Grid Modernization Advisory Council (GMAC)
Public Listening Session

NOTES

Wednesday, November 1, 2023, 12-1:30 PM
Virtual Zoom Meeting

Councilors Present: Sarah Bresolin Silver, Kelly Caiazzo, Larry Chretien, Commissioner Elizabeth Mahony, Kyle Murray, Jonathan Stout, Alex Worsley

Non-voting Councilors: Carol Sedewitz, Digaunto Chatterjee

DOER Staff Present: Aurora Edington, Julia Fox, Sarah McDaniel

Consultants Present: Jennifer Haugh

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1. **Call to Order**

Commissioner Elizabeth Mahony, as Chair, called the listening session to order at 6:03 p.m. Commissioner Mahony introduced herself and the role of the Grid Modernization Advisory Council, and went through the introductory slides describing the role and process of the GMAC. DOER Staff Member, Aurora Edington, presented an overview of the electric-sector modernization plans (ESMPs). The Commissioner then called upon members of the public who had pre-registered to speak, followed by others who had joined the session who were also interested in submitting comments. Public commenters were allowed three minutes to address topics related to the GMAC and ESMPs.

2. Public Comment

Graham Turk, MIT Researcher and Eversource Customer, spoke and submitted comments in writing:

Dear Commissioner Mahony & GMAC Members,

I am writing to comment on Eversource's Electric Sector Modernization Plan (ESMP). I am an Eversource customer and power systems researcher at Massachusetts Institute of Technology. Prior

to my current role, I worked on the power supply and innovation teams at Green Mountain Power, an electric distribution utility in Vermont. I delivered a version of these comments during the second listening session on November 1, 2023.

Motivation

This concern comes from the fact that under today's rates, an average Massachusetts home will spend more money on heating and cooling after installing a heat pump system; this is a major deterrent to electrification and will prevent the state from meeting its climate targets. Excessive and unnecessary investment in the distribution grid (whose costs are recovered from all customers in rates) will place these goals even further out of reach.

Introduction

Eversource's ESMP systematically overlooks rate design and demand flexibility as alternatives to capital-intensive capacity upgrades. Their demand forecasts assume flat volumetric rates, which many states are transitioning away from because they are inefficient, regressive, and not cost-reflective. If approved, Eversource's plan will push millions of dollars of unnecessary spending onto Massachusetts grid users, increasing energy burdens and disincentivizing electrification.

Evidence for Rate Design's Effectiveness

Time-varying electricity rates, enabled by the deployment of advanced meters, provide opportunities for customers to reduce their costs by shifting demand to "off peak" hours when the grid is not congested. This is especially true for customers who adopt electric vehicles (EVs), which can be programmed to delay charging to later hours. EV charging is significantly more price-responsive than other household loads, and nudges alone are not enough to get EV owners to change their charging behavior (i.e., incentives are required).[1] Rate design is also an important tool for reducing the operating costs of heat pumps. Using actual metered data, Sergici et al. propose revenue neutral alternatives to flat volumetric rates that shift some of the cost recovery burden to non-volumetric charges (e.g. fixed and demand charges) and better reflect the underlying costs of generation and delivery.[2] At current gas prices and Eversource's residential rates, below ~35F it is cheaper to burn gas than run a heat pump.[3] That gap must close if we want any hope of electrifying rapidly.

Time-varying rates are also effective at reducing peak demand. Under flat volumetric rates, customers receive no information or price signals about when the grid is constrained. In contrast, across 15 surveyed utility programs, critical peak pricing induced a drop in peak demand by 13-20%, climbing to 27-44% when rate design was accompanied with enabling technologies (e.g.,

[1] Bailey et al., "Show Me the Money! Incentives and Nudges to Shift Electric Vehicle Charge Timing."
[2] Sergici et al., "Heat Pump–Friendly Cost-Based Rate Designs."
[3] Michaels and Nachtrieb, "Transitioning to Heat Pumps in Cold Climates: A Systems Dynamics Analysis."

smart thermostats and water heaters).[4] Furthermore, low-income households responded to variable prices at the same level or higher than medium/high income households. The notion that only wealthy households will respond to time-varying prices is not supported by evidence.

For EV charging specifically, rates must be designed carefully. Simple volumetric time-of-use pricing (like Eversource's G-2 and G-3 rates) would produce large "rebound" peaks as a result of many residential EV chargers turning on in a synchronized manner.[5] Eversource's ESMP acknowledges this limitation:

"However, the activation of the start of the charging must be done carefully to avoid creating a new local peak. For example, a residential program that prevents charging from 3pm-8pm but allows all vehicles to begin charging at full speed at 8pm would result in higher total system peaks than if each car had simply begun charging when it arrived home -- see the modeling presented in Section 8.1.3" (p. 459).

While Eversource claims that passive programs are "not effective mechanisms to manage real time locational grid congestion constraints" (p. 458), this is based on the incorrect assumption that volumetric time-of-use rates are the only option. Many utilities have implemented alternatives including residential demand charges, capacity subscriptions, and offset time-of-use windows. A demand charge rate that encourages EV owners to spread charging over nighttime hours (rather than charge at full power when vehicles arrive at home) yields a significant reduction in peak demand.[6]

Advanced metering will be ubiquitous in Massachusetts by the end of this decade, and there is no reason not to transition eligible customers to smarter rates as soon as possible. While a transition to time-varying rates would inevitably create winners and losers in the near term compared to flat volumetric rates, in the long term all customers will benefit from the deferral or elimination of costly grid upgrades. Eversource states, "prior experience indicates that not all customers will respond to price signals," (p. 281), but not all customers need to respond to achieve meaningful peak demand reductions across one or many distribution feeders. These rates should be the default for all residential customers, with the ability to opt-out. At the very least, Eversource should conduct a sensitivity analysis on peak demand under various time-varying rates.

Other Gaps in Eversource's ESMP

Besides the general omission of time-varying rates in their load modeling, I would like to highlight a few other parts of Eversource's ESMP that I found problematic. For each, I provide a direct quote from the ESMP followed by my critique:

[4] Faruqui and Sergici, "Household Response to Dynamic Pricing of Electricity."
[5] Muratori and Rizzoni, "Residential Demand Response."
[6] Gschwendtner, Knoeri, and Stephan, "Mind the Goal."

"The Company has explored other mechanisms to manage electric demand reductions but finds some specific applications such as Electrification Heating Demand Response as difficult to yield tangible demand reductions sufficient to defer or avoid necessary grid upgrades." (p. 10)

While it may be true that heating is less flexible than other loads (like EV charging), this is not a valid reason to omit modeling thermostatic demand response entirely. Utility programs to cycle or temporarily adjust HVAC equipment have proven highly effective for decades.

"The savings from the Mass Save active demand response programs (see section 6.1.9) is currently not explicitly included in the Company's forecasts. The Mass Save programs have an "Opt-Out" capability, such that customers may simply decide not to reduce load on a given day. Therefore, the Company does not treat new Active Demand Response program enrollments as a firm capacity resource that could result in the reliable reduction in peak demand necessary to displace a traditional distribution asset, because the actual performance of the customer cannot be ensured."

The fact that individual customers can opt out of individual events does not mean that active demand response programs are unreliable in aggregate. Probabilistic models can be developed that predict (with high likelihood) the level of demand response from an aggregation of buildings, which can be used for long-term peak demand planning and real-time operations. In fact, diverse aggregations may even be *more* reliable than traditional distribution assets, which are single points of failure. Considering that ISO New England's forward capacity auction allows for active demand response resources, I struggle to understand Eversource's choice to exclude them entirely from their demand model.

"Currently, the default technology for residential sites selected for heating conversion is assumed to be an air source heat pump. The reference electric heating load is based on the heating design capacity at the design day temperature and coefficient of performance (COP). The reference electric heating design load assumed is 5 kW per residential heat pump customer for an average house size of approximately 2,000 sq. ft. in Massachusetts and seasonal COP of 2.34 and a floor COP of 2."

This modeling assumption is misaligned with a recent Cadmus study on heat pumps in the northeast, which found that even a whole home heat pump system (with no primary backup) had a coincident winter peak demand of 1.03 kW per 1000 square feet.[7] Eversource's ESMP also includes a sensitivity analysis on hybrid heating systems (which would switch from electric to backup fossil heat below a certain temperature setpoint) but does not include this in demand forecasts. Because Eversource is a gas and electric utility, they are in a strong position to develop new business models around hybrid heating solutions, which would cut emissions while reducing

[7] Veilleux, "Residential ccASHP Building Electrification Study."

the need to build excess distribution and transmission capacity. For example, they could install integrated thermostats that switch from electric to backup fossil heat when the temperature is below a pre-specified threshold, helping to mitigate heating-driven winter peak demand. Another alternative would be to transition entire neighborhoods to electric heating (potentially with backup battery storage) rather than upgrading old gas pipeline infrastructure.

"An unknown quantity to date of peak demand impacts is likely to be gained from intelligent rate design (See Section 9.7.2) which incentives customers to control, much like most commercial customers today, their peak demand" (p. 475).

"With customers adopting more and more electrified technologies into their life (EV, Heating, Induction Stoves) in addition to high load units such as dryers, it will become increasingly more important to incentivize specific behaviors to help minimize the system load (See Section 9.7.2 on potential rate components which might incentivize such behavior" (p. 477).

"For example, a residential program that prevents charging from 3pm-8pm but allows all vehicles to begin charging at full speed at 8pm would result in higher total system peaks than if each car had simply begun charging when it arrived home -- see the modeling presented in Section 8.1.3" (p. 459).

Sections 9.7.2 and 8.1.3 do not exist in the draft ESMP. Given these sections' apparent relevance to the role of rate design, which was not modeled elsewhere, I was curious to see the results.

Conclusion

To meet Massachusetts' decarbonization targets, we must look beyond traditional approaches. Proven tools like rate design and demand management will help avoid expensive capital investments, which in turn will make electrification more attractive and decrease energy burdens.

To achieve those aims, I recommend that the GMAC request the following from Eversource in the next round of ESMP drafting:

- Model load profiles under alternative rate designs, including time of use, demand/subscription charge, and critical peak pricing
- Model active demand management as a firm capacity resource for peak reduction
- Investigate how to collect a portion of embedded network costs through fixed or connection charges to reduce volumetric charges
- Include a load duration curve that illustrates how many hours per year of active demand management would be needed to reduce system peak demand by 5%, 10%, and 20%
- Use heating demand profiles that consider hybrid heating solutions at different setback temperatures

- Propose EV-specific rates that receive data from a charger or vehicle (and do not require AMI meters), similar to what they have already implemented in Connecticut[8]
- Include chapter and section number in the header or footer of each page to make the document easier to navigate

Thank you for the opportunity to comment and I look forward to staying involved.

Sincerely,
Graham Turk

References

Bailey, Megan R., David P. Brown, Blake C. Shaffer, and Frank A. Wolak. "Show Me the Money! Incentives and Nudges to Shift Electric Vehicle Charge Timing." National Bureau of Economic Research, 2023.

Faruqui, Ahmad, and Sanem Sergici. "Household Response to Dynamic Pricing of Electricity: A Survey of 15 Experiments." *Journal of Regulatory Economics* 38, no. 2 (2010): 193–225.

Gschwendtner, Christine, Christof Knoeri, and Annegret Stephan. "Mind the Goal: Trade-Offs between Flexibility Goals for Controlled Electric Vehicle Charging Strategies." *iScience* 26, no. 2 (February 17, 2023): 105937. https://doi.org/10.1016/j.isci.2023.105937.

Michaels, Harvey, and Robert Nachtrieb. "Transitioning to Heat Pumps in Cold Climates: A Systems Dynamics Analysis." In *Proceedings of the 2022 ACEEE Summer Study on Energy Efficiency in Buildings*, 2022.

Muratori, Matteo, and Giorgio Rizzoni. "Residential Demand Response: Dynamic Energy Management and Time-Varying Electricity Pricing." *IEEE Transactions on Power Systems* 31, no. 2 (2015): 1108–17.

Sergici, Sanem, Akhilesh Ramakrishnan, Goksin Kavlak, Adam Bigelow, and Megan Diehl. "Heat Pump–Friendly Cost-Based Rate Designs." Aligning Retail Pricing with Grid Needs. Energy Systems Integration Group, January 2023. https://www.esig.energy/wp-content/uploads/2023/01/Heat-Pump%E2%80%93Friendly- Cost-Based-Rate-Designs.pdf.

Veilleux, Neil. "Residential ccASHP Building Electrification Study." Cadmus, June 3, 2022. https://cadmusgroup.com/wp-content/uploads/2022/06/Residential-ccASHP-Building-Ele ctrification-Study_Cadmus_Final_060322_Public.pdf

[8] https://www.eversource.com/content/residential/save-money-energy/clean-energy-options/electric-vehicle s/ev-charger-managed-charging/ct

Mariel Marchand, Cape Light Compact:
I am a power-supply planner at Cape Light Compact, a municipal aggregator and energy-efficiency program coordinator on the Cape and Martha's Vineyard. Eversource's ESMP recounts existing proposals; I was hoping for more creativity. Meeting 2050 climate goals is one approach, but non-wires alternatives, distributed resources, and storage solutions are not getting enough attention. I'd like the utilities to find creative partnerships for solutions. e.g., microgrids on the Cape and Vineyard. At wastewater treatment facilities, clean energy assets could be deployed as microgrids. I am collaborating on behalf of the Compact for a microgrid but want to make sure these happen regardless. Eversource's ESMP mentions the Compact's role but doesn't mention partnerships about distributed resources or having created new utility planning working group in Section 11. The ESMP shines a spotlight on Eversource's approval for pending infrastructure upgrades. Cape Light Compact urges swift approval of the ESMPs by the DPU and supports GMAC recommendations that EDCs have strategies to expand distributed resources and storage solutions.

Cathy Kristofferson, Pipe Line Awareness Network for the Northeast, Inc., spoke and submitted comments in writing:

To Commissioner Mahoney and GMAC members,

Please accept this written version of my spoken testimony given for the Pipe Line Awareness Network for the Northeast at the GMAC Public Listening Session #2 from here in Ashby in Unitil's Fitchburg Gas & Electric service area where I am an electric ratepayer.

This testimony focuses on hybrid heating, the ESMPs reliance on hybrid heating as a method of reducing electric peak & needed grid mods, and the idea of incentivizing fossil-backed hybrid heating.

At the October 12th GMAC meeting, the Department's consultant presented recommendations during their review of sections 8,9 & 11 of the ESMPs. On slide 53 they listed a recommendation for MassSave to "Provide incentives that favor fossil-fueled supplement/hybrid ASHP over pure ASHP." Not shown on the slide, but presented was that this would accomplish a 95% emissions reduction. That 95% figure is reflected in Eversource's ESMP [at 412] for their modeling of 10, 20 and 30F hybrid heating switchover temperatures which shows "At 10 F, the total hours under back up system would be an average of 34 hours a year, achieving 95% of the GHG reductions as compared to a full replacement heat pump."

The Eversource ESMP [at 476] says "Hybrid Heating Solutions utilize a backup fuel source that can be burned during extreme cold conditions (See Section 8.2.1.3 for details) and therefore allow the re-dimensioning of ASHPs to smaller units that can operate due to a lower floor temperature at a higher COP." And that relying on those smaller unit hybrid solutions allow for "significant impact on the overall peak system demand of the electric system, allowing an increase in the system utilization, allowing for less distribution and transmission investments."

To me that sounds like decades of purposefully undersized ASHP installs reliant on a combusted fuel for cold weather heating only able to handle temps above whichever switchover temp was chosen. And less than the needed electric grid buildout.

No temperature switchover was given in any of the ESMPs, but they all discussed hybrid heating as a solution for reducing electric grid buildout.

National Grid's Long Range Forecast & Supply Plan in 22-149 approved yesterday[9] by the DPU contained a 30F switchover which according to the Eversource modeling [at 412] results in 845 hours a year and only 65% of the GHG emissions reductions.

Promoting fossil fuel use over full electrification is the wrong direction for rapid transition. It can only be viewed as least cost if you don't consider other impacts, some of which are detailed below.

Considering that ASHP have an expected service life of 20 or more years - is that 20 or more years bringing us right up to 2050 of combusted gas for winter heating?

What happens when the retained fossil heating system's life is over, or unexpectedly dies early, or anytime within the hybrid heat pump system's 20+ year service life? Does that mean a new fossil system for "backup" since that "re-dimensioned" smaller unit hybrid setup isn't capable of whole home heating? Will that be incentivized as well since incentives pushed the purchase in that direction in the first place?

I did see in the GMAC Meeting Summary "There was discussion about whether natural gas as a backup for heat pumps is a viable solution, particularly in light of concerns over ongoing maintenance of gas pipelines." For me, I wonder how delivered fuels can be a viable backup solution since those companies don't make their money on infrastructure. 34 hours of fuel sold per customer doesn't exactly sound like a viable business model.

I did see that at the following GMAC meeting on the 26th no check mark in your column for accepting that suggestion from the consultant but don't imagine that's the end of it. [*Ed. Thank you for explaining I misunderstood the checkmark system.*] Can the GMAC recommend against incentivizing fossil fuel based systems over full electrification?

The Seavey presentation[10] at the GSEP Working Group meeting on the 20th showed the costs those retained gas ratepayers will help payoff to be $34.4B to maintain the gas distribution system's leaks and old pipes. There are other capex expenses for gas expansions and resiliency work that the retained ratepayers will help payoff also all for the so-called backup heating. That seems a lot of money that could

[9] Order in D.P.U.22-149 Petition of Boston Gas Company d/b/a National Grid to the Department of Public Utilities pursuant to G.L. c. 164, § 69I, for Review and Approval of its Long-Range Forecast and Supply Plan for the period of November 1, 2022, to October 31, 2027 "The Company assumed that the controls run the heat pump when outside temperatures are above 30 degrees Fahrenheit and switch to the gas system when temperatures are 30 degrees Fahrenheit or lower." at 21 available at https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/18158955

[10] Dorie Seavey, PhD, "GSEP's cumulative costs" available at https://www.mass.gov/doc/seavey-gsep-cost- presentation/download

be put towards grid modernization not shoring up a crumbling pipeline system.

We all talk about decarbonization and how we need emission reductions, but we need more than reduction, we need emissions elimination.

All ESMP mentions of ASHP installs need to specify if whole home/full or hybrid/partial. 1 million whole home installs would be the elimination of emissions which is quite different than 1 million hybrid/partials which may only be reducing emissions by 65%.

Section 11 feels lacking for all three ESMPs. They are all pretty much the same text from the template so are thin and need work. It's unfortunate because better gas-electric coordinated planning to decommission the gas systems and build up the electric grid is needed rather than coordinating on hybrid heating to keep the $34B gas system in service.

Thank you for the opportunity to provide input to this critical undertaking.

Respectfully submitted,

Cathy Kristofferson
Pipe Line Awareness Network for the Northeast, Inc. kristofferson@plan-ne.org

Doug Pope, Pope Energy:
I work for Pope Energy, a large-scale solar company. We met with National Grid last week and became aware that high-voltage switch gear has a four- to five-year lead time. I confirmed that plus queue position issues; due to other global supply chain issues, utility-scale substation transformers have increased lead time now. The DPU should open its own investigation to allow EDCs to order items before approval. Regarding tax-exempt debt, the utility uses Section 144 (private sector). I recommend that after construction and risk is gone, all grid modernization funded through tax-exempt debt be run through Mass Development. Capital improvements will be $6 billion by 2029; 1% savings on that will be $60 million each year for five years. Congratulations to National Grid and the Healey Administration for getting the Twin Cities Clean Energy hydro link approved or financed in part through the U.S. Department of Energy from Quebec to Londonderry. My question to GMAC: there is currently an A1B2 feeder with National Grid as well as an E5F6 circuit to be upgraded. Since this is a bidirectional feeder, getting to 2050, should that be more kilovolts?

Silas Bauer, OnSite Renewables:
Bauer works for a Massachusetts-based on-site renewables and battery storage company with 420 MW in National Grid's queue. These are designed to be installed behind meters at businesses and serve during peak events. At National Grid, there appears to be little to no plan to hasten interconnection process for storage. Another presenter mentioned page 74 in National Grid's ESMP where they will "scale the connected solutions" and distributed resources program but in fact in June of this summer, it was significantly scaled back, which is causing a major financial issue for how they designed their projects. There is no grandfathering on the changes. Interconnection is greatly exacerbated by the problems of the grid. There is currently a charging schedule of 11 p.m. to 3 p.m. in summer, 11 p.m. to 4 p.m. in fall and

spring, etc., which always overlaps with peak hour and days in the season, triggering the most expensive upgrades in almost every situation. They've asked if we could have individual charge schedules and were told that won't be possible until the DERMS schedule, which is years away, and the AMI pilot project will only accept ten storage projects. Modeling projects were priced quite high; 85 at $750,000 each with $5 million in interconnection costs for each. These costs are for transformer upgrades, feeder upgrades, all triggered by when batteries are for modeled charging. They asked for a more limited uniform charging schedule at night but have been told repeatedly that that won't be possible. He believes the ESMPs need useful steps to ensure that projects can be completed in a timely manner, have a more aggressive timeline for DERMS implementation, etc.

Lisa Hoag, Wendell, MA Resident:
I am in middle of graduate school deadlines. This whole thing has been sprung on our town out of nowhere. I live in western Massachusetts in a town called Wendell; population 900. We have a battery installation that they want to force on our town. We wrote a bylaw to protect our town; the Attorney General's office told us we can't just say no, because they sued another town who also wrote a bylaw. This whole grid mod project was sprung on us; given no notice. Been up and down my street for a year cutting trees and doing work on the lines, and we're like, what's going on because we don't get this kind of attention. National Grid wanted to cut even more: 2,000 trees. I'm trying to piece this together, and suddenly it's sprung on us that they're overhauling the entire grid. Seems to be a public-private partnership, because they're deforesting massive areas of forest all over our neighborhoods to put in solar; want to deforest where they want to put this battery facility. Town given no notice or opportunity to do town planning. We should have had the right to do some town planning and figure out where this thing could go. The type of batteries are lithium iron phosphate batteries; have found at least one instance where one has exploded on our rooftop. We have a volunteer fire department and have encountered this kind of thing before—landfill was forced on us by DEP and the City of Boston delivered dumpsters of stuff already on fire to their landfill. Volunteers had to breathe in toxic smoke because of what was being put there. We live in a forest and carbon sink and where they want to site this, No. 1, there are twenty neighbors around it; a fire somewhere where 4,000 people were evacuated. Should not be built around anyone's home. One person is a janitor who worked hard all his life to get where he is and this massive thing will go right behind their house. It's devasting to me that this is being done without any invitation to the town to have an opportunity to do planning. We've had more and more severe droughts; if fires get into mycelium layer in a drought year, this can burn for miles and for months, and there will be no way for us to put it down. Nearby fire lasted three weeks because of where it popped up in the forest. We have 12,000 out of 20,000 is protected. This is what happened in Canada; fires burned underground and there was no way to put them out. This could destroy our entire town. It is completely inappropriate that this facility is being sited where it is and that all of our Mass public officials gave us no inkling that they were planning this. And I know this goes back to Baker admin, but nevertheless, we have a right to~~.~~ K~~k~~now that you were building basically a new utility plant across multiple towns without telling us they were all interconnected. I've been researching the companies that have been investing in this: the Carlyle Group investing in solar projects deforesting area, and to me that's like putting the arsonist in charge of putting out the fire. I'm pretty upset. I could lose all the equity I've put into my home over 30 years if something goes wrong. I'm hearing that engineering cannot necessarily be trusted, so I don't have a lot of confidence about what happens to our little 900-person town, and I would like to think that our public officials are actually adhering to the Massachusetts Constitution that you're supposed to act in the best interest of citizens (Article 7, Part 1). Would like it if you would do something. If you strip away all the rights we have and the way we've protected ourselves, you can't do it if you strip away our rights and those who have given away their life to steward their town and land. We are a volunteer town—we had six massive solar projects

from the Conservation Commission and call center was overwhelmed. Full-time job to protect town from industrial projects. Will try to put this in writing. Towns had a right to know years ago when this planning started. One last thing: you need to have a moderator that we can email questions to. Looked for recordings of previous session and couldn't find it, so please send a link and provide opportunity to ask questions in the chat and who presenter list. They're overhauling the electric line on my street and wanted to cut a lot of trees on my road. Nobody told us why. BTW, Department of Public Utilities Commission has only three people with no ratepayers, true since 1880.

Pamela Paultre, Pattern Energy:
Thanks for this session. I haven't followed all of the GMAC meetings, but I've been very impressed with the work and effort to keep the public and stakeholders engaged. I work with Pattern Energy, and we are a renewable energy company with an affiliate base in Massachusetts with Solect Energy. I have a couple of very high-level comments in terms of ESMPs that we have had a chance to review. Will echo some of the comments made earlier in terms of looking for an opportunity to have more creative solutions addressed in terms of interconnection issues and solutions available, especially to focus on thinking more about the low-hanging fruit in terms of systems that are not exporting, whether behind-the-meter systems that have the capability to not export to the grid, and would love to see more solutions at least the idea of what an expedited interconnection process could look like to address some of these short-term barriers on the interconnection side. Also, as a non-technical person, I would also like to recommend maybe just more general explanation of what necessary investments are on the technical side for both developer community (standards) would be helpful for utilities as well in creating those solutions. Thank you all for the work you're doing.

3. Adjourn

Commissioner Elizabeth Mahony, as Chair, adjourned the listening session at 7:18 p.m.

Respectfully submitted,
Jennifer A. Haugh
GreenerU