Massachusetts Electric Vehicle Infrastructure Coordinating Council
Thursday, October 5, 2023 | 1–3:30 p.m.
Via Zoom

EVICC members

- Undersecretary Michael Judge, Executive Office of Energy and Environmental Affairs, EVICC Chairperson
- Eric Bourassa, Director, Transportation Division, Metropolitan Area Planning Council
- Laura Gilmore, Director of Strategic Transit Planning, Massachusetts Bay Transit Authority
- Brian Ferrarese, Department of Environmental Protection
- Undersecretary Layla D'Emilia, Executive Office of Economic Development
- Commissioner Staci Rubin, Department of Public Utilities

EVICC member designees

- Eric Friedman for Aurora Edington, Department of Energy Resources
- Cobi Frongillo for State Representative Jeff Roy, Chair, Joint Committee on Telecommunications, Energy, and Utilities
- Audrey Horst for State Senator Mike Barrett, Chair, Joint Committee on Telecommunications, Energy, and Utilities

Additional attendees and presenters

- Asa Hopkins, Vice President, Synapse
- Ted Mansfield, Senior Consultant, RSG
- Rachel Ackerman, Director, Massachusetts Clean Energy Center
- Sharon Weber, Deputy Division Director, Air & Climate Programs, Department of Environmental Protection
- Sean Donaghy, Manager of Energy Programs, Massachusetts Bay Transit Authority
- Daniel Gatti, Director of Clean Transportation Policy, Executive Office of Energy and Environmental Affairs
- Jennifer Haugh, Vice President of Planning and Customer Engagement, GreenerU
- Daniela Miranda, Project Coordinator, GreenerU

Meeting goals

- Approve meeting minutes from August 9, 2023
- Provide the EVICC updates on:
    - Driving patterns research (Synapse / RSG)
    - Electric vehicle information clearinghouse (MassCEC)
- Review and discuss upcoming EVICC meeting schedule and topics
- Discuss proposed working group topics and membership
- Provide time for public discussion / comment

Agenda and minutes

1. **Call to order**

Judge called the meeting to order at 1:04 p.m.

2. **Approval of meeting minutes**

Rubin moved to approve the minutes of August 9, 2023; Friedman seconded. There were no proposed changes. The motion carried unanimously.

3. Review of EVICC meeting schedule through 2024

Haugh and Judge went through the upcoming meeting schedule in brief. Discussion follows.

Bourassa: Given the $50 million fund allocated to the EVICC, have you given much thought to that?

Judge provided an update on how the funds could be spent, including further studies and allocations to what the working groups may be charged with. Gatti added that some of that detail would be covered later in the agenda.

Bourassa: For over a year now at MAPC we've been hosting a group of cities and towns that meet about every other month to discuss electric vehicle issues. At the last meeting in August, I gave them an overview of the EVICC report and focused in on what are the biggest issues for cities and towns. We did a survey, and we'd be interested in sharing that with EVICC. The biggest one is the limited municipal capacity to take on these projects. Maybe there could be some funds assigned for technical assistance. Procurement is one thing we've already flagged, but there may be some others.

Judge: If there are suggestions for things you think we missed in these meetings, please email us. But we've tried to be very clear about the future agenda of the council over the course of the next year. We can add meetings as needed, but this should cover what we need to accomplish.

Friedman: The climate report is going to be released very soon, and in that will be some recommendations on these topics—we should keep an eye on that so we don't duplicate efforts and figure out how to coordinate those processes.

4. Presentation: research updates on long-distance travel and medium- and heavy-duty fleets

Hopkins kicked off the presentation with details on its contents:

1. Update on long-distance travel related to understanding perhaps different from DCFC is needed
2. Ideas around medium- and heavy-duty fleets and potential modeling exercises we can think about there—looking for your feedback and interests priorities

Hopkins said that the initial bit of analysis was on where the traffic is, particularly traffic for long-distance travel. We didn't have a lot of detail on where people are on their long-distance trips. This next phase is intended to get more accurate about where people need charging. You'll recall that there are 1,300 DCFCs in the City of Boston, and there is probably still some need driven by garage orphans in terms of where people need to charge their vehicles. But some of it is also driven by the traffic within the City. This is our chance to revise and expand our remarks on that point. Ted Mansfield has been crunching some numbers on this point.

Mansfield presented on passive data overview. The term is broad: this refers to several technologies. In 2015, this meant telecom data. It's shifted over time to location-based services data on smart phones and apps. But due to privacy issues, these data are shifting toward "connected vehicle data," which is what we've purchased for this study. We bought origin-destination data removing intermediate stops. This data includes all trips within, to, from, and passing through Massachusetts.

Two time periods are represented: June 19 to July 23, 2022 (including July 4) and November 6 to December 10 (including Thanksgiving). The idea is to show peak travel conditions. There are more trips at Thanksgiving (~15 million) but shorter mean distance vs. Independence Day.

This passive data was used to identify long-distance travel. This was broken down into 1/8th mile segments, which provided the foundation for link-level analysis of potential charging need given observed travel patterns.

Two maps showed summer and winter passive data volumes for all trips.
Preliminary findings included:

- For summer mean miles traveled on each roadway segment, findings are as expected, generally on major roadways. Similar patterns are observed for winter, though there is slightly less long-distance travel during the winter.

- For the summer count of trips of more than 100 miles traveled from the origin, this data will ultimately be helpful in showing where there will be a need to charge. Summer shows more need on the Cape, whereas Western Mass is showing a greater need in the winter.

Weber: Are you restarting the 100 miles on the maps?

Mansfield: Very good question. The next step is to turn this data into a useful model.

Hopkins: This would be a very different study in California due to the size of the state; most folks would charge only once in Massachusetts. There's a lot less traffic from the New York to Boston traffic, but there's a good amount of traffic coming from points south of Massachusetts to northern New England. The maps can be read as if a light came onto your car and turned on at 100 miles, this is where these vehicles are now.

Gatti: How does this data set define a trip? Does this account for individual stops for taxi drivers who may drive 200 miles a day?

Mansfield: StreetLight Data has developed an algorithm that helps refine this data; we worked with their data science team to help eliminate extraneous data that doesn't reflect long-distance patterns.

Hopkins: Those short-distance trips should be included because cabs may not even turn off the ignition and we will want to capture those instances.

Horst: There are these turnoff periods linked together by Streetlight to create the full trip. Is there any way to figure out if those are shorter trips at a gas station? Are you able to localize that data and use it later to say cars may charge at these locations?

Mansfield: This may bump into data privacy. But what Streetlight has provided is helpful to refine it.

Horst: Regarding connected vehicle data, what year of car has that? This is more of an equity question.

Mansfield: Most of the cars in the data set are 2019 and newer. Some go back to 2016, etc., but it is biased toward newer vehicles. Another next step is to scale this data to observed traffic counts. One thing we'll do is apply an origin matrix destination to correct for spatial sampling bias. There should be some ability to remove those biases that are ingrained geographically, but we'll have to be sure to couch the analysis to account for newer vehicles.

Hopkins: We've thought about that a little bit in the analysis in the first phase of our work, in that we're trying to make estimations for 2030, so the assumption is they will be driven by folks who drive new cars, which is not a random sample of the population. There are questions around getting an accurate picture but recognize the story being told by that accurate picture. We don't want to discourage people from getting EVs by only installing infrastructure in places where people are buying new cars.

Mansfield: These results will end up fitting into another model, so there are opportunities to adjust for limitations we know about the data.

Gatti: This does suggest that new EVSEs are maybe needed with rural areas than urban, and there may be subsequent work we need to do to identify garage orphans and shorter-distance travel.

Hopkins: The suggested solution seems to be to evenly distribute DCFCs every X distance, which is the wrong way to go about it, but sometimes it ends up that way.

Hopkins shared additional analytics with medium- and heavy-duty fleet loads. This would be a continuation of the kinds of analysis they are doing for light-duty, but for heavier duty fleets—how much load, how controllable it might be, how flexible it may be, what location. And then there's a next-level piece that, given the various challenges associated with charging, and given that there may be intense load in particular locations and getting hooked up, etc., the utility isn't ready to supply electricity in that location.

That leads to what happens with storage in that context: that sort of T&D delay piece is one of the major drivers co-locating storage with charging if the utility can only provide X amount at a particular rate. The solution becomes a way to avoiding and mitigating costs on the grid and to enable EVSE owners to put in charging when it's needed. Separately, the state has storage targets. If there will be storage with heavy-duty charging, what are the implications for that? What are the economics of putting in that kind of storage? We don't know. The first part of this is just knowing where vehicles will be charging, what kind of vehicles they are (use cases with different needs, charging patterns, miles driven per day, vehicle efficiency) and just getting a handle of what's in that space in Massachusetts, etc. One direction we can take is looking at Lawrence Berkeley National Laboratory's studies on a HEVI load model. If we could prepare the appropriate set of inputs, it's relatively straightforward for them to run through this model. There are tools in development that can help with our analysis here. Then we can combine charging patterns data to think about policy and program implications further down the road.

Gatti: This is what we've charged Synapse with doing, but this is a good opportunity for the EVICC to propose additional studies for analysis.

Friedman: Will the data DEP is gathering for regulation be collecting information about medium- and heavy-duty fleets support this ongoing analysis when they get that data?

Hopkins: Hopkins was not familiar with specifics of that data, but the extent that they are getting data about types and needs of fleet vehicles, having the compilation of data could be informative.

Friedman: Sharon Weber can give you more details.

Weber: Reports aren't due until March 1 and she doesn't expect they will have cleaned up data for a while after that. But it's public data and we should be able to share that. It will have things like do you return to a home base, what type of vehicle, etc.

Hopkins: This is somewhat iterative—use what you have, express what you wish to have, incorporate that when you get it.

Bourassa: Regarding longer-trip data, is it possible to parse out longer commutes? The sense is those folks might be very attracted to charging at their workplace. Maybe this could be broken down by job types. Many of these likely are in Boston. But trying to dig into that and the challenges of longer commutes could be interesting, where folks can charge at home, but might feel like they'd like their car to be charging while it's sitting idle during the day (especially in cold weather, when the charge doesn't last as long).

Hopkins: This includes digging more into a couple questions around Level 2 charging. He's trying to understand workplace charging and questions around how that practically works around building owners, tenants, parking lots, wiring, business models. It's not the biggest chunk in that breakdown of charging type, but there are still tens of thousands of workplace chargers and how's that going to work. The other has to do with trying to see what the options are in terms of adjusting the customer interest and demand for Level 2 vs. DCFC. What can you do to make curbside charging easier for folks to get at so you have less of a garage orphan-DCFC types of situation? Is there a way to think about grid load and using overnight Level 2 charging instead of DCFCs as curbside?

Rubin: There is a technical potential of solar study that came out of DOER. Is there any potential overlap with smart solar paired with chargers? We already have some great research in the Commonwealth; is there an opportunity here?

Hopkins: He'd just heard Synapse's presentation on that and hadn't thought about it until just now. The level of geographic granularity on both sides of the equation—solar potential vs. charging locational needs—is the challenge. There is some level of identifying areas that are grid-wise close to charging that might work better as far as the system is concerned. Using that power locally may reduce demand by transmission; in those cases, one may use storage co-located with fast charging stations. Putting a dollar value would be a challenge. The level of grid data that is in that study is relatively coarse in that it is within X# miles of a substation, which doesn't account for specific hosting capacity that a substation might need today. The grid evolves over time to match what overall demands are going to be. How do you build the right grid that serves the right amount of charging and how those things play nice together. The Grid Modernization Advisory Council (GMAC) is thinking about this.

5. **Presentation: electric vehicle information clearinghouse**

Ackerman presented.

The directive for an EV information clearinghouse emerged from the Clean Energy Climate Act. Website topics will cover:

- Residential customer
- Commercial and private entities
- Vehicle dealers
- Municipal light plant residents
- Customer support for residential customers

The initial landing pages will live at MassCEC and will be posted beginning in mid-2024. This will be a one-stop-shop of resources available rather than a way to purchase a vehicle.

Vehicle dealers will be on here because it's an opportunity to train dealers on any changes, new bills, laws, etc. Ackerman said they can do advanced outreach to these dealerships.

Municipal light plants have much more nuanced programs than what the major utilities provide; you will be able to plug in your address to learn what's available in your location(s).

There will be a small-scale service support center to email or set up a time to chat with a service representative. The budget could go quite quickly for this based on how much we're marketing this as a resource. There could be a lot of calls based on recent point-of-sale rebates offered and other questions consumers might have. MassCEC is open to feedback on whether this needs to be developed into something larger across the state.

MassCEC has just finished contracting VEIC for this work, and they're hoping that the initial work can start at the beginning of calendar year 2024.

Discussion followed.

Bourassa: This is great to have one place for consumers to go. Do you ever fund marketing or communications for anything like this? I hear on the radio about Mass Save.

Ackerman: Yes, we have funded marketing through our other programs. We don't have a large budget for marketing for this one, but in the future, we can always do additional marketing to get the word out there. Funding for this did come through the DEP, so we have a set outlay of what the funding can be spent on.

Judge: This is very vehicle-centric—will this talk about charging?

Ackerman: Yes; this will include upgrades to electric panels if you need them, etc.

Horst: Regarding residential charging knowledge, how about municipal charging? They have a lot of questions—will this help them understand what's available from utilities?

Ackerman: This will not be focused on municipalities. We had to have some limitations for this project. There are some resources in existence, e.g., LBE, Green Communities, but we wanted to start with residential.

6. Proposed working groups

To aid in advancing recommendations that emerged from the initial assessment, Judge shared slides proposing several working groups with both EVICC and non-EVICC members. He noted that five or more EVICC members on any working group constitutes a quorum and would thus essentially be a meeting of the EVICC. In that case, meetings would need to follow public open meeting laws.

a. State and municipal fleet procurement

Judge: There is a distinct difference between state and municipal processes—there are entities helping to buy state vehicles and infrastructure at state facilities, but DEP, DOER, CEC aren't buying this stuff for themselves; they're creating programs and incentives to help others purchase equipment and vehicles. Is there a need to create more of a comprehensive single procurement process with separate roles?

Bourassa: It might be worth bringing state agencies who are procuring EVSE together with cities and towns, as well as folks like OSD, maybe AGO, who oversee procurement statutes would be valuable. One issue we've heard about is the issue that you have to procure the equipment (capital) separate from the installation (construction) and many cities and towns would like to see a turnkey situation to buy, install, and manage. We've helped municipalities for things like this, e.g., the Blue Bikes bikeshare system. There's a private entity that manages the system, manages the fees, etc., even though the city owns the bikes. Secondly, there is potential to work with state agencies that are making major equipment purchases to leverage economies of scale for cities and towns. They can also piggyback off state procurement processes.

Friedman: Agrees with Bourassa in that there are some overlapping issues and questions that certain state agencies would be helpful to meet with folks looking at some of the municipal questions. This one is overlapping with another group looking at state procurement of charging stations, particularly for fleet use—we should figure out a way to coordinate those two efforts. The other thing to add is the whole question of charging as a service and how that potentially gets procured under procurement laws and rules, which is another topic that could be of interest to public interest.

Bourassa: That was the idea—"electrification as a service," all managed by a third-party vendor. Municipal procurement is typically three years; may need to go beyond that for companies to see a profit. That may be another thing to think about in how to make it easier for cities and towns to think about that.

Ackerman: IDEA had approached us, so it might be a violation of public open meeting laws. It might be important for this group to react to.

Judge: One thing to flag is that we start to get close to a quorum, which is fine, but we will need to follow open meeting laws.

Friedman: One way to address that might be to separate out state fleet issues vs. municipal procurement.

Judge: That's what I had in mind, too—maybe that's where the disconnect was.

Friedman: There might be some overlap, but in terms of procurement rules, the AG has some oversight over municipalities (maybe over the state). There might be a way to pull out who needs to be in which groups. You could probably shrink down the group a bit.

Judge: DEP may not need to be there if it's just focused on procurement. DOER, MAPC, AG, and OSD for municipal procurement. Also, Executive Office of Administration and Finance has never appointed anyone to EVICC, so it could end up being someone from OSD. We can discuss this independently and report back to the EVICC. We do want to address this recommendation from the initial assessment, which is to try to align processes and fix any issues. Maybe we can try to do that separately from this Council and bring back some lessons learned.

Bourassa: That would be great, and we should try to have the right procurement folks in the room. Just make sure of that.

Judge: Agreed. Maybe we wait until that climate report is out, as it will give a little more guidance.

Bourassa: If we can't figure out a simple solution, just given state law, there is likely a municipal modernization bill in the legislature this session and this could be incorporated into that—figuring out how to modernize municipal procurement.

Judge: And that could be something this council does, too; we could have a one-off and say we've discussed this in our deliberations and say this is timely, that could help with legislation if this group is making a specific recommendation after having discussed it. We'll take this back and will help convene the group with the right people together to have a separate discussion on this topic and bring it back to the council.

Gatti: We may also wish to ask Laura Gilmore or Sean Donaghy at the MBTA whether you feel like the procurement process from MBTA be thought of as connected, or if you see your role as unique in this space?

Donaghy: The MBTA uses statewide contracts all the time. We're relying on our own internal procurement processes for actual EVs and battery-electric bus garages. All of these could help us, but they use their own processes most of the time. The process shouldn't be a hindrance.

a. Curbside charging

Judge: Should this be a formal working group, or is this something DOER is working on independently and reporting back? DOER and MAPC should be most involved in this; would other agencies be involved in the loop? He suspects Gatti might be involved too. The next step here is probably for DOER to engage directly with municipalities to figure out how we move the needle on this at the municipal level and help them develop programs that expand the availability of curbside charging. And if that requires funding support that DOER or others don't have, this council and its funding could be made available for this. For some categories we've contemplated doing some pilot projects, if not larger programs.

Bourassa: This is great and kind of what I was getting at for support for cities and towns. Making publicly accessible and curbside in urban areas in general is very important; he has identified municipalities that would be interested in this.

Judge: Thinks this is in DOER Green Communities Division's wheelhouse and will likely end up there. Maybe we can take this offline and ask DOER to initiate discussion around this topic.

Gatti: He wanted to recognize the MassDEP experience with this, and also one thing we'll want to think about is a lot of soft costs here. We want to make sure that what we're doing is additive and not duplicative of the existing DPU order, so linking with the DPU would be valuable.

Judge: There's a handful of programs out there, but it's early-stage pilot stuff. Might be a good starting point to get information on those. The takeaway is he will begin reaching out to a few key stakeholders and convene discussions around this topic.

b. Medium- and heavy-duty fleets

Judge: We'll be gathering more data on this.

Gatti: MassCEC is identified here because of their existing program. Thinking through how we can have policies to minimize grid impact, expedite installations because we know that the wait for transmission and distribution (T&D) infrastructure upgrades can be a real challenge, thinking through business models; those are all areas that we would be interested in thinking about how EVICC funding could help support this transition. That's what I see as the value of a more focused conversation here.

Friedman: Before you jump into this as a separate group, try and coordinate with work already happening elsewhere—we don't want to be redundant, so it might be good to work with Aurora Edington to see whether there's other work this group could or should be doing, or if the work of the GMAC is essentially doing what this work is calling for.

Judge: The DEP has a role to play here. That would be something where the data collected through the DEP's one-time reporting ranks for vehicles would help identify where these fleets are and how big they are.

Gatti: The utilities will just take that data and build infrastructure, so we want to manage that.

Judge: There's a major focus on that, and the GMAC is trying to minimize T&D. To the extent that we know where this stuff is and we could install technologies or programs to help manage the load on the grid at any time, that's what we should be striving towards.

Ackerman: MassCEC's programming is for 50 vehicles or more.

Judge: That's not going to be comprehensive of every fleet out there.

Ackerman: There's new reporting. They continue to harp on granularity there.

Judge: Regarding data availability on EVs, where they're registered, and where they're being charged, and particularly private Level 2, the utilities have a bit of a data gap here—they don't know where vehicles are or where chargers are. But do we need a more formal process for customers to register that information? Every single distributed solar and storage facility has to go through a registration process, but the same is not true for technologies that are adding load. If we're trying to do VPPs and active demand management, they're flying a bit blind if they don't know where this private infrastructure or charging infrastructure will occur. Maybe it's worth talking to the RMV and MassDOT to develop a process here, of course avoiding privacy issues.

Horst: There is a vehicle census, done by zip code; maybe that's a pool of data we can access. Maybe we need more granularity and could modify that process in some way.

Gatti: It's more than just granularity; registration may not tell you where a vehicle is actually garaged. That's a major limitation. Then from a distribution infrastructure impact, that's an additional layer you're going to need. This is definitely something to be thinking about.

Judge: There is no specific recommendation on that at this time, but in very informal conversations with utilities; utilities know a lot about customers, so it's not that far of a stretch to let them know who has EVs and a charger.

Friedman: We might add DOER and DEP as potential members of this group.

Judge: Yes, that makes sense. At some level, maybe DPU, maybe not right away but they can weigh in here too.

Rubin: Yes. That may have to be after the electric sector modernization plans (ESMPs) are final.

Judge: We will help get these conversations started independently of the EVICC.

Friedman: Do all these working groups have to happen at the same time?

Judge: No. Maybe we can figure out a future date by which we want them to provide some kind of update or deliverable—maybe we can try to have them working toward some kind of goal and provide clarity on what that is when we get started.

Friedman: To Commissioner Rubin's comments, maybe this group doesn't start until DEP reporting.

Judge: This topic may not be as pressing as some of the other ones because we know more information will be coming in next year on this, and we'll have a more complete picture of things to start that conversation.

c. Environmental justice

Judge: This is really focusing on the deployment of funds to EJ populations and in rural areas. We have a lot more to do to find out what's working and not working. There are incentive programs from utilities and higher-level rebates. One thing interesting was data on transportation network company (TNC) drivers; the DPU has some updated regulations on TNC vehicles and the pace at which those vehicles will be transitioning to zero-emissions vehicles. It seems that some of the EVICC money could be dedicated towards helping to clean up TNC fleets, particularly because we know a lot of drivers reside in EJ areas. That's a lot of VMTs that could have lower emissions.

Ackerman: MassCEC is leading a pilot program in this realm (TNCs). We're hoping to roll that program out next year at a pilot scale, so maybe we look at how we change that program based on those results. This program was $7 million total, which also went toward program administration. The requirement is that it needs to be spent within a year, if not faster.

Gatti: There might be an opportunity here focused on the vehicle side, but there are some charging needs that you might think about having us subsidize consistent with the DPU. For one thing, for people who rent by the week, mobile charging might be of value. There are some angles we could think about that might be charging infrastructure focused.

Judge: Maybe we can talk more about that program and its structure and what kind of charging infrastructure needs it's going to create if you're successful, and maybe that's where some of the EVICC funding comes into play.

Ackerman: Exactly. We should know more in eight months or so.

Rubin: Regarding the language in the initial assessment, we know where most of EVs are located residentially, and it would be great to get TNC out there.

Judge: This working group doesn't have to be only about TNC, but it seems like there's a lot of targeted investments with high payoffs. But he's open to further ideas on how we can advance EJ objectives as we're rolling out charging infrastructure. That was just one idea.

Ackerman: We have our equity-focused program. One topic area was going to be focused on charging for garage orphan or more moderate-income at multi-unit dwellings. They do have programs in mind and would be happy to blend that into this group and can forward some of those contacts.

Judge: Yes. We also mention rural areas; not sure if we have specific thoughts on trying to fill in gaps there might look like, but we may want to set aside some money there too, is making sure there is adequate public charging in rural areas, which looks a lot different than in dense urban.

Rubin: In rural areas, car and van sharing are worth looking into, as well as some data on elders and seniors; it's something to help think about infrastructure locations. In the initial assessment we talk about public transportation, so we should make sure that's a key piece of EJ, and that medium- and heavy-duty fleets are part of this conversation too. There are some other, broader solutions beyond individual car ownership.

Judge: If we have a working group on EJ, it would be a broader group that would be interested in these topics. Again, if we make it so broad that it includes council members, we have to be mindful of a quorum. How should we advance this one, and what does a working group process look like?

Rubin: This could be small group of people talking initially, and we can think about timing around MassCEC programming.

Judge: That makes sense; maybe the EEA takes the lead on contacting people to be part of this, but it seems like some folks from the TNC division at DPU should be on this, and then also MassCEC. He would imagine that the DOER and DEP would also be interested. He will discuss this further with Gatti. Some of this is happening in parallel, but not at the exact same time. We do have data on this topic and curbside charging, so there is no need to wait on these topics. We'll get more from climate report soon for procurement, and maybe it's the climate office convening that group.

Friedman: The MOR-EV program is working on developing a culturally competent outreach program to disadvantaged and lower income communities, so perhaps this group could coordinate or link in with that group to figure out how to work with the EJ group.

7. **Public comments and questions**

Charlie Myers: As hydrogen fuel cell HD fleets come to market as they've done in California, how will that be taken into account with this HD working group?

Judge: It's relevant, but this council is the electric vehicle coordinating council, so it's focused on EVs. Not to say that we'll ignore hydrogen fuel cells. Maybe there will be a discussion of alternative fuel vehicles and how that intersects with this group.

Gatti: I always think of hydrogen and batteries as being two types of EVs. He wants to go back and reread the statute to see if there is any specific language on this topic. We are an applicant to this regional hydrogen hub (which is an open secret).

Judge: The EVICC work to date was largely about charging stations, but with heavy-duty fleets, there's a lot that a hydrogen fuel cell vehicle could do.

Erin Rathe: As you consider this specific question of utilities collecting data from privately installed L2s, please weigh to what extent that will discourage adoption of EVs. I say that as a homeowner and EV owner who was thrilled that all I had to do to install my L2 was to purchase it and hire an electrician. Further permitting, approval from my utility, and the delays those layers introduce would be discouraging on top of delays for the EV and the EVSE themselves.

Judge: These are all things we'll need to think about as we move forward here. Thinks there's also this concern that there are thousands of L2 chargers that the utilities don't know about and could have a

potentially serious effect on safe and reliable operations of grid, and potential for reliability issues. Some make-ready programs will require Level 2 charging that is capable of participating in managed charging. Some were also claiming that charging was covered by car dealers. He worries that we don't have the full picture of what's happening and that could be really challenging to manage what could otherwise be flexible loads on the system.

D'Emilia: The stretch codes have a requirement that you're wired for an EV in new construction, so at some point when we go down this road, there will be data points. The ninth edition is in effect for the base code; the tenth will include wiring in residential and commercial.

Judge: When advanced metering infrastructure (AMI) is deployed, utilities will have a lot more information and load profiling. In National Grid's case, hardware will be built into their AMI meters. We may eventually have all this information, but currently have some data gaps.

Anna Vanderspek, Green Energy Consumers Alliance: Could you please comment on how the Council will engage/push on managed charging in the coming months, particularly given the GMAC process and the time-of-use (TOU) dockets at the DPU? There's clearly consensus that we need managed charging, but there are a lot of open questions. She was reading through the ESMPs that we need "effective" managed charging, but specifics are lacking. Do we need passive or active managed charging? There are lots of questions that the GMAC is addressing from one angle and the DPU from another. What do you see EVICC's role being in this space? There's been discussion about trying to not duplicate what others are doing, but it's difficult to sense what that means concretely. Her second question is that she's hoping to see an estimate of impact on peak demand with sufficient managed charging. How do we translate that into impacts on capacity and capital needs? Which process is best to address that question?

Judge: Active demand management is best tool available in managing EV loads. Of new loads and sources of distributed generation out there—parallel is stationary storage—at the top of the list is managing EV loads, because it is the most flexible load that most customers will have because in the vast majority of cases; people will be charging overnight or over an extended period of time. They don't care when charging occurs as long as it's complete by the time they need to go somewhere. There's a huge opportunity there to make sure we're effectively managing that. Judge doesn't know exactly what the best forum is. TOU rates give you a price signal, but he doesn't know that a lot of residential customers will adopt those—you have to look at comprehensive alternative rate designs that are probably whole-home based and will account for other technologies. In the interim, we need to encourage customers to enroll in programs that are out there. Only price signals aware of now is National Grid has an off-peak rebate, Unitil has some TOU offerings. There's the clean peak standard and the requirement that customers participate in managed charging programs if they're getting make-ready infrastructure, but those programs are relatively new. He doesn't know that this council is the forum where this will be resolved; more likely this will fall on the DPU. It's probably going to be iterative where we're using what we have today, but we recognize that technology is going to advance over time and have more information to do more specific and granular work. Right now, it's only blunt instruments available to us. How you account for the effectiveness of managed charging impacts levels of investment utilities make. This will be adjudicated in the ESMP filings.

Rubin: There's been some internal discussion about how to think through these issues. All of these questions are soon to be live, so we're figuring out how to have robust discussions and how stakeholders can participate. More to come.

8. **Wrap-up and adjourn**

Judge said the next meeting is Thursday, November 30, 1–3:30 p.m. The agenda will include checking in on working groups' progress, getting an update on the GMAC process, and a more detailed overview of how the EEA's thoughts on how some of the funds available should be spent.

Frongillo: Could we speak on Mass Pike contract that was awarded?

Judge: MassDOT is not present today; there's been some changes to staffing there, so hopefully we'll have a MassDOT rep at the next meeting. We can pose the question and ask for an update. Frongillo is referring to a news article about replacing charging infrastructure with new equipment.

Frongillo: He heard from a few charging companies saying they would pay us for prime real estate on Mass Pike when some companies were being paid to do that; they felt disconnected.

Judge: Maybe we can tee that up for next time. We have a little room to discuss other topics. Can ask MassDOT for an update for folks.

Gatti: We also could use an update from MassDOT on NEVI too.

Judge agreed.

Rubin motioned to adjourn. Friedman seconded. The motion passed unanimously. The meeting adjourned at 3:16 p.m.

Respectfully submitted,
Jennifer Haugh
GreenerU