations made by Staff back on April 3rd. As we said in our written comments in response to that recommendation, time-of-use rates are critical to the success of transportation electrification, and we are very gratified to see that Staff understands this. It's really the only right answer, based on the principles of rate design as laid down by Alexander Hamilton in the Federalist Papers. Or maybe I'm confusing that with the forthcoming Lin-Manuel Miranda musical about the life of another great New Yorker, Professor James Bonbright. He, by the way, lived to age 93, presumably because he never challenged a rival on the Columbia University faculty to a duel. But I digress.

Here is my favorite thing about the Staff recommendation: It quietly, but

forthrightly, acknowledges this reality: Metering is no longer a natural monopoly. Just as PURPA broke the back of the utility monopoly on generation when Jimmy Carter signed that federal statute into law 42 years ago, so, too, will it be a watershed moment when we allow, to quote Staff, facilities that utilize interval metering capability of devices other than a utility-owned meter to enable electric vehicle time-of-use rates. Staff says let's get the utilities to file a feasibility assessment within 90 days on that subject. Staff allows that it's possible the utilities will say it's not feasible, in which case the utilities should provide a road map for overcoming the barriers to such an initiative. It's hardly surprising that Eversource would call Staff's approach premature and untenable in its written comments. Mr. Davis of Eversource and Mr. Simpson of Unitil capably rolled out all of the usual excuses, including, by the way, excuses that are likely to go away when the Commission approves a suitably designed

statewide data platform in Docket DE 19-197. Meanwhile, Staff's recommended approach to non-utility meters in this docket would put Eversource, Unitil, and any other skeptics out there to their proof rather than just relying on the delay tactics Eversource deployed in its comments this morning.

The Commission should stick with the Staff's approach. I can't think of a better way to address this issue that doesn't involve me and Joe Purrington rowing across the river to Weehawken and pulling out our pistols. And if I had to do that, by the way, I would pick Melissa Birchard, in her capacity as Chargepoint's attorney, as my second.

Here is my second favorite thing about the Staff recommendation: The embrace of time-varying rates for energy, transmission and distribution, as well as a pathway for utilities to, quote, solicit a separate tranche for full requirements load following service for EVs within their default service solicitations. That's another perfect

revolution-driving moment because, gosh, it sure is time to take another look at how our utilities procure default service generally.

The OCA supports the contours recommended by Staff. It should be common to the EV-related time-of-use rates for all utilities, including use of three distinct periods and a peak period of no longer than four hours a day. On reflection, we've come to agree with the idea of seasonal differentiation based on cost causation. Motorists, after all, are already used to that as they watch gas prices jump every year on or about Memorial Day for decades. And we, of course, endorse the Staff's skepticism about demand charges, buttressed by a willingness to be convinced they may be appropriate for commercial and industrial rates, as well as fast-charging stations. The availability of such stations is critical to the future of transportation electrification, so we have to get their rate design right.

As Staff noted, in our comments we

raised the question of whole premises TOU rates several months ago for EV customers versus separately metered TOU rates specifically for power and electric vehicles. Staff came down squarely in favor of separately metering EV usage. We're comfortable with that, based on the thoughtful analysis in Staff's memorandum.

We know from experience how difficult the actual task of designing time-of-use rates can be. Back before Lon Huber went over to the dark side -- he now works for Duke Energy, as most people know -- he belabored on our behalf, along with Heather Tebbetts of Liberty, and the irrepressible deputy mayor of Lebanon, to get the TOU rates in the battery storage pilot right. We agree with Staff that it's time for all three electric IEUs to get to work and file something that's effective in 120 days. And, yes, to anticipate a question, I do think that in this one instance, single-issue ratemaking is appropriate.

One final point as we consider the

future of transportation electrification in New Hampshire: We should think now about what this means for how we pay for the state's roadways. Drastically less gasoline use means drastically less gasoline tax revenue. In the future, the electricity tax will grow and become earmarked for roadway costs. During that -- doing that right becomes a question for the PUC. And this rate should be designed so that the classic rate design principle applies, cost causation. And I should say, by "grow," I mean the electricity consumption tax is likely to come back. If you're driving an electric-type Humvee for 20,000 thousand miles a year, you should pay more to use the roadway than if you're driving a plug-in Prius for 5,000 miles a year.

This Prius owner thanks the Commission for the opportunity to address you today. We look forward to a successful conclusion of this important docket. And I think that's all I have to say by way of prepared remarks. I, of course, would be happy to answer any

questions from the Commissioners.

CHAIRWOMAN MARTIN: Okay.

Commissioner Bailey.

COMMISSIONER BAILEY: Thank you.

Mr. Kreis, from your experience, do you know of any other states that allow third-party metering for any service?

MR. KREIS: I believe that Eversource is actually using third-party metering in one of its own jurisdictions. Let me just look at my notes here. I think... I just have to get to the right place in my... yeah, Eversource uses third-party meters for their active demand-reduction programs, and they use third-party data and metering and charges for the EV component of their active demand-reduction programs in Massachusetts. I guess Mr. Davis forgot to mention that.

COMMISSIONER BAILEY: Well, I think he said something to the effect of they had used them for, I don't think he said active demand reduction. But it wasn't for measuring specific usage that they're

selling. It was for reducing usage, I thought.

MR. KREIS: Right. Well, to answer your question more generally, Commissioner Bailey, I have not looked around the country to determine who else is doing this. I certainly would be willing to do that research if it would be helpful to the Commission because I really do think it's time.

COMMISSIONER BAILEY: Yes. I mean, you said it's no longer a natural monopoly. But until we see some more examples of it, it may not necessarily be a natural monopoly. But it would be helpful if you could show us some examples of where it's been utilized and where it's working.

On the whole premises time-of-use rates, you said that you're now agreeing with Staff that that's not necessary. Or would it be best to have that as an option?

MR. KREIS: You will recall that in my initial comments I introduced that particular choice into the discourse about

this. And I thought it was important to think about whether it makes more sense to offer whole premises service to EV users or whether all EV use should be separately metered. And the Staff seems to, if I'm understanding it correctly, come down in favor of saying EV service should be separately metered. And I'm saying I'm comfortable with that, having given that question the thought and consideration that I think it deserved.

COMMISSIONER BAILEY: Okay. Thank you. That's all I have.

CHAIRWOMAN MARTIN: Commissioner Giaimo.

COMMISSIONER GIAIMO: As always, Mr. Kreis, thank you.

So if we move to time-of-use rates and it creates a discernible shift in EV penetration and electricity consumption, will you jump in the Prius, drive a mile east of here and advocate for bringing back the electricity consumption tax?

MR. KREIS: I will walk a mile east

of here, and I will testify when somebody else proposes bringing back the electricity consumption tax, to do that appropriately with attention to the kind of rate design principles that we are familiar with here from Professor Bonbright and everybody who's come after him. So that's the point I was trying to make. I'm not here advocating new taxes, by any means. I'm just saying that when that inevitably happens, we, meaning everybody here participating in this hearing, have insight and expertise to contribute. And I will be -- I guess I'll be hoping, Commissioner Giaimo, that you're down there testifying with me as well.

COMMISSIONER GIAIMO: Yeah, I know. Thank you, Mr. Kreis.

CHAIRWOMAN MARTIN: Okay. Mr. Kreis, I have one question. You made a statement about thinking that in this full instance, single-issue ratemaking is okay. Can you explain why?

MR. KREIS: I guess for the same reason that we supported single-issue

ratemaking in the Liberty battery storage pilot. This is a discrete initiative that I think the Commission should act on expeditiously, you know, not hastily by any means. But it has its own sort of cost causation issues and rate design issues that really need to be focused on. It really took us -- and, you know, Ms. Tebbetts can talk about this if you're interested in hearing about it from her because she was directly involved. It took a long, long time and tons of hard work to get the rate design right in that battery storage pilot. And so I think that doing that work now is important.

A question you might be about to ask me is why don't we do that in the context of the pending Eversource rate case. And I guess my answer to that is, yeah, we could do that. Eversource hasn't proposed an EV time-of-use rate in that docket. But it could certainly be embedded in the rate case or maybe considered as a kind of extra innings feature of the rate case, something like that.

CHAIRWOMAN MARTIN: Okay. Thank you.

It looks like we're moving on to the Department of Environmental Services.

MS. OHLER: Good morning, Commissioners. My name is Rebecca Ohler, and I am the bureau administrator for the Technical Services bureau at the Department of Environmental Services, in the Air Resources Division. My bureau is responsible for policy issues related to emissions from the transportation sector, as well as policies related to reduction of greenhouse gas emissions across all sectors, including electric generation. As such, we appear regularly before the legislature and the PUC to talk about these issues.

The transportation sector accounts for 42 percent of total end-use energy consumption in New Hampshire. Corresponding emissions from this sector account for more than half of the oxides of nitrogen emissions that contribute to ground-level ozone, a respiratory irritant and a primary ingredient

of smog, and over 45 percent of the greenhouse gas emissions that contribute to climate change.

Primary strategies to reduce emissions from transportation sector include reducing the number of miles driven, improving the efficiency of the vehicles and utilizing cleaner fuels. Vehicle electrification addresses these two latter strategies. Electric vehicles use approximately 25 percent of the energy of a conventional gas or diesel vehicle to travel the same distance. And even when factoring in emissions from manufacturing the vehicles and batteries and the emissions from the grid, EVs reduce overall emissions as compared to a convention vehicle.

Electric vehicles present economic, energy, and environmental opportunities for the state and the region by reducing overall energy consumption, reliance on energy imports from out of the region --

(Court Reporter interrupts.)

MS. OHLER: Electric vehicles

present economic, energy, and environmental opportunities for the state and the region by reducing overall energy consumption, reliance on energy imports from out of the region, and the emission of air pollutants. Enabling and encouraging a transition to electric vehicles is one of the most cost-effective and achievable strategies to reduce transportation-related emissions.

As detailed in previous written comments, New Hampshire still has a relatively small electric vehicle population, approximately 4200 electric vehicles, based on December 2019 registration data. But we've seen an adoption rate of over 215 percent from 2016 to 2019. With more EV models available today, including electric SUVs and pickup trucks, and EV prices falling, we anticipate this growth rate will continue and perhaps accelerate, provided appropriate regulations and policies are in place.

New Hampshire [DES] agrees with Staff recommendations and appreciates their

thorough and thoughtful consideration of the unique issues associated with enabling and supporting the growing electric vehicle market. And I will offer some brief comments today that focus on time-of-use rates and demand charges, the two areas we feel are of particular importance in advancing EV charging availability.

At the residential level, EVs can represent a relatively large percentage of electric load. While EVs reduce overall energy consumption in comparison to gasoline-powered vehicles, residential EV charging can draw nearly 50 percent more power than even the energy-intensive residential appliances. Absent price signals, a typical EV owner is likely to plug their vehicle into their home charger when they arrive home from work. This typically coincides with the evening peak demand. Currently, EV drivers do more than 80 percent of their charging at home. Much of this charging could be done during off-peak hours, but EV owners must have a reason to delay

non-essential charging. Rates can have a significant influence on charging behavior, and therefore can be used to encourage EV charging during off-peak demand periods.

By offering time-of-use rates with strong price signals, utilities increase the likelihood that EV owners will hold off on charging until the daily peak has passed, which will minimize impact on overall seasonal peak, as well as New Hampshire's share of the load. The implementation of EV time-of-use rates now, before EV numbers increase to a significant percentage of the on-road fleet and begin to register a negative impact on the grid, can better establish off-peak charging as the norm for EV owners from the very beginning.

So with respect to the Staff recommendations, DES supports the recommendations that the Commission issue guidance supporting time-of-use rates as an appropriate rate design component of EV charging; that such rates contain time-differentiated generation, transmission

and distribution components; that each utility be required to offer off-peak, mid-peak and critical-peak rates, and that the time-of-use rates be seasonally differentiated.

DES further recommends that, in addition to the option of separately metered EV charging, that customers have the option to take electric service for the home and EV charging from a single drop and apply the time-of-use rate across all electric use.

Not all EV charging occurs at home. Just as drivers of conventional vehicles need to stop to fill up when the tank is empty, so must EV drivers stop and fill up when their batteries get depleted. EV charging stations include both direct current fast charging stations that can deliver 50 to 350 kilowatts, as well as Level 2 chargers that range from about 3 to 30 kilowatts.

Currently, the business case for installing public access EV charging, and in particular, the high-speed DC fast chargers, is minimal at best, and negative in many

cases. The fast chargers can draw a lot of power in a short period of time, and banks of Level 2 chargers can do the same if multiple vehicles are charging at the same time. These charging stations may, particularly in the early years, be used only by a handful of vehicles per day, or even per week, and demand charges can be responsible for over 90 percent of the electricity costs. This cost spread out over relatively few charging sessions can make the cost to charge prohibitively high.

For businesses subject to a demand charge in their tariff, installing vehicle charging can greatly increase their overall monthly utility bills, discouraging them from providing charging to their employees or patrons.

For potential owners or operators of the electric transportation technologies, the vehicles themselves, including fleet operators, trucking companies, delivery services, demand charges can lead to fuel costs that are actually greater than the cost

of gasoline or diesel, which eliminates the potential economic benefit of electrifying their fleet.

Alternatives to traditional demand charges are necessary for sites with separately metered chargers in order to give owners of public access or workplace charging stations much greater potential to recover costs and make a business case for their stations.

DES recommends that the Commission explore the issue of demand charges in greater detail in order to develop an alternative to demand charges, that addresses cost causation and does not negatively impact other ratepayers.

The Commission should also consider how to incentivize battery storage and smart charging at public charging sites to address the demand issues as site use increases. Smart charging refers to a charging system whereby electric vehicles, charging stations and charging operators share data connections. Through smart charging, the

charging stations can monitor, manage and restrict the use of charging devices to optimize energy consumption.

DES supports Staff recommendations that the utilities should explore alternatives to customer peak-based demand charges. And I agree that demand charges are likely not justified in residential charging applications.

And I will just add one additional comment, that we completely agree with Mr. Kreis's comments regarding the need to address the, quote, unquote, fuel taxes that will probably be addressed by the legislature in the not too distant future. We've already had several instances -- I think we've had the same bill every year for the last five years trying to -- that would assess a different registration fee for vehicles, depending on their fuel economy. And the purpose of that was to get to the electric vehicles and the highly efficient vehicles, to ensure they're paying their fair share of the usage of the roadways. So this is

something that will be addressed and probably best looked at right from the very beginning.

And with that, I say thank you.

CHAIRWOMAN MARTIN: All right. Thank you.

Commissioner Bailey, do you have questions?

COMMISSIONER BAILEY: Just a few. Thank you.

Ms. Ohler, are you suggesting that the PUC take up the issue of electric consumption taxes?

MS. OHLER: Not necessarily that, no. But I think that in the developing of metering and rates for this, I think that it's something that the Commission should consider, that at some point the legislature is likely to want to use that data to assess some sort of highway use tax for the electric vehicles. And it's just -- we hadn't included that as part of our comments until I heard Mr. Kreis mention that. But we do spend a fair amount of time at the legislature talking about EV taxes and how do

we get them to pay their share. So I don't have a fleshed-out concept of what we need to do. But I think as we continue the conversation, that's probably something we should be keeping in mind.

COMMISSIONER BAILEY: So just keep in mind that there's going to be an additional cost to customers, EV customers, because the legislature is likely to impose a tax? Or keep in mind we need to keep track of data? I'm not really sure what you're suggesting that the PUC do.

MS. OHLER: Well, I think keeping -- and it's I guess what the utilities would be doing, is if there's a way to maintain data concerning the electricity used for EV charging separately, then that would probably make a more clear-cut avenue.

So perhaps I'd have to revisit our recommendation that you allow for a whole house time-of-use rate with a single meter, because I think that at some point the legislature will be looking for that sort of data. The vehicles themselves do keep track

of a lot of that data. And theoretically in the future, there could be, like when you get your annual emissions inspection, they plug into the vehicle and pull data from the vehicle. It would be possible that a road usage fee could be done in that sort of form. But I think it's just something that should not necessarily be forefront in our minds since we're looking at how to design appropriate rates, but just something to keep in the back of our minds at least.

COMMISSIONER BAILEY: Okay. That's helpful.

I had one other question that I wanted to ask you about, and I think you got to it with the smart chargers. But are you aware of chargers where customers can come home and plug in when they come home from work, which is usually during the peak, but that charger won't charge until the lowest point off-peak?

MS. OHLER: Yes, absolutely. And I'm sure ChargePoint and Greenlots can speak to that more. But not only can -- probably

many, if not most, chargers do that. But most vehicles can do that as well. You can tell your vehicle not to start charging. So it's -- yeah, you can definitely come home, plug in and not have it start charging immediately.

COMMISSIONER BAILEY: Okay. Thank you. That's all I have.

MS. OHLER: Thank you.

CHAIRWOMAN MARTIN: Commissioner Giaimo.

COMMISSIONER GIAIMO: No questions, other than to say thank you, Ms. Ohler, for coming.

MS. OHLER: Thank you.

CHAIRWOMAN MARTIN: Thank you. And I have no questions either.

So it looks like we're moving on to ChargePoint.

MR. MILLER: I beg your pardon. That was not a great time for me to refill a water bottle.

CHAIRWOMAN MARTIN: Ms. Birchard.

MS. BIRCHARD: I can introduce

Kevin Miller. My name is Melissa Birchard. I'm an attorney at Keys & Fox. And Kevin Miller is director of Public Policy at ChargePoint. So Kevin will be delivering our comments today and also taking your questions and answers. So thank you very much, Commissioners, for having us here today to participate.

MR. MILLER: Great. Well, thank you, Melissa, and thank you, Chair Martin, Commissioner Bailey and Commissioner Giaimo, for the opportunity to comment today on behalf of ChargePoint.

This proceeding really considers some of the most fundamentally important regulatory issues with respect to electric vehicles. And by comprehensively addressing these issues, the Commission is going to put New Hampshire in a position to make sure that the new load associated with EVs is net beneficial.

ChargePoint really appreciates Staff's meticulous process and its thoughtful recommendations, of which we are generally

supportive. So in my comments I'll just briefly provide some context for who ChargePoint is and the types of products and services we provide, and then make a limited number of suggestions that would strengthen Staff's recommendations.

So ChargePoint is the world's leading electric vehicle charging network, with charging solutions everywhere drivers plug in -- at home, at work, around town or on the road -- with over 113,000 independently-owned charging spots, including more than 200 in New Hampshire. Drivers have plugged into ChargePoint chargers more than 79 million times. Last year in New Hampshire, there were over 34,000 charging sessions that took place on the ChargePoint network. So we design, develop and deploy residential and commercial alternating current Level 2 and direct current, or DC, fast charging stations, or DCFC, as well as providing cloud-based software applications, data analytics, and a range of customer and driver services.

So the issues that I'd like to focus on today relate to Staff's recommendations about demand charges, as well as time-of-use rates. And in addition, I'll point to a recommendation that the Commission consider appropriate roles for electric utilities in the deployment of the EV chargers themselves through make-ready investments.

So with respect to demand charges, ChargePoint is generally supportive of the direction that's -- (connectivity issue)

(Court Reporter interrupts.)

MR. MILLER: So we're generally supportive of the direction that Staff takes in its recommendation about demand charges. However, we have some reservations about how that recommendation may not sufficiently be specific and implementable. So I'll provide a little context on the issue, though Becky just already did so. So I'll try to avoid duplicating explanations, and then I'll identify the recommendation.

So most EV charging needs can be

met with longer-term charging at Level 2 EV chargers. Higher-powered DCFC also play an important role. Demand charges really do remain the largest operating cost barrier to public DCFC. While demand charges that apply in every hour of the day may be appropriate for traditional customers with high load factors, they inhibit the ability of operators and owners of charging stations to provide EV drivers with incentives to charge off-peak or to plug in at appropriate rates and fees.

So unlike a traditional commercial customer on a demand-based rate, DCFC site hosts have limited ability to manage or mitigate the impact of demand charges without negatively impacting the EV driver experience. If a deployment of EV charging stations experiences just one instance where multiple drivers are charging at the same time, that single event can result in charges of several thousand dollars, and station operators would pay significantly more for electricity than the average commercial

electricity customer. Fortunately, there are many sustainable -- I'm just going to close the door, beg your pardon. There are many sustainable and cost-based ways for utilities to offer tariffs that alleviate the burden of demand charges for DC fast charging or other customers that similarly have low load factors.

Commercial EV rates that address this demand charge barrier have been introduced or approved in numerous states, including Arizona, Colorado, Connecticut -- which Eversource is familiar with -- Minnesota, Nevada, Hawaii, Wisconsin, California, a number of other states.

So in order to ensure that the recommendation that Staff made can be meaningfully and readily implemented, ChargePoint recommended that the direction on the demand charges recommendation be amended to require that utilities develop and file alternatives to traditional demand-based commercial and industrial rates with the Commission within 120 days. So we believe

that this approach, identifying the problem, the barrier, but leaving the specific design of the solution, will afford utilities significant flexibility to design alternatives to traditional demand-based rates.

The next point that I'd like to make relates to time-of-use rates. We are generally supportive of Staff's recommendation, though we would recommend that the Commission, if it were to open proceedings, do so simultaneously for separately metered EV chargers, as with time-of-use rate options and alternatives for demand-based rates, to consider those in a comprehensive fashion. We think that this approach would be administratively efficient and allow for a more complete consideration of related issues.

Based on some of the prior discussion, I thought it might be helpful to talk a little bit about our technology and how alternatives to secondary meters work.

Network charging stations can

feature embedded energy metering capabilities using two-way communication to transmit the data to a central service hosted by an EV networking service company. So many currently available EV charging solutions on the market have substantially the same metering capabilities as traditional utility meters, but they're doing a different job. An EV charging station is an end-use metering device. It's not grid-facing. So there are different ways of making sure that you still have that level of accuracy and reliability. But you can still measure those.

I just want to note that it's a different series of standards and that utility-grade metering doesn't necessarily apply as a term to EV charging stations. But our single-family residential charger meets or exceeds the requirements set forth in the Electricity As A Motor Fuel section of NIST Handbook 44, as well as the accuracy requirements of ANSI C12.1-2008, at a 1 percent level.

So this data can be accessed and

merged with utility meter data management systems to associate that smart charging load with utility meters and specific customers for tracking or billing purposes. At the same time, rate and passive load management programs aren't the only ways to ensure that load is net beneficial from EV charging. There can also be active load management programs, demand response programs, or subscription programs that have been proposed and are currently available in a variety of jurisdictions and utilities. And I'd be happy to follow up and provide the Commission with a list of those.

And I'll close by noting that ChargePoint really appreciates the focus on rate issues. At the same time, we would recommend that the Commission consider appropriate roles for utilities in the deployment of the EV charging infrastructure itself, such as the make-ready investments that Carleton spoke to previously; so that make-ready, again, the line extension on the distribution side of the meter, as well as

the wiring, conduit and subpanels that are often needed to provide power to EV chargers on a site host premises. So although these make-ready programs do require an upfront investment, the electrification can bring substantial cost savings both to the customer and to the grid. And this type of program leverages a significant amount of private capital.

So I will close out there by thanking the Commission again for the opportunity to participate in the proceeding thus far and to provide comments today.

CHAIRWOMAN MARTIN: All right. Thank you.

Commissioner Bailey, do you have questions?

COMMISSIONER BAILEY: Yes, just a few.

Thank you, Mr. Miller. Could you tell me about the network charging stations that you mentioned that include metering and whether the utilities are able to verify the data that is fed through those.

MR. MILLER: Yup, and that's a great question. All of our charging stations are networked; so the ones that are commercially available for Level 2 charging that might be provided in a town square or single-family residential charging that might be found in someone's garage. So across the range of infrastructure that we develop and provide, they are all smart and networked.

The metering capabilities of our chargers, we've worked with numerous utilities to ensure that we are meeting accuracy requirements, that the data are collected and maintained in secure fashions, and that they're reliable equipment. And so that's something that can be verified over time.

The specifics of these requirements are different sometimes from utility to utility. But when it comes to a commission, oftentimes when we have seen, for example, in Minnesota, and recently in Wisconsin, both proposed to implement a subtractive EV-only time-of-use rate leveraging data from

technologies that were not traditional utility meters. They qualified different types of equipment based on their ability to be accurate, reliable and secure. But in so doing, the commission had to suspend certain rules for what types of metering devices should be used. So again, a different set of standards. But all of these issues can and should be verified.

Not all technologies are capable of having that level of accuracy necessary to do a rate-specific or an on-bill design. Some utilities have avoided that approach by creating off-bill incentive programs, such as in Vermont or in New York, where ConEdison has a program where, if you verify through a couple of different means that your charging didn't take place typically in the peak periods, you get a gift card. So there's a whole spectrum of ways to address the problem. But when it comes to the rate-specific issues, when you need that level of accuracy, we're able to provide it.

CHAIRWOMAN MARTIN: I'm asking if

the utilities are able to verify some way that the usage -- that data that is measured by the meter is accurate. Can the utilities verify it?

MR. MILLER: Yes. And I would be happy to expand and comment on processes that we've undertaken with utilities to do so.

COMMISSIONER BAILEY: Okay. That would be helpful. Could you also -- are there any utilities in New England that are using -- well, they're not using these meters -- but that these meters are in use in the utility territory in New England, or is ConEd the closest?

MR. MILLER: So, for subtractive billing purposes, I believe the answer is no. So for an on-bill subtractive EV time-of-use rate, that would -- my understanding is no. The smart chargers themselves are being used by Green Mountain Power in Vermont. But I'd be happy to provide a region-specific list and then also kind of a benchmark across the country of where we're working with utilities to implement active and passive load

management programs with our technology.

COMMISSIONER BAILEY: Okay. But as far as third, actual third-party metering that's used to measure the usage on the charging stations and be incorporated into the utility's bill, those are really not out there yet?

MR. MILLER: In Minnesota, in Wisconsin, in California, there are examples of using the data on bill to implement a subtractive time-of-use rate just with the data from an EV charger, but not to my knowledge in New England.

COMMISSIONER BAILEY: Okay. And can you -- do you know what Minnesota, Wisconsin and California have done to verify that those meters are cyber secure?

MR. MILLER: I think in order to avoid vamping or shooting from the hip, I'd love to be able to provide in follow-up comments documentation, or at least a description of what types of processes those utilities have undertaken to do so. But there have been such processes, and we'll

provide more detail and comment.

COMMISSIONER BAILEY: Okay. Do you have any examples of alternative rates to demand charges?

MR. MILLER: Yes, there are a variety of examples for alternatives to traditional demand-based rate structures. There's one sort of family of approaches which utilize a rate limiter, where if a customer does not exceed a certain threshold of utilization, the full demand charge is not passed along. But when that customer exceeds that threshold percentage utilization, it does, which better takes into account the load factor of the customer. There are approaches that are currently being implemented in West Coast states where there are higher volumetric charges at the onset of the rate that decrease over time, and a lower demand charge at the onset which increases either over time or as utilization changes. We included a series of examples of alternative rates that don't merely ignore the demand charge, but that have some

alternative approach which makes the costs of operating the stations more predictable than is currently the case under traditional demand-based rates.

COMMISSIONER BAILEY: Okay. Can you tell me why you believe that a high demand draw electric vehicle load should be treated differently than a high demand draw load on any other C&I customer?

MR. MILLER: I think there's a few arguments that one could make in support of that position. The first is just that EVs are a unique technology from a utility system and cost-recovery perspective, in that EVs have the capability of consuming electricity across multiple customer classes. So a driver may charge at home one day on a residential rate -- Becky mentioned that 80 percent of the time EV charging takes place at home -- but another day that driver may charge at a public DC fast charger in a commercial customer class. So as a result of that, it can and should be valuable to consider the potential incremental revenues

in other classes that can be induced from greater DC fast charging access, because DC fast charging at most represents 20 percent of customer charging requirements, but likely far less than that, because another key place where drivers typically plug in is at workplaces, where they charge over longer periods of time. So you're talking about a significantly lower amount of the total EV charging pie. So that's one perspective.

COMMISSIONER BAILEY: I'm not really sure I understand your explanation. If you have a DC fast charger and there's two or three cars charging at the same time, they're creating more demand on the system than if those three EVs charged at home. And so why shouldn't there be a demand charge at that location to cover the cost of that location?

MR. MILLER: So I'm not -- I appreciate that question. I'm not advocating for ignoring demand charges entirely. It's a question of at what point should the current traditional demand charge rate structure make

sense, and that would be in a situation where almost all charging everywhere took place on DC fast chargers and there was a more reasonable expectation for certain load factors to be higher than they currently are.

But what I do want to pivot and point to is this isn't a call necessarily for a technology-specific rate, because there are other load profiles that similarly have a low load factor from, you know, not only EV chargers but also arc welders. So I think these type of spikey loads can be addressed through optional rates that still reflect the cost to serve and don't pass costs along, but also don't effectively penalize DC fast charging operators for having lower utilization rates at earlier stages of the EV charging market.

COMMISSIONER BAILEY: Okay. Thank you very much.

MR. MILLER: Thank you, Commissioner.

CHAIRWOMAN MARTIN: Okay. Commissioner Giaimo.

COMMISSIONER GIAIMO: Mr. Miller, thank you. Quick question. Where are you located?

MR. MILLER: I'm located in my son's bedroom, under his loft bed and next to his wall rack of Nerf guns.

COMMISSIONER GIAIMO: I guess I should have more specific. What town or city are you in?

MR. MILLER: So I live in Brooklyn, New York. ChargePoint is located in Campbell, California. And I worked for 15 years in Massachusetts at the Executive Office of Energy and Environmental Affairs. So I've run the gamut.

COMMISSIONER GIAIMO: Thank you. I was going to thank you for rising early if you were in California. Thank you for rising early from Brooklyn, but not nearly as impressive I guess.

I really appreciate, and I think you were being sensitive to timing, and you gave a passing reference to make-ready. I wanted to give you the opportunity to expand

on that if you wanted to and what the company's position would be with respect to make-ready. And is it simply the company believes in allowing the utility to receive traditional cost recovery as if it was a distribution investment, or would you actually encourage something greater than the traditional investment associated with distribution?

MR. MILLER: So that's a great question. And I appreciate the opportunity and the prompt to expand on that issue more broadly. I think that in order to fully dig into the weeds on the issue, it would be valuable to dedicate even further consideration outside of this hearing on the issue of what is the spectrum of appropriate roles for utilities in the deployment of EV charging stations. The response that I spoke to was specific to make-ready programs, where the utility can recover costs for investments on the utility side of meter, as well as for installation costs on the customer side of the meter, up to, but not including, the

charging station. This type of an investment has the utility retain its core competency of investing in long-term assets, leveraging significant private investment, and decreasing a barrier to the deployment of charging stations. And when paired with load management programs where you're shifting EV charging away from peak, it's a really valuable, comprehensive solution. When jurisdictions around the country have considered whether there are appropriate roles beyond make-ready, where a utility may own and operate the equipment or the infrastructure itself, that's where it's not just a question of whether the utility is involved, but how. And there are great examples around the country where, in fact, utilities have participated in roles outside of make-ready, where they may provide, you know, incentives to encourage the deployment of chargers in harder-to-reach market segments where that can be appropriate. There are some examples around the country even where utility ownership of EV charging

stations themselves has been put on the table for consideration.

The position that ChargePoint has taken has not been either yes or no, this or that. But throughout all of these different options, what's important is to make sure that the participating customer, be they a customer participating in a make-ready program or in a program that is based on rebates, or a program in which a utility might own or operate chargers, that the customer on whose premises the infrastructure is deployed, they should have a role in determining the most appropriate solution, so in determining the hardware and the software needs for that location, because no two charging deployments are alike. And the customer of record in that case will always have a closer relationship with the drivers who visit their location necessarily than the utility will. So they're in the best position to optimize utilization and set appropriate rates. To that effect, the charge that gets set for accessing at a

publicly-sited charging station, that role is also one that can and should be in the hands of the site host, which is consistent with determinations and discussions that have taken place previously at the New Hampshire Commission, identifying that EV charging is a competitive service and not a regulated sale or resale of electricity.

So at the same time, even if New Hampshire were to consider broader or additional investments outside of make-ready, there should still be consideration for how across the board is a program design minimizing costs to the ratepayers and maximizing benefits. So can you leverage private investment wherever possible? That's always going to be optimal in terms of getting charging infrastructure located in the right places where it needs to go, as well as increasing the size of the total pot of investment and again relieving costs from hitting ratepayers unnecessarily.

COMMISSIONER GIAIMO: Thank you very much, Mr. Miller.

Chairwoman Martin, that's all the questions I have.

MR. MILLER: Thank you, Commissioner.

CHAIRWOMAN MARTIN: Okay. Thank you. And I have no questions.

So I think we're on to Clean Energy New Hampshire.

MS. MINEAU: Good morning, Commissioners, and thank you for the opportunity to elaborate on our comments on some of the important issues in this docket. As directed, I'll focus on a few areas of agreement and disagreement with Staff's recommendations.

Clean Energy New Hampshire enthusiastically supports the recommendation from Staff that utilities be required to each file within 120 days a proposal for time-of-use EV charging rates. We also support the guidelines that were recommended under the Consistency Among Utilities for those time-of-use rates. That includes having energy, transmission and distribution

all being time-varying, as well as the characteristics for the number of periods and duration of -- maximum duration of the peak period. We do recognize the residential electric vehicle time-of-use charging rate was just approved in the Liberty rate case, and we were supportive of that under that settlement. So we would agree that that should satisfy their requirement, at least for residential customer class.

We also made some specific recommendations in our comments, as well as during a previous tech session, about some specific recommendations related to education and outreach that we think would be appropriate and really effective if those time-of-use rates were implemented. And that includes partnering with car dealerships, charger manufacturers and installers, as well as organizations like Drive Electric New Hampshire, to educate customers, and specifically the customers that are purchasing electric vehicles, about the opportunity to enroll in a time-of-use rate.

We also support the recommendation that the utilities file feasibility assessments for using devices other than utility-owned meters. We think that that has a lot of potential to reduce costs for customers and utilities. We are aware of at least one pilot with the California utilities in 2017 that enrolled 500 submeters. And so I think that we could look at those results, as well as the utilities that have experience doing this that Mr. Miller mentioned.

We do, however, believe that Staff's recommendations regarding demand charges fell short. We agree with what Mr. Miller said, that we think the utilities should be required as part of the same adjudicative proceeding where the EV time-of-use rates would be considered, that the utilities would also file proposals to alternatives to demand charges for public charging. We think that if we maintain the status quo of the current demand charges for C&I classes applied to public charging, that would be an impediment to the substantial

load growth potential that electric vehicles could offer.

I would like next to highlight an important topic that is not discussed in Staff's recommendation, and that is that Clean Energy New Hampshire strongly encourages the Commission to consider the interaction of time-of-use rates developed for electric vehicle charging and net metering for customers that have both on-site renewable generation as well as an electric vehicle. We think there's likely a lot of overlap between early adopters of distributed energy resources and electric vehicles, and so we think those customers should not be made to choose whether they net meter or have the option to adopt an electric vehicle rate, an electric vehicle time-of-use rate. We think, actually, there could be a lot of benefits, as was explored and approved in the Liberty battery pilot, DE 17-189, to allow net metered customers to opt into a time-of-use rate and to then effectively have time-of-use net metering as was recommended

in the net metering docket, Order 26,029, where the utilities were required to do net metering time-of-use pilots. And other than Liberty doing so within their battery pilot, those pilots have not come to light.

I agree with Mr. Simpson, that looking at the bi-directional potential for time-of-use rates also has potential relevant applications to vehicle-to-grid exports.

And with that, I'll take any questions.

CHAIRWOMAN MARTIN: Commissioner Bailey, do you have any questions?

COMMISSIONER BAILEY: Yes, thank you.

Ms. Mineau, could you give me your -- why you think it is okay to charge other similar customers with high demand a demand charge and not EV charging stations, public charging stations?

MS. MINEAU: So I don't think that necessarily the alternative to demand charges for public charging would need to be permanent. We think they're especially

necessary now where EV adoption is still low. There is still significant range anxiety, and there's a big barrier of having those demand charges apply to public charging rate classes to be able to effectively deploy a necessary backbone of public charging. I think that there are some states that have adopted demand charge holidays with certain triggers -- for example; where as EV charging and EV ownership becomes more common, the need for the demand charge holiday goes away, because as the public chargers become used on a more regular basis, the proportion of the demand charges relative to the whole cost of service for -- not cost of service -- the whole cost for that bill becomes more in line with a regular C&I customer.

COMMISSIONER BAILEY: Okay. Thank you very much. That's all I have.

CHAIRWOMAN MARTIN: Commissioner Giaimo, do you have questions?

COMMISSIONER GIAIMO: I have one quick one.

Ms. Mineau, you mentioned that

time-of-use net metering hasn't been brought to fruition absent Liberty. I was going to hope to give you the opportunity to expand on why you think that is.

MS. MINEAU: I am not sure, honestly. I know that there are several pilots in the net metering order that have been delayed or decided to not actually require them in the end, and some of these time-of-use pilot net metering have been part of it. I think it would actually be very important and valuable to send the price signals of time-of-use rates to customers that also have on-site generation. It would significantly encourage those system owners, for example, to add energy storage to their system to be able to charge their battery and then not use energy from the grid during the peak when the sun may have set and, you know -- yeah, so I think there's a tremendous amount of value, and our organization has continued to advocate for the implementation of that. But that has not come to light. I understand that it adds a significant amount

of complexity. Just adding a time-of-use rate, as we heard from Eversource, adds complexity, and then you add bi-directionality on top of that. And we respect that it's not necessarily straightforward, but we think the potential value is quite significant and very important.

COMMISSIONER GIAIMO: My question was actually stepping around whether or not you felt the complexity was one of the obstacles as well. So thank you for the answer. I appreciate it.

Chairwoman Martin, back to you.

CHAIRWOMAN MARTIN: Okay. Thank you. Thank you, Ms. Mineau.

Next up is Conservation Law Foundation.

MS. GREEN: Good afternoon. Can everyone hear me okay?

CHAIRWOMAN MARTIN: Yes.

MS. GREEN: Commission, Staff, thank you for this opportunity to make oral comments today. My name is Emily Green, and

I'm an attorney with Conservation Law Foundation. I don't intend to add much beyond the written comments that I submitted on May 11th, but I'm just going to emphasize a few areas where I would urge the Commission to go further than Staff's recommendation, or to deviate from it. And of course I'm available to take questions if there are any.

First thing I wanted to address was the cost of service rate design for EV charging stations. Staff's April 3rd, 2020 recommendation is that the Commission issue guidance that, to the maximum extent practicable, EV charging rate designs shall reflect the marginal cost of providing EV charging services. I would submit that there are reasons to consider deviating from this foundational rate design standard in this context. Strict adherence to marginal cost of service rate design risks potentially failing to capture some of the quantifiable value offered by beneficial electrification of the transportation sector. And of course investment in EV infrastructure advances that

outcome.

It's CLF's position that it should be the Commission's objective to plan for capturing and maximizing those potential benefits because it's in the public interest. These include societal benefits such as carbon pollution reductions and health cost savings, yes. But further benefits include flexible, manageable new loads, enhanced grid efficiencies down the road, increasing potential for two-way power flow and for EVs to serve as distributed energy resources and electricity storage, all with potential for ratepayer savings. It's already been demonstrated in at least one study of two utility service territories in California that EV customers consume electricity off-peak in response to price signals, and as a result, EVs increased utility revenues throughout the seven-year period studied more than they increased utility costs, which led to downward pressure on -- and which could lead to downward pressure on electricity rate. And I think these concepts explain why

it's become increasingly common to see commission approval of utility investment in make-ready EV infrastructure.

So, given all those benefits, I would just encourage the Commission to consider that strict adherence to marginal cost of service rate design may undervalue investment in EV charging infrastructure as it advances the public interest and beneficial transportation electrification.

We've heard a lot today about demand charges, but I wanted to add to what you've heard. So as many commenters have noted, and as Staff acknowledged in their recommendation, demand charges limit the economic feasibility of certain charging stations, particularly DC fast chargers and Level 2 clusters.

CLF recognizes, as I said in our written comments, that demand charges serve a cost-recovery purpose. But again, as we've heard today, an array of alternatives exist, and these alternatives balance utility needs with the public interest that I have just

talked about, the public interest in beneficial transportation electrification. These alternatives are -- they've already surfaced in this docket, both in written comments and orally today, and they're being tested and utilized throughout the country.

Now, Staff recommends that the Commission issue guidance that utilities should explore alternatives to non-coincident peak demand charges. And I certainly agree that non-coincident peak demand charges should be avoided in this context. However, I disagree with Staff's suggestion that demand charges based on peak coincidence are an adequate alternative. Again, the problem with demand charges in this context is the high power rating of DCFC, coupled with low utilization rates, which can lead to very high electricity bills for the charging stations and undermine the business case for investment.

Now, moving away from non-coincident peak demand charges to coincident peak demand charges isn't really a

solution to this problem unless site hosts have the sophistication to assess peaks and the ability to shift or manage load. And even assuming that a highway charging station has -- a highway charging station owner has the capacity to anticipate a peak period, the nature of DCFC, and when and where and how customers tend to use them, doesn't really lend itself to load management or shifting load as a realistic objective, at least without additional significant investment in battery storage by the site host. And while I agree that that may well be an appropriate long-term objective, I'm concerned that relying exclusively on battery storage as a solution here just serves to again undermine the business case for investment in charging stations by making it that much more expensive.

So, again, while I very much agree that the Commission should issue guidance that utilities should explore alternatives to demand charges, I would suggest that they should explore alternatives to all demand

charges, not just non-coincident peak demand charges.

And that brings me to my final point, which is CLF urges the Commission to go a bit further than Staff's recommendations when it comes to next steps in several regards. We very much support the recommendation that the Commission open an adjudicative proceeding and direct each electric utility to file EV time-of-use rate proposals. I would join both ChargePoint and Clean Energy New Hampshire in urging further that, with respect to demand charges, the Commission direct utilities to explore, develop and submit proposals for demand charge relief for approval in that same or a related adjudicatory proceeding.

Similarly with regard to load management techniques, Staff recommended that the Commission issue guidance that load management techniques may be an appropriate strategy for EV rate design. And I would urge the Commission, again, to require utilities to submit proposed load management

offerings in connection with the time-of-use rate proposals.

So thanks again for this opportunity to supplement my written comments. And I'm happy to take any questions.

CHAIRWOMAN MARTIN: Okay. Thank you.

Commissioner Bailey.

COMMISSIONER BAILEY: Thank you, Ms. Green. I don't have any questions for you.

MS. GREEN: Thanks.

CHAIRWOMAN MARTIN: Commissioner Giaimo.

COMMISSIONER GIAIMO: One question. Is there a time and place for demand charges anywhere?

MS. GREEN: In the EV context?

COMMISSIONER GIAIMO: Sure. Well, you suggested opening up a proceeding that was even greater. So I'll give you the opportunity to respond in both situations.

MS. GREEN: Sure. I mean, my

comments are reserved to the EV context certainly.

COMMISSIONER GIAIMO: Okay. Thanks.

MS. GREEN: Does that answer your question?

COMMISSIONER GIAIMO: That does answer my question. Thank you.

MS. GREEN: Okay.

CHAIRWOMAN MARTIN: Okay. Thank you. I don't have any questions either. Thank you, Ms. Green.

(Off the record for a moment.)

(Brief recess was taken at 12:10 p.m., and the hearing resumed at 12:18 p.m.)

CHAIRWOMAN MARTIN: Okay. Ms. Robidas. All set? Back on the record then.

We were about to begin with Greenlots.

MS. GILLEO: Great. Thank you for the opportunity to speak with you today. My name is Annie Gilleo. I lead policy and market development for Greenlots in the Eastern U.S. and Canada.

Greenlots is a technology company that makes a software platform for managing electric vehicle charging. We also provide all of the turnkey services associated with infrastructure deployment, everything from site assessment to hardwire procurement to maintenance. We're a wholly-owned subsidiary of Shell New Energies. Our customers are typically enterprise-level customers, utilities, fleets and cities, for example. We support a large portion of the DC fast charging infrastructure in North America and a growing number of Level 2 chargers.

We submitted comments in this docket on February 20th and also presented at the staff-led stakeholder meeting in February. My comments today will echo the themes included in our initial comments.

And in particular, I want to focus on two areas. First the need for encouraging technology-based managed charging strategies either as an alternative to or complement to rate design rather than tethering these strategies strictly to a time-of-use rate;

and second, the role that utilities can and should play in charging infrastructure deployment.

In the Staff's April recommendation, they suggested that the Commission issue guidance that load management techniques may be an appropriate strategy for EV rate design, but expressed a clear preference for delivery of such offerings in conjunction with TOU rate offerings, to the extent reasonably practicable. Technology can be a useful and effective complement to rate design, but I want to be very clear that it should also be viewed as a separate tool in the load management toolbox. As Eversource noted in their comments, flat rates with smart load control technologies serve the same purpose as a time-of-day rate and enables utilities to move forward with load management even absent the large data set needed to make new permanent rates.

In my presentation at the stakeholder workshop, I gave an example of

technology as a complement to rate design used to smooth load around time-of-use rates and eliminate spikiness. I wanted to also offer some further examples today of the way that technology can be used to manage load as an alternative to rate design.

One example would be in Washington, Avista's Electric Vehicle Supply Equipment pilot, which launched in 2016. That pilot included direct load management functionalities in residential and workplace locations without an accompanying time-of-day rate. Avista also did not offer incentives to customers in this program; rather, they provided charging stations wholly owned and operated by Avista. They found that customers accepted 75 percent peak load reduction via remote utility control without negative effects on driving habits or satisfaction ratings.

Importantly, leveraging a technology-driven strategy for this pilot enabled Avista to gain insight to the specific charging load profiles in its

service territory as adoption grew over the course of the pilot.

In Vermont, Green Mountain Power's make-ready pilot for public DC Fast Charge does require participants to engage with the utility on load management strategies, with the goal of developing tools to address demand charges that don't require fundamental changes to rate design, an issue we've talked about today.

Stations will remain available during peak events, and Green Mountain Power will work with station operators to determine an acceptable level of charging that achieves peak-related savings without materially impacting the duration of a charging session for drivers.

Importantly, the Staff report does not address the utilities' role in infrastructure deployment, although we have heard from several parties here today on the subject. I also wanted to spend a moment talking about that. While strategies to manage costs using rates and load management

are important for delivering great benefits, they're not the most effective tool for driving EV adoption across all rate classes and use cases. Instead, research and customer surveys have shown that highly visible charging infrastructure is one of the most effective tools for developing driver awareness of and comfort with electric vehicles.

NARUC has pointed out in a report released in October that utilities and regulators are well suited to actively pursue EV infrastructure deployment for many reasons, including being responsive to customers, enhancing asset utilization through well-timed electricity demands, spurring economic development and more. To date, commissions in 26 states have approved utility transportation electrification filings totaling almost $1.5 billion, and another $1.5 billion is pending.

In New Hampshire, utilities have already proposed limited infrastructure programs to support the deployment of the

state's Volkswagen funding. I want to re-emphasize the importance of aligning utility programs with other state programs like these. In New Hampshire, a recent effort to leverage VW funding to develop public fast charging along corridors didn't receive viable responses to the state's RFP, in large part due to the wide funding gap that remained and that utilities proposed to solve through make-ready programs.

I'll point to Rhode Island as the flipside of this coin. There, National Grid saw very limited uptake of its DC fast charge make-ready program until the state rolled out an additional Volkswagen-funded program targeting the cost of the charger itself and closing the funding gap. Economics of owning public fast-charging infrastructure, as we've heard, remains tenuous. And so it's necessary for state and utility programs to be aligned to achieve the desired outcome.

I also want to emphasize that utility-led charging infrastructure programs don't only serve to develop momentum. These

investments also serve to mitigate risk, ensuring that charging station deployment is equitable, serving those areas where economics of charging station ownership may be especially poor, but charging is still needed, for example, along rural corridors, and that the additional load is visible and understood by utilities so that they can leverage its flexible qualities. The Brattle Group predicts that regional electrification could double monthly electricity usage by 2050. Transportation electrification represents likely the single greatest opportunity to increase the utilization and efficiency of the electric grid to the benefit of all ratepayers if that load is well managed. These benefits won't accrue automatically. And as we know, the consequences could be negative if electrified transportation load comes onto the grid in an unmanaged fashion and utilities do not engage in efforts to incentivize EV charging in places and times where it is most advantageous to the grid.

As we noted in our initial comments to the Commission, in Greenlots' view, utilities are central to the transformation of the transportation sector, with a key role to play in maximizing the system-wide benefits of growing electric vehicle load, ensuring that electric vehicle infrastructure is deployed sufficiently and equitably and ultimately cultivating a sustainable market for eventual private sector investment in vehicle infrastructure. Indeed, achieving all of the outcomes is likely to require utilities to play a variety of roles, developing a portfolio of programs that target different geographies and customer types, with flexibility to invest in both turnkey utility-owned options and cover make-ready costs as appropriate that can help maximize grid benefits while ensuring equitable and sufficient infrastructure deployment.

So I want to encourage the Commission to consider the path for utility investment in charging infrastructure in the

future. That could include opening an adjudicated docket to examine charging infrastructure deployment program proposals further. It could include convening a more focused stakeholder workshop, or setting broad guidance that enables utilities to bring forward new program proposals that ensure they're addressing customer needs, meeting their obligation to serve this new source of load, and maximizing ratepayer benefits by minimizing impacts to existing grid infrastructure.

Thank you for the opportunity to talk with you today, and I welcome your questions.

CHAIRWOMAN MARTIN: All right. Thank you.

Commissioners, do you have questions?

COMMISSIONER BAILEY: Thank you, Ms. Gilleo. I have no questions.

COMMISSIONER GIAIMO: Nor do I. Thank you very much. Appreciate it.

CHAIRWOMAN MARTIN: Okay. Thank

you.

Moving on to New England Convenience Store and Energy Marketers Association.

MR. MORAN: Thank you. Thank you, Madam Chair, Commission Staff -- Commissioners and Staff for allowing New England Convenience Store and Energy Marketers Association to comment in this proceeding.

For those of you unfamiliar with NECSEMA, we represent single-site convenience store and gasoline retailers, as well as chain convenience store and gasoline retailers, independent transportation fuel distributors and businesses which supply them. According to the National Association of Convenience Stores, there are almost 900 convenience stores in New Hampshire, 655 of which sell motor fuels, employing over 14,000 people, and account for almost $3.8 billion in sales per year.

NECSEMA members do not oppose reducing greenhouse gas emissions; rather,

our business model is to provide the products and services our customers want, often when they need them the most. As customer demand for fuel choice evolves, we will adapt alongside them, ensuring we meet their needs. It's incredibly important for NECSEMA to continue being part of current and future discussions on the transportation fuels for the future. We offer a unique and valuable perspective forged by our experience owning and operating the best street corners in the state and across the country, deep knowledge of transportation fueling logistics and customer behavior in a hyper-competitive market.

NECSEMA is not here to comment on the specific recommendations made by the Commission Staff regarding rate structures employed by utilities that will support the electrification of transportation service industry serving New Hampshire. We are confident that the Commission will approve rate structures that are consistent, transparent and predictable for successful

EVSE investments that may be made by NECSEMA member companies and other business developers, and rate structures that are fair to other classes of ratepayers, including those operated by our members.

NECSEMA notes that the Staff recommendations of April 3rd, 2020 do not address the utilities' role in the ownership of and payment for the equipment associated with electric charging stations. As stated, NECSEMA's filed testimony in this docket on February 20th. NECSEMA continues to recommend that any direct infrastructure investment by electric utilities does not negatively impact any market-based incentives or private investments in the same EV market. This includes, but is not limited to, downstream of the meter investments in the electric charging stations.

As stated in NECSEMA's written comments in this proceeding, allowing utilities to use ratepayer funds to own and operate charging infrastructure or EVSE downstream of the meter would negatively

impact, at ratepayer expense, what is currently a very competitive industry; two, impact the customer experience and adaptation; and potentially undercut technological innovation that is generally funded and expanded through private, not utility investment; and four, undermine the cumulative hundreds of years of experience of NECSEMA member companies and their employees in serving the fueling needs of New Hampshire's customers.

NECSEMA understands that certain transparent conditions could support the so-called make-ready model for utility investment in the EV infrastructure, allowing private investment access to the electric grid for transportation fueling, meaning the electric grid infrastructure upgrades and enhancements are funded by the utility while enabling privately funded EVSE installations at host sites.

NECSEMA was not party to another related Commission docket, Docket IR 15-296, investigation into grid modernization.

NECSEMA just recently became aware of the requirement in that docket's order to create the grid modernization stakeholder group. NECSEMA proposes that it participate in the group, particularly with regard to three of the group's responsibilities: Hosting capacity, interconnection and locational value. At the public stakeholder technical session held on February 28th, NECSEMA representatives expressed interest in these critical electric transportation market development issues; specifically, that utilities provide information about their ability to host charging stations on certain circuits. Conceptually, this transparency would be helpful for the purposes of determining which locations might be better than others for DCFC without directly triggering costly distribution system investments, which would promote private investment, thereby expanding the overall public availability of EV charging equipment. NECSEMA would respectfully request that the group include NECSEMA in these stakeholder

meetings.

Thank you again for the opportunity to speak today. NECSEMA members believe they can make a significant contribution to the development of the merging electric transportation markets.

CHAIRWOMAN MARTIN: All right. Thank you, Mr. Moran.

Commissioners, do you have questions?

Commissioner Bailey.

COMMISSIONER BAILEY: Yes, I have one question.

Do you or does NECSEMA believe that it's possible to be economic -- to have a positive business case to install EV charging stations at its locations?

MR. MORAN: I think that's where I think we would like to get to. I think that, you know, the rate structures will certainly have an opportunity to influence that. And, you know, as I mentioned in the testimony, I believe that, you know, we have the great locations. We do understand that technology

is still evolving. And I think that's a variable that we're going to have to address as it evolves. But I think that's the direction we'd like to head towards is the opportunity to be able to invest in these charging systems and be able to have the business benefit associated with that.

COMMISSIONER BAILEY: Okay. Thank you.

CHAIRWOMAN MARTIN: Commissioner Giaimo, do you have any questions?

COMMISSIONER GIAIMO: Quick one.

Mr. Moran, based on your comment, it sounds like your organization is interested in participating in the grid modernization stakeholder group; is that correct?

MR. MORAN: Correct.

COMMISSIONER GIAIMO: Okay. And when you read the order, nothing in the order led you to believe that you would be precluded from participating; correct?

MR. MORAN: Correct.

CHAIRWOMAN MARTIN: Okay. Thank

you, Mr. Moran.

We're going to hear from the City of Lebanon next.

MR. BELOW: Good morning, or afternoon now, Commissioners. Thank you for this opportunity.

I want to start saying that there -- with the preface that I think there's some urgency to moving ahead with rate design for particularly large charging facilities. Early this year, the City of Lebanon entered into a contract with Electrify America to develop a DC fast charging station in Lebanon at a city-owned site, and sometime in the next six to nine months they're going to finalize their design for that. Recently our energy and facilities manager asked Electrify America if they were planning to put in battery storage to shape their, you know, potential contribution to peak demand. And they said they have done that on a number of sites across the country, and they'd like to do that, but only if it makes economic sense in terms of the utility tariff. And right

now they would come in under the G1 rate class, and there's really no incentive whatsoever for them to incorporate battery storage.

In Liberty's battery pilot case, we did discover that most of the cost of battery storage could be justified if you can use it to minimize load at the time of annual system coincident peak demand when Forward Capacity Market capacity tags are allocated, combined with avoiding load at the single hour of coincident peak for each month when transmission charges are incurred. And just being able to avoid those costs through the use of battery storage could justify most of the cost of battery storage. If you couple that with the fact that energy costs vary, and if you're able to design a distribution component that reflects time-varying costs, then it can make a lot of sense to incorporate that battery storage.

CHAIRWOMAN MARTIN: Mr. Below.

MR. BELOW: Yes.

CHAIRWOMAN MARTIN: I apologize for

interrupting, and I didn't want to interrupt your initial thought, but can you identify yourself for the record, please.

MR. BELOW: Oh, sure. Sorry. I am the Assistant Mayor of the City of Lebanon and speaking on behalf of the City.

CHAIRWOMAN MARTIN: Thank you.

MR. BELOW: Generally we're in strong support of the Staff recommendations. The one exception was with regard to the last two specific points with regard to the recommendation that, although this was specific to residential electric vehicle charging, they should be based on cost causation, incorporate time-varying energy, transmission and distribution components and be three-part. We agree with all those points. The concern was the average price differential between off-peak and peak of no less than three to one -- and have a peak --

(Court Reporter interrupts.)

MR. BELOW: Have an average price differential between off-peak and peak of no less than three to one and have a peak period

no longer than four hours in duration.

Though we tried -- I was very much involved in helping design Liberty's time-of-use rates and, as noted in the comments dated May 11th that I filed, we ended up with a five-hour period, which was really a compromise between what would be ideal for summer and winter. A lot of parties felt that we needed to have the same blocks of time seasonally. And within that constraint, the concern was trying to lop an hour off either side of that five-hour period would result in a significant probability -- a significant chance that the system peak in the summertime, or transmission coincident peaks in both summer or winter would fall outside of that peak period. It was called critical peak in their rate design. So I just think those are nice goals, but underlying cost causation should be the primary driver.

I also want to mention that I don't think there's any real need for cost of service study to do this. Distribution

rates, like transmission rates, are largely embedded sunk costs. And you could say they don't actually vary based on time. But in fact, what we know about both systems is they have to be designed to manage the coincident peak demand of the system or the particular transformer or circuit or whatever. And it is that need to design the whole system for coincident peak demands that drives the overall cost.

So in transmission we have a strong marginal cost price signal where all of those embedded costs are recovered by allocating share of coincident peak based on a single hour of coincident peak. I think Lon Huber came up with a very innovative and theoretically sound approach, which I would suggest would be easy to repeat within a reasonable amount of time, both for residential classes and for the larger classes, and that was simply saying take the entire revenue requirement -- in Liberty's case, we took the entire small customer class as a group -- and allocate those entire

revenue costs to each hour of the year based on how much that hour contributes to the overall peak. So, for instance, if the minimum demand on the system was 30 percent of the peak demand, then all 8,760 hours of the year would get a share of 30 percent, an equal share of the 30 percent of the revenue requirement. And if the single hour peak demand accounted for 1 percent of demand, then 1 percent of the total cost revenue requirement could be allocated to that hour. Then you can take all those -- that's a fairly simple thing to do mathematically. I think the challenge was trying to sort of optimize that with when transmission peaks occur and the cost shape of real-time pricing, which is what pretty much everyone pays on the margin for load settlement. And it didn't require Liberty trying to procure the default service, but rather to send price signals that would contribute to a better load shape, which ultimately would produce lower costs for the default service procurement just by improving the load shape

of the default service customer group. So I think there is a path forward that could get us fairly quickly to some good rates that would be able to be used, particularly for Level 2 and Level 3. In Liberty's case, you know, we already have a very good rate design I think for the residential customers that was just recently approved by the Commission.

I do want to just say a couple more things. Part of the problem with cost of service study is they're typically based on historic load shape, and we just don't have much load shape data, particularly for Level 2 or Level 3 charging. And probably charging as a group at whatever level it occurs is more similar to other charging than it is to any particular rate class. But we don't really know that. And if we give them the appropriate price signals, a lot of that load shape will change either when people choose to charge, because it is discretionary. Even at a workplace, a Level 2 charging doesn't have to run the full eight hours. Most employees could charge up in just a few of

those hours. And for the DC fast charging, you know, some built-in battery storage on site is a way to deal with that.

Finally, I'll just say two things. One is I don't think load Management with flat rates under the New Hampshire constitutional or statutory policy scheme is an acceptable option. And of course, Staff did not recommend that. New Hampshire law and constitution creates a clear preference for market-based solutions over monopoly-driven solutions, and specifically calls for appropriate price signals to enable those market-based solutions. So, appropriate price signals have to go ahead of, at the very least in conjunction with, any utility load management efforts.

And finally, I just note that we do actually have considerable experience in New Hampshire and New England with customer or third-party ownership and reading of revenue-grade metering, which is for REC production. And sometimes those RECs are actually more valuable than the cost of the

energy that customers use, you know, just sort of the bare wholesale cost. And yet we find that third-party ownership and reading of those revenue-grade meters is acceptable for very significant costs that go into rates in the form of renewable energy credit production.

So thank you again for this opportunity. I can answer any questions that you may have.

CHAIRWOMAN MARTIN: All right. Thank you, Mr. Below.

Any questions from the Commissioners?

[No verbal response]

CHAIRWOMAN MARTIN: Okay. Looks like we have no questions. Thank you.

MR. BELOW: All right.

CHAIRWOMAN MARTIN: All right. Liberty Utilities, Mr. Sheehan.

MR. SHEEHAN: Good afternoon. Mike Sheehan for Liberty Utilities (Granite State Electric Corp.). We did not prepare any remarks for today. As most of the people on

this call are aware, we've taken two steps, tariff steps, a few years ago allowing us to send electricity to EV charging for resale which is otherwise prohibited. And the second, and more substantively, Mr. Below just referenced the approval of our EV tariff in the rate case just a few weeks ago.

Heather Tebbetts is on this call as well. And we've been e-mailing as these comments go along, and she is prepared to answer many of the questions that have been raised by the other utilities and the other parties. So I guess what I would prefer to do is simply turn to those questions and have Heather address them as best she can.

CHAIRWOMAN MARTIN: Okay. Thank you, Mr. Sheehan.

Any questions for Liberty from the Commissioners? Commissioner Bailey.

COMMISSIONER BAILEY: Yes. Ms. Tebbetts, can you talk a little bit about the Company's position on third-party meters for EV charging?

MS. TEBBETTS: Sure. Yeah. Sure.

Absolutely. So with third-party meters in general, actually, I want to comment on that because the conversation I've heard all -- well, it's almost one o'clock now, not quite all morning -- was about cyber security and other issues like that. And it jogged my memory from the hearing we had where, Commissioner Bailey, you asked me a bunch of questions about what we were going to do about our cyber security issues with regards to metering. So I went back in and looked at the transcript. Because I think it's important to note that this was a hearing back in 2018, and at the time we did have questions about, you know, how metering was going to work and how the battery was going to talk to things such as our own systems --

CHAIRWOMAN MARTIN: Ms. Tebbetts, can you pause for a moment?

Ms. Robidas.

(Pause)

MS. TEBBETTS: So one of the items you did ask me about was, you know, has our cyber security group looked at the meters.

And one of the things we had talked about was, you know, at the time they were meters we were already using. But one of the things you brought up that I thought was really important was the fact that they had different levels of programming available to them, simply because they're cellularly read and also because they do gather a lot of interval data and other data that can be programmed.

One of the items you had mentioned was -- your question to me was, "which makes it more attractive to possibly cyber terrorists." And, you know, at the time I said I didn't know, but maybe. And you noted that's something we should look at as a company. Since then it is some of the things we have looked at, certainly through our cyber security review for the battery storage pilot.

So when it comes to third-party metering, whether it be for billing and payment purposes through EV charging, I don't know if there's an answer I can give you at

the moment on whether I agree or disagree with it. I think the important piece of it is whatever technology is presented to us through a third-party, it needs to go through the cyber security vetting before we say yes we'll use it. That to me is the most important thing because I do think there are concerns of cyber security. That's one reason why our batteries are not talking to our systems, because, you know, there could be a chance that something happens with the systems. I mean, we see it all the time on the news about cyber security hacks.

So I don't know the answer. I think it needs to be vetted. I would assume that there's meters out there that will do the job. But at the same time, we are doing the billing and payment, and so there has to be something that allows the utility to feel extremely comfortable that the data being used to bill customers is accurate and as precise as it can be with regards to how we're doing it today in the world. It's really to important to us and it's important

to our customers I think as well. Through our battery program, we have been asked, you know, how did you come up with the rates? How do I know your meters are working right? And we've explained to them what our process has been, and they've been very comfortable with it. I don't know if I'd be comfortable saying to a customer, if they asked us about the meter, saying, "Well, the third party is actually the one who's administering this, so you're going to have to call them." You know, I don't know -- I don't think we'd be very comfortable saying that.

So, again, I think it's going to be an issue that we're going to have to deal with very specifically when that third party presents something potentially to be used.

COMMISSIONER BAILEY: Have you begun billing customers under your time-of-use rates yet for the battery storage pilot, and/or do you have any electric vehicle charging customers that use those rates?

MS. TEBBETTS: So we don't have any

vehicle charging customers yet. The rate was just approved on the 1st of July. But we do have, I want to say we have nine customers who have batteries right now at this moment. And we do -- I think this week they're getting put on the time-of-use rate on their next billing cycle. So I think this week a majority of those customers are going on the time-of-use rate. But no one's gotten a bill yet for it, I'll say, just because those batteries have just been installed.

COMMISSIONER BAILEY: Okay. Thank you. That's all the questions I had.

CHAIRWOMAN MARTIN: Any questions, Commissioner Giaimo?

COMMISSIONER GIAIMO: Only because it was just brought up. Can you just remind us of the spread between the various rates, being peak, not peak and off-peak?

MS. TEBBETTS: Sure. If you give me one second, I can actually tell you because we're making a filing today for our energy service compliance tariff and I can tell you what the rates are.

COMMISSIONER GIAIMO: The top number I think was 36 cents.

MS. TEBBETTS: Yes. So let me see here. I have the newest rates effective August 1. It's pretty close. It's about 30 -- so the critical peak hours, which is Monday through Friday, 3 p.m. to 8 p.m., it's about 30 cents per kilowatt hour. For the mid-peak -- and this is total, all in -- which is going to be from 8 a.m. to 3 p.m., Monday through Friday, and also Saturday 8 a.m. to 8 p.m., is about 14 cents. And then our off-peak, which is Monday through Friday, 8 p.m. to 8 a.m., and also Saturday and Sunday and holidays, 8 p.m. to 8 a.m., is 8-1/2 cents. And that's all in with all rate components.

COMMISSIONER GIAIMO: Thank you. Thank you. And you said nine customers have installed batteries. So that's 18 batteries total?

MS. TEBBETTS: That's correct.

COMMISSIONER GIAIMO: Okay. Thank you, Ms. Tebbetts.

MS. TEBBETTS: I just wanted to speak -- I don't know if I have an opportunity to mention it, but when I was listening to all of you discuss the services for the charging stations and all that, I just want to be really clear. At least for Liberty, we actually -- the way we design services, there's one service to a home or a building. There's one service. There's no multiple services. Within that one service we provide potentially multiple meters, all right. So for all our customers who are going to be using electric charging stations, they're going to have one service come into the home, whatever voltage is necessary to serve all of the load, and then we'll have two meters. One meter will serve the home circuit, we'll call it, and then one meter will be installed to serve only that charger circuit. So our standards don't provide you have actually two services going into a location, it would just be one. I just want to make sure on the record for Liberty that that's the case. I know that other utilities

maybe have different standards and they have multiple services going to a home. But our standards provide one service, and then the load is determined based on what they're going to be having in their home.

COMMISSIONER GIAIMO: Thanks.

CHAIRWOMAN MARTIN: Okay. All right. Thank you, Ms. Tebbetts.

Is there anyone else who is present that wants to speak and hasn't?

[No verbal response]

CHAIRWOMAN MARTIN: Okay. Seeing none, I want to thank everyone for your comments today. We definitely appreciate the time that you've taken to be here this morning and afternoon. And we are adjourned.

(Hearing adjourned at 12:56 p.m.)

C E R T I F I C A T E

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Susan J. Robidas, LCR/RPR
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