Grid Modernization Advisory Council (GMAC)

MEETING MINUTES

Thursday, September 28, 2023, 1–4 p.m.

Hybrid meeting

Councilors present:	Kelly Caiazzo, Sarah Bresolin Silver, Marybeth Campbell (virtual), Larry Chretien (virtual), Kathryn Cox-Arslan, Jeremy Koo (designee for Julie Curti; virtual), Amy McGuire (virtual), Councilor Kyle Murray, Sarah Cullinan (virtual), Jonathan Stout, Andy Sun (virtual) / Dirk Lauinger (designee for Andy Sun; virtual), Alex Worsley, Kathryn Wright
Non-voting councilors:	Carol Sedewitz (National Grid), Digaunto Chatterjee (Eversource), Kevin Sprague (Unitil; virtual)
Councilors absent:	JS Rancourt
DOER staff present:	Deputy Commissioner Joanna Troy, Aurora Edington, Julia Fox, Sarah McDaniel, Austin Dawson
Consultants present:	Paul Alvarez (virtual), Jennifer Haugh, Ben Havumaki, Dennis Stephens (virtual), Tim Woolf

1. Call to order

Commissioner Elizabeth Mahony, as Chair, called the meeting to order at 1:02 p.m.

2. Welcome, Roll Call, Agenda

Commissioner Elizabeth Mahony (DOER): Commissioner Elizabeth Mahony welcomed all participants to the GMAC meeting. The Commissioner took roll call for voting and non-voting members. No additions or changes to the agenda were suggested. The Commissioner walked through the proposed agenda (slide 2).

Commissioner Elizabeth Mahony asked if there were changes to the September 14, 2023, GMAC meeting minutes; there were none. Councilor Kyle Murray moved to approve the

minutes of September 14, 2023. Councilor Sarah Bresolin Silver seconded. Commissioner Elizabeth Mahony did a roll call vote. Councilor Kelly Caiazzo abstained. The motion carried.

3. Key Updates on ESMP Review Period

Commissioner Elizabeth Mahony reviewed slides 3 and 4. The Clean Energy Transmission Working Group (CETWG) and GMAC joint meeting is on Friday, October 13. Everyone on the Council should receive an invitation by October 10.

There are two virtual listening sessions coming up:

- Monday, October 30, 6–7:30 p.m.
- Wednesday, November 1, noon to 1:30 p.m.

There are 70 registrants so far. Commissioner Elizabeth Mahony noted that this is a separate process than what the utilities will be engaging in as part of their statutory requirements.

4. Reminder of ESMP review timeline

Commissioner Elizabeth Mahony reviewed slides 5–9:

- Slide 5: Timeline of GMAC agenda items.
- Slide 6: ESMP recommendations sheet. There has been a little bit of updating to this sheet to include some drop-down items from columns A-F.
- Slide 7: Review process and timing.
- Slide 8 and 9: Upcoming meeting schedules through November. Fortunately, the utilities should have had time all along to look at responses. The hope is to wrap up by Thanksgiving.

Discussion:

Councilor Sarah Bresolin Silver, ENGIE North America, representing the energy storage industry: Have the EDCs received the feedback yet? Are they getting the feedback as it comes in, or all at once?

DOER staff member Aurora Edington: All sheets have been compiled and put online, and the EDCs have been notified.

Councilor Kyle Murray, Acadia Center, representing the environmental advocacy community: One of the columns was about "date added"—is this necessary?

DOER staff member Aurora Edington: We can drop it. There is no need for it.

Councilor Kelly Caiazzo, Massachusetts Office of the Attorney General, representing the Attorney General: The column for members to indicate support or disagreement is helpful. Is there a specific way we're envisioning using that? Should we click on each one? Knowing how to use that would provide guidance.

Commissioner Elizabeth Mahony: This is just an opportunity to flag something if there is something members have a strong reaction one way or another.

DOER staff member Aurora Edington: We will also discuss this at the ExCom meeting tomorrow.

Councilor Kathryn Cox-Arsalan, New Leaf Energy, representing the distributed generation renewable energy industry: Going through the recommendations spreadsheet, it became obvious that she hadn't thought about information requests last week. We clarified that those should be verbally during the meeting, but there is an opportunity to communicate those in the sheets so EDCs don't receive those at the end.

Commissioner Elizabeth Mahony: This is a good discussion point to bring up to the ExCom.

5. Update on GMAC Process for Reviewing ESMPs

Tim Woolf, Synapse, went through slides 12 through 15 and the plan for allowing for more time during the meetings to discuss. The GMAC charter and the DPU filing requirements are guiding the discussions.

6. Continued Discussion of Day 1

a. Jennifer Haugh, GreenerU, presented slide 17, that shared a set of recommendations from the consultants and the GMAC regarding stakeholder engagement.

Discussion:

Councilor Kathryn Wright, Barr Foundation, representing the environmental justice community: Wright noted a couple of other themes. One is that the GMAC discussed the composition and role of CESAG and whether it was replicative. There was consensus around having a cochair model. That is worth including as a recommendation. Another is that the GMAC was asking more from the utilities about how to scale up the stakeholder engagement function.

Commissioner Elizabeth Mahony: Can you talk more about that last point?

Councilor Kathryn Wright: In the plans, the level of community engagement proposed is beyond what the utilities put forward in the EEAC process, and there's a question about where the capacity is coming from to do that additional engagement.

Councilor Kyle Murray: There was definitely a lot of discussion about CESAG and how (a) is there another potential body, and (b) should be a co-leadership model as opposed to a utility-run model specifically.

Commissioner Elizabeth Mahony: Stakeholder engagement in the last couple years has only begun to be done meaningfully, and the more we can align with other groups, the better. She agreed on co-chairing; this will take extra effort.

b. Tim Woolf presented slide 18, which provided recommendations from the consultants and the GMAC on the current state of the distribution system. He said the main theme here was consistent presentation of all data needed by all the utilities, including information on aging infrastructure broken out by different types of infrastructure, and the rationale for replacement. He recommended that the utilities have the headroom forecasted out for ten years, as without it, it's hard to see a consistent picture. There should also be more information about distributed energy resource (DER) hosting capacity vs. forecasting and more relevant metrics on reliability. All-in performance metrics on resilience was very helpful.

Discussion:

Councilor Kyle Murray: agreed that a lot of the data is narrative, and it becomes difficult to judge what's evening happening because a lot of this is just words as opposed to specific data that we can track.

Councilor Alex Worsley, Enel North America, representing the transmission-scale renewable energy industry: Yes, and in addition, it's helpful to see consistent metrics comparing different plans. Regarding connecting the content to the Commonwealth's goals, can you explain what you interpreted that to mean?

Tim Woolf: That was probably meant more broadly.

Councilor Alex Worsley: This is important for later slides.

Councilor Sarah Bresolin Silver: The third recommendation [regarding existing DER capacity] was not only interesting and meaningful, but one of the overall comments was that there was very little information related to energy storage, and there's a lot of it in the queue, so a little more information about that would be helpful.

Dennis Stephens, The Wired Group: There needs to be consistent processes for evaluating data. He would add that as a recommendation.

Councilor Kathryn Cox-Arslan: Would you mind expanding on what you mean by data quality?

Dennis Stephens: For example, for equipment replacement or resilience, and especially reliability, there are processes you can use for risk-informed decision-making. There are a lot of different types of processes laid out to determine capacity needs, etc. The Wired Group has been looking at developing those processes; we think there's some value in being more strategic about process application.

c. Ben Havumaki, Synapse, presented slide 19, covering recommendations from the consultants and the GMAC on five- to ten-year forecasting. He stated that there is considerable overlap between the consultants' and GMAC's recommendations, including wanting more detail about construction of load forecasts and results. There were recommendations about additional sensitivities and suggestions about more discussion about the wider context, climate GHG implications, and policy relations or connections.

Regarding construction, there was interest in seeing more detail about assumptions, disaggregation of load forecast, and more specific detail about how DERs are modeled. The consultants recommended sensitivities at a higher aggregate load forecast level. Finally, there could be more discussion of GHG emissions, which is not covered only in this chapter, but could be cued up here, as the GMAC charter covers climate change recommendations.

Tim Woolf: We strongly suggest a comparison between greenhouse gas emissions impacts with business as usual and with grid modernization. This is important with determining rate impacts as well. What we need to see more of is maybe one scenario with necessary items and another with variables.

Councilor Kathryn Cox-Arslan: One clarification regarding all three chapters is also to think about and provide recommendations that could be included in future ESMP iterations. She wondered where those might fit into this conversation and ultimately into the GMAC recommendations.

Councilor Kelly Caiazzo: That was a helpful way to break this down. This may be relevant to Section 5 but may also be in other sections. Her question is about breaking down the data and providing more detailed information and showing sensitivities—that's really helpful, but what would the GMAC do with that information? What's the next step if we see those kinds of sensitivities, given the time constraints and what we're thinking about? How can we utilize that additional information?

Tim Woolf: It would be helpful to evaluate what's in here in terms of whether a forecast is reasonable and all that went into it. All suggestions on detail are about really understanding the system better so we can evaluate it. This is generally about both the GMAC and especially the DPU, when they'll have time and discovery to dig into that.

Councilor Kyle Murray: Should analyses with high sensitivity tie into state goals?

Tim Woolf: The baseline/middle should address state goals—there's a lot more to be said about these sensitivities and how to design them.

Councilor Kyle Murray: He would like to see the state goals, and whether they are reasonable or unreasonable. If so, what do we do about it?

Councilor Larry Chretien, Green Energy Consumers Alliance, representing low- and middle-income residential customers: On slides 18 and 19, the consultants' recommendations are ones he can support. Revising plans to accommodate those recommendations would give him a lot more confidence at the end of the day, so he would definitely like to see some changes in that regard. Regarding the fourth bullet on Slide 19 [include two sensitivities (low and high) in load forecasts to reflect uncertainty], to reach 2030 goals, we're going to need more heat pumps and EVs than are projected in the Clean Energy and Climate Plans. Simply more heat pumps and EVs are going to add more load on a linear basis, and we need to test whether that's true. He's not sure we have enough information to say we can both add EVs and heat pump and also manage charging and load. There's no way to get around the nexus of forecasting policy.

Sarah Cullinan, Massachusetts Clean Energy Center, representing the Massachusetts Clean Energy Center: Regarding the bullet on forecasting greenhouse gas emissions [include a forecast of the GHG emissions expected from each EDC, etc.], she agrees with part of what the consultants provided. She would like to compare how these investments stack up: if you move forward with this part, we'll get X% of the way there. If you add Y, we'll be closer to the target. The premise of the plans is supposed to be enabling decarbonization by 2050. The part she's confused about is if we're asking to forecast greenhouse gas emissions in different scenarios, are we seeing whether we can reach that objective or not? Or are certain investments enabling us to get there? She would like to see whether certain additions get us there more efficiently or with a higher probability.

Councilor Andy Sun, Massachusetts Institute of Technology, representing engineering expertise in interconnecting clean energy: He echoes sensitivity in forecasting; some of these are linked to state policy directives. His question is, how likely is it that we will have more information about the rate of adoption in our state, especially this very significantly increased load forecast? Suppose we do have scenarios of high load vs. lower load, how can we use this in the planning process? Would that affect the cadence of expansion of infrastructure? Can we wait and see how adoption develops, and then revise the plan moving forward? Related to the planning process, the reports mentioned some rules and documents, but maybe some more details could be shared about how these elements interact with each other? He doesn't see much detail about infrastructure development. That could give more capabilities for utilities to monitor in real time; the load could be more responsible, or we could forecast the load better.

Commissioner Elizabeth Mahony: We'll wrap there and readdress recommendations in November.

7. Section 6: Five- and Ten-year Solutions

Paul Alvarez and Dennis Stephens, The Wired Group, presented slides 22 through 32:

- Slide 22: Section overview
- Slide 23: ESMP outline
- Slide 24: Brief summary of what each utility discusses
- Slide 25: Spending on physical infrastructure (poles and wires) is the largest overall at 70–75%.
- Slide 26: Are we forecasting policy? This is a great place to start; solutions presented are based on those forecasts. If we assume we'll hit these numbers and don't hit them, we'll be spending money on the grid that we don't need to. We need to find the right balance.
- Slide 27: The key to this effort is finding the balance between affordability and readiness. Alvarez showed the "new product adoption curve" as applied to most new technologies. You see a lot of excess investment in the beginning stages to get ready for the peak. The utilities have an incentive to be overprepared, so the challenge is, how much is correct?
- Slide 28: Regarding capacity planning, at National Grid, there are very few transformers that are overloaded due to needing additional capacity during abnormal conditions. Two questions: How often does this occur? How often do contingency situations occur during peak loading periods? The system is designed for those peaks (hottest summer days or coldest winter mornings), but how much of the year is this excess load violation /

insufficient capacity situation exist? If there's a 1% chance the equipment will fail and 5% of that is during peak time, is that 0.05% probability worth the effort of preserving when considering new construction?

- Slide 29: Other things utilities can do is build less capacity and reduce peak loads through demand response, customer-owned storage, vehicle-to-grid technologies, etc. With 1,647 MW of increased demand, there only a 17 MW increase in demand response.
- Slide 30: Examples of ESMP alternatives to EDC capital include battery storage, electrifying district steam network boilers, grid communications network services, and retaining fossil-fueled heating for extreme cold events. What is rationale for socializing costs to all customers? This becomes an equity issue. Regarding the Boston proposal to electrify district steam network boilers, what alternatives have been evaluated? What about direct air-source heat pumps? Ground-source heat pumps?
- Slide 31: The joint EDC proposal for the grid services compensation fund and studies is a good idea and could defer capacity upgrades. The concerns are, how do the costs of payments compare to the costs of upgrades? How does this compare to demand response? What happens with the market if the EDC controls the battery/EV? Is this fair to demand response aggregators competing in ISO-NE?
- Slide 32: Recommendations are, again, that we need metrics with baselines and targets. We should mandate consideration of alternative solutions to EDC capital spending. One way to achieve this is stakeholder participation in plan development: make sure processes are in place to evaluate options, and that utilities are applying these options and coming out with best solutions. The EDCs should standardize approaches to developing ESMP components among utilities and coordinate electric grid planning with gas grid planning.

Discussion:

Commissioner Elizabeth Mahony asked if there were any initial reactions or recommendations to this section itself.

Councilor Sarah Bresolin Silver: She found this chapter really useful. Sometimes she gets confused about which type of customers the EDCs are referring to, e.g., ratepayers or developers. She'll give specifics in her spreadsheet. She would like to see some more specifics on the section on DER improvements to how customers can interact with a portal with respect to behind-the-meter residential customers vs. in-front-of-the-meter developer customers. She wanted to emphasize Alvarez's comment about utility control of DERs and batteries, because there's a lot of talk about advanced metering infrastructure (AMI) and distributed energy resource management systems (DERMS) and thinks there's been very little discussion about how that's actually going to happen in practice. There are batteries in wholesale markets; are EDCs thinking more of themselves as distribution system operators now? There's a lot more there to think about to implement them meaningfully.

Councilor Kyle Murray: These recommendations look strong. The flag on NWAs on slide 24 was something he noted as well. We need to be focusing on NWAs that are not under EDC control. There is the potential for really helping us to reduce load growth, and we need to do a better job of focusing on them.

Digaunto Chatterjee, representing Eversource: Regarding Councilor Sarah Bresolin Silver's question about how EDCs are thinking about customers: it's been a journey, but since the capital infrastructure planning (CIP) docket, they don't distinguish necessarily between customers, but can clarify there. For distribution system operators and utilizing non-EDC-owned assets for distribution reliability after the implementation of DERMS, decision-making overrides market participation at the time that we need to do what we need it to do. He doesn't see a conflict with joint operational control with override function. We cannot rely on an asset that is simultaneously participating in the market and may or may not be reliable at the time we need it. We will need to think about this in terms of a day ahead we will predict that we need to take control, and to the extent locational marginal pricing (LMPs) in the New England market are going to be high, they'll take advantage of that the next day.

Councilor Kathryn Cox-Arsalan: Stakeholder participation in investment plan development (bullet 3 of slide 32) is something they're very interested in. In the dockets, there was consensus about points of time when stakeholders would be engaged. She also supports the recommendation of memorializing points of collaboration and helping future ESMPs. The Section 6 analysis process to help develop solutions to have a document that can be referred to give folks transparency would be very helpful.

Councilor Kathryn Wright: Some investments were differentiated differently for nearer-term physical infrastructure vs. longer term. Some Eversource plans would have less time for near-term engagement. She would appreciate more clarity about what to expect in next drafts, e.g., community benefits agreements, NWAs. It's not clear what's on the table.

Commissioner Elizabeth Mahony: Regarding the second bullet point [mandate consideration of alternative solutions to EDC capital spending], the EDCs need to put a lot more effort into NWAs; she would like to see the plans be clearer on how they'll manage peak demand through NWAs in this timeframe. There are probably some more solutions out there, either utility-controlled or not that could be included, particularly in the Eversource and Unitil ESMPs. DOER will reference quite a bit in our written comments.

Councilor Sarah Bresolin Silver: In the forecast section, EDCs are taking into account developer-owned assets, so she's interested in knowing more about once DERMS have been implemented. Will that change? Will the EDCs feel comfortable accounting for developer-owned assets? She understands why the utilities explain it the way they do, but she doesn't necessarily agree with it.

Jeremy Koo for Councilor Julie Curti, Metropolitan Area Planning Council, representing municipal or regional interests: He has heard some anecdotal reports from municipalities that some residents are having difficulties securing affordable electric upgrades, e.g., a small multi-unit dwelling was quoted $150,000 to upgrade that building. It's great to see hyperlocal-level focus, but he is curious about how costs are allocated to plan those upgrades.

Councilor Sarah Cullinan: It's not clear from any of the plans of the relationship between separating out the capacity available for load vs. hosting capacity and head room. She assumes that part of that head room is for hosting capacity. Eversource is proposing CIPs in areas with strong DER plans. Are these being squared with one another? If you sum up all that hosting

capacity across the system, will that actually accommodate the amount of renewable energy that we're going to need? She would like to see how those pieces fit together.

Digaunto Chatterjee, Eversource: One thing we will clarify is that we need the grid twin tool to project where developable land is for the DER and where it's not, so we carved out some areas (Metro Boston) from those calculations of hosting capacity. In every other area where we were making an upgrade, some of the load forecast for ten years may not be relevant because some of the upgrades are because of step load additions in Years 1, 2, or 3. So when we make those upgrades in areas where solar can be developed, we're including that in hosting capacity. There is a table that shows a hosting capacity of the base level and every incremental CIP or non-CIP load-driven upgrades that are adding to the hosting capacity connecting to the 2040 or 2050 goal. They just had to do some analysis for solar-driven development.

Councilor Kelly Caiazzo: She appreciates observation that Cullinan made; it's something she observed as well. Maybe the GMAC should revisit that topic in their recommendations. In response to Chatterjee's comment, she understands the points broadly, and would be interested in getting feedback from developers or DOER perspective to see how the solar study overlays with that and if those match up.

Paul Alvarez: With DER capacity vs. load capacity, the question becomes, what are the timing assumptions? There's a point when the EDCs each identify when their peak loads move from summer to winter, so the tiny assumptions and storage, etc., are critical. It becomes complicated very fast to do it right. On top of that, there is so much sensitivity around how much load and DER there's going to be and what time of day.

Commissioner Elizabeth Mahony: The timing strikes her as well because the utilities have historically layered one thing on top of another, all solar plus and such. It'll be good to get that addressed in the plans. She flagged that the DOER will offer some suggestions in terms of the plans including a number of summary tables that might help the review of them, about platforms, new programs being offered, capital projects, technology investments, etc.

Speaking to the readability of the plans, it might be helpful for each EDC to offer additional summary tables. Utilities are contemplating a continuing study at MassCEC, which is what is the value of the DOER [in relation to grid modernization planning]; the question is, does it make sense for the utilities to continue that evaluation, or to continue the third-party review? This is one thing we're puzzling for ourselves to figure out what makes the most sense.

Finally, coming back to NWAs, what else are we doing or thinking about time-varying rates to complement AMI and does that happen in the ESMP? Do the utilities start to hint at that or plan for it in these plans so that by the time AMI is rolled out, we actually have rates in place and ready to go? It all sort of circles back to what else we can do to minimize ratepayer costs while making sure the system is built out and ready to go where necessary.

8. Section 10: Reliable and Resilient Distribution System

Alvarez and Stephens went through slides 36 through 46:

- Slide 36: ESMP section outline

- Slide 37: Discussion outline
- Slide 38: Summary of reliability/resilience sections. All EDCs talk about risk and resilience efforts. We ranked according to cost effectiveness from high to low. Converting 4kV circuit to 13.8kV is a good idea. Changes to construction standards are good; these should be research supported to be cost effective and should be applied proactively, not retrospectively in relation to a new standard.
- Slide 39: The law of diminishing returns applies to reliability and resilience. This is a real issue and something we have to consider.
- Slide 40: Performance of utilities today. Data is from the U.S. Energy Information Administration. How much money do we need to spend on reliability given that the utilities are already doing a pretty good job? This gets to the issue of mitigation vs. adaptation.
- Slide 41: 2021 interruption frequency with major events. There are no egregious performances from anyone.
- Slide 42: Likelihood of service interruptions varies widely by location. The Coast and the Cape are higher risk, as are heavily treed areas, distance from substation, etc. Urban areas have fewer disruptions than rural. Underground cables have lower risk.
- Slide 43: Consequence of interruption varies by location and customer. Customer density, facility type, electric heat customers all have higher consequences; communities with DER and energy storage have lower consequences. If these are determinants of improvement value, then you can make better decisions regarding costs and spending.
- Slide 44: Data-based decision making. For example, all utilities need to replace aging equipment, and we can determine this based on probabilities and likelihoods and incorporate this in our decisions. Some equipment is tested and is deemed fit for service regardless of age/condition; thus, is there a need to replace equipment, based on these factors? Replacing equipment is not cost-effective. Load growth may drive replacement yet again.
    a. Stephens: Resilience is a subcomponent of reliability; they are the same, but they have different impacts. Both are measured by the number of occurrences and duration of outages. These can be monetized. The cost of consequences can be compared to costs of investment and be used to determine whether the investment is worthwhile.
- Slide 45: Affordability concerns and solution prioritization/selection. The concern is how to balance resilience measures with costs, as chances are we can't do everything we want. So if that comes up (see Sections 6 and 10), how do we make those difficult tradeoffs when we're prioritizing how to spend our money? Do we put some things off to the future? Which ones, and why? Costs are especially high these days.
- Slide 46: Recommendations. One is to mandate that EDCs estimate the reliability risk reduction value of solutions in dollars, enabling comparisons to costs (and to other competing solutions). The challenge is trying to estimate risks vs. solutions, but the next recommendation is to develop a process to help make difficult solution prioritization, selection, and deferral decisions.

Discussion:

Commissioner Elizabeth Mahony: The DOER is asking how resilience plays a role in new infrastructure siting. We would like to see more details on that, more information on how resiliencies considered in future infrastructure development. This goes back to the statute that brought us here, and it's right in the first paragraph of ESMPs to prepare for future climate-driven impacts on distribution and transmission. We often find ourselves talking extensively about DERs but have to recognize that resilience and climate impacts are really driving solutions-based thinking in these plans. Similarly, we think it would be helpful if the utilities would work together to standardize your climate change planning tools and forecasting. Again, it's happening to all of us at the same time, so standardizing those tools would probably make all of our lives a little easier but would also present us with the tools necessary to address a lot of these issues.

Councilor Amy McGuire, Highland Electric Fleets, representing the electric vehicle industry: She is trying to understand and incorporate into the ESMPs the role that customer-owned resilience assets play, how they might be incentivized and then integrated into the planning process that the utilities have. More specifically, her organization has vehicles, i.e., school buses, that can provide battery storage support; they can also move to an outage site and could become part of an active resilience and/or response to recovery asset collection. There are complexities, such as contractual arrangements and commitments that can be put in place, but she doesn't think they are impossible to overcome. The utilities have a legal responsibility to respond to outages. But the fact that there's already investment going from the private and public sector to these assets, it may be important to deploy these assets as a form of public service.

Councilor Kathryn Wright: As for historic reliability and resilience metrics, we are the fastest warming region in the U.S., and future weather patterns are not necessarily reflected. Vegetation management is mentioned in Unitil. There's an interaction between equipment and ambient temperatures. Those tradeoffs were missing from this section.

Dennis Stephens: Regarding building infrastructure for the future and resilience, there is a need for data collection on what storms and exact impacts, how much damage has been done, so that one can start to project what increased climate change might look like in the future to actually decide what is a cost-effective approach to a stronger system as opposed to a blanket approach to building new infrastructure.

Councilor Kyle Murray: Is that not being done currently, on storm damage, etc.?

Dennis Stephens: When we've asked in the past, we haven't gotten good answers—no specifics on which poles have been damaged and which areas. This is just based on experience.

Commissioner Elizabeth Mahony: We are focused on plans and want to rely on information that's available: how can we maximize information reported and collected by utilities in these plans?

Paul Alvarez: As another example of data collection processes, will give a five-year history and all interruptions, and a lot of them are classified as equipment failure. As we look at that data, we find it's a catch-all rationale for a lot of things, so the data can be inflated. What's the quality of

the data that is available, and what changes should each EDC make to get data to be more helpful?

Commissioner Elizabeth Mahony: some of this discussion we've thought about at DOER as well in terms of Paul's opening points of how are we going to make these investment decisions? We'd like to see more transparency in investment costs; that is important for trying to make those balanced decisions. Thinks it's very important for how we are balancing rate payer investments. Another thing we noted in Eversource's plan is you included resilience methodology, including an analysis on SADIE, which we think is helpful information that perhaps NG and Unitil can pick up in theirs. We're talking about collecting the right kind of data to make these balanced decisions, as we're making huge investments.

Councilor Sarah Cullinan: The reliability question is exceptionally difficult, because one aspect is we're going to need increased reliability as more things are electrified (heat and transportation). So talking about the idea of diminishing returns, it's a hard tradeoff because is there really a point at which we say we are going to accept additional unreliability? The goal is 100%, but that's not necessarily practical as it gets too expensive. You have to balance that. On top of that, there is regulation requiring the grid to improve reliability. Anyone who experiences an outage isn't going to say they're part of a vast minority of those who experience them. Infinite reliability comes at significant costs; it's hard to figure out the appropriate level of investment.

Paul Alvarez: And what's the appropriate level of risk tolerance? We can't answer this, but Sarah has stumbled on one of the toughest.

Commissioner Elizabeth Mahony: A lot of what we're talking about in section 10 links back to Section 6 and solutions described there. We would suggest showing a stronger link between these chapters so we can point out the obvious connection when we're faced with these questions.

Dirk Lauinger for Councilor Andy Sun: He is wondering about the timing of these decisions. If you want to take reliability measures, when do you need to start putting in underground cables and replace overhead cables? Is there a phased approach? Is there a system to prioritize?

Councilor Sarah Bresolin Silver: When she was at the DPU, she worked on plans utilities submitted that had standards for how the utilities would perform. More customer-service facing plan. Presumably those are standards the utilities worked towards for reliability. Sounds like utilities are working toward total reliability and whether there are necessarily performance standards.

Commissioner Elizabeth Mahony: We recognize that there are plans, but drilling on the details of what's included and to the extent that information can help us in planning for resilience and reliability.

Carol Sedewitz, representing National Grid: We do use reliability data for our core business, whether it's trees, motor vehicle accidents, equipment failure. All of that information is used to identify where the worst-performing circuits are and putting funds in those areas. We have a declining glide path we need to meet for reliability, which is currently in the third tranche. If we are in violation, we will pay a penalty based on profits.

Tim Woolf: There are frequency and duration standards that the DPU has established and have declined over time, and you need to meet those. What I think that ties into this: there are currently reliability standards: System Average Interruption Duration Index (SADIE) and System Average Interruption Frequency Index (SAIFI), which might change. The question is, how does ESMPs meet those standards? Do they meet or exceed? That would give us a benchmark we can use to evaluate the reliability proposals here.

Commissioner Elizabeth Mahony: I go back to this statute and why we're here and developing these plans, which have a different lens than the traditional work of the companies. How does that work translate from a historic picture into reliability and resiliency in a time of uncertain climate future and the planning that goes there? There's a lot we know of systems, but climate change is changing the game on you.

Tim Woolf: Does the DPU have standards for additional metrics beyond these?

Carol Sedewitz: There is nothing on resilience yet; there are individual circuits measured that relate to individual customer pockets.

Digaunto Chatterjee: There are resilience metrics to date. Eversource operates in Connecticut, where they have established an all-in SAIDI as a resilience metric. Specific outages that they measure with that translate to specific circuits, then they come up with specific plans for each circuit. All of this is extremely data-driven.

Councilor Sarah Cullinan*:* Some of the EDCs are reporting on all-in SAIDIs per the requirement. There are additional metrics explored in service quality to be considered. This is not part of the standard, but it provides other helpful information, such as tracking particularly long duration interruptions and multiple interruptions. A metric that has been reported is momentary outages for industrial customers. Massachusetts has a very robust service quality reporting program, so it's not a question of improving that, but the additional importance of reliability moving forward.

9. Section 12: Workforce, Economic, and Health Benefits

Ben Havumaki, Synapse, presented slides 50 through 59:

- Slide 50: ESMP outline
- Slide 51: Overall reactions: scope and priorities. Workforce impacts are looking at the upside. Economic impacts are about the whole economy in general, including job gains and losses. Health impacts refer to benefits associated with reduced reliance on fossil fuels and avoided adverse health outcomes. Much of Section 12 focuses on low-priority impacts (per the Climate Act) and not as much about high-priority impacts, such as greenhouse gas emissions.
- Slide 52: Overall reactions, continued. Section 12 is consistent across plans and generally qualitative. There is some quantification of economic impacts, but the overall sense is that this not an analytical section driving any of the planning, which may be appropriate given the lack of requirement. It's important also to say that the impacts will be positive in most ways, though not necessarily the best ways.

- Slide 53: Reactions: workforce benefits. This discussion should be more quantitative and better integrated with other points of this section, and also tied to stakeholder section. There should be more concrete info about job creation from investments, where they're located, who will fill these jobs, environmental justice, and equity implications. Workforce benefits and job impacts shouldn't be uncoupled. Workforce development planning could be better integrated with stakeholder outreach.
- Slide 54: Reactions: economic analysis. The key point here is it's necessary to show base case vs. incremental benefits and costs, which should show the comparison. The consultants recommend the Regional Input-Output Modeling System (RIMS II) tool to estimate economic/employment impact of proposed plan spending. This is by no means a perfect model.
- Slide 55: Reactions: economic benefits per National Grid. This is lacking comparative detail.
- Slide 56: Reactions: economic benefits and the need for a net analysis. A complete economic analysis would account for spending, costs, avoided spending, job creation, etc. The EDCs need to be considering broader induced costs with ratepayers. Without those factors, impacts presented are considerably overstated. The remedy is to start with an analysis of two different scenarios. There are lots of permutations, but a high-level comparison would be helpful.
- Slide 57: Reactions: health benefits. The statute doesn't require these considerations, but is calling for greenhouse gas emissions reductions, which is correlated. We would like to see more about this and clarification about which health benefits are related to greenhouse gas emissions reduction. A comparative analysis would be helpful here.
- Slide 58: Reactions: climate benefits. The statute does call for plans to address climate benefits; here again this is discussed qualitatively, not quantitatively. We need to see comparisons of climate benefits with vs. without grid modernization.
- Slide 59: Recommendations. Across different analyses, we would like to see more detail, more data, and clarification of incremental net benefits, especially for economics, greenhouse gas emissions, and health.

Commissioner Elizabeth Mahony: Connecting this section to the stakeholder engagement section is critical. We'll be asking a lot of ratepayers and communities through these plans. Utilities have a monumental task ahead in having those conversations, and being armed with the data and the benefits that Ben Havumaki walked us through will help those discussions to be able to go into communities and say this is what we'll be doing, because our analysis will show that these three health impacts are coming your way. We believe these steps will actually bring benefits. It's critical to connect those and take advantage of this section. With workforce development, there is a lot going on; we are excited to do this because it will help our economy and our environment. But the legislature has put a lot on the MassCEC. Our labor unions are doing a lot more. She's not sure how much we need to reinvent the wheel rather than connect what's already going on out there. The National Grid plan talks a lot about programs they're thinking about; it would be great to see more detail on some of those programs and connect with what's already underway.

Councilor Kyle Murray: We do need more detail on the numbers. Full-time vs. part-time jobs is not a great metric—some could be really good jobs, and some might not be. How long will they

last? What's the quality of these jobs? Another thing he flagged was benefits of electrification in the National Grid plan and specifically the importance of transportation. But he didn't notice a section on buildings and indoor air quality there; getting gas out of homes has indoor air quality benefits.

Councilor Kathryn Wright: She strongly endorses comments about greenhouse gas emissions analyses and agrees about workforce benefits reactions. There is a lot of qualitative description that the utilities wanted to include EJ communities in the workforce and jobs benefits, but not a clear articulation of how that's going to occur. Even with the programs out there, there's still a strong underrepresentation of minorities in this sector, so without an explanation of specifics about local hire requirements, this feels weak. This also goes back to stakeholder engagement. She's curious about transition of utility's own gas workers and wanted to know if that's also a part of this conversation.

Commissioner Elizabeth Mahony: Looking at EJCs we've worked hard to identify isn't just ticking a box; it takes actual planned work. The same thing goes for workforce development. This is a terrific opportunity to put pen to paper and devise real solutions. This will only serve the future development of the grid by doing so.

Councilor Jonathan Stout, Dana Farber Cancer Institute, representing large industrial and commercial end-use customers: We're using "capacity" as the biggest driver for infrastructure. To Ben Havumaki's comment about having quantitative data, it would be helpful to have co-benefits quantified. There's a great way to do something similar tangentially about substation upgrades and local greenhouse gas emissions, especially in EJ populations.

Dirk Lauinger: Would it be possible to quantify the benefits of having more renewable energy on the grid, which is maybe cheaper than fossil fuels? And how will electricity bill be impacted based on lack of gas infrastructure required?

Councilor Kathryn Cox-Arslan: Metrics from the utilities are due by October 1. The health benefits piece seems really interesting and relevant. In reflecting on this chapter, would we be able to see that? It would be helpful to reflect on those in the recommendations.

Carol Sedewitz, National Grid: National Grid just got comments yesterday morning and saw a lot of feedback on additional metrics. We're trying to scramble and figure out how we can have really robust discussions on those and include those. We were wondering whether we can submit things after October 1 to give us a little more time to work on this and have more substantive discussion at the October 26 meeting. The GMAC has given the EDCs some really great feedback in the comments they've already received, and they don't want to miss the mark by giving something that doesn't include your feedback. They would get it to us well in advance of October 26.

Commissioner Elizabeth Mahony: Are there any objections?

Councilor Kathryn Wright: Currently, the Equity Working Group's charter is to discuss metrics; the EWG's second meeting is October 10. It would be helpful to have info before then because we'd need to begin drafting our conversations.

Commissioner Elizabeth Mahony: Unfortunately October 9 is a holiday for most.

Councilor Kyle Murray: Would it be possible to do a couple of iterations of metrics as available with the understanding that some will come up later?

Carol Sedewitz: They could do two chunks: one set of metrics for the Equity Working Group by October 5, and if there's more to pull together, they will deliver those later. They'll see more comments on metrics at the next meeting.

Commissioner Elizabeth Mahony: This is an iterative process. She expressed a preference for the EDCs sharing metrics as much as possible in stages to help the Equity Working Group get what they need to review well in advance of their October 10 meeting.

10. Close and Next Steps

Commissioner Elizabeth Mahony reviewed the next steps for the October 12 meeting (Sections 8, 9, and 11).

11. Close

Commissioner Elizabeth Mahony, as Chair, adjourned the meeting at 3:58 p.m.

Meeting materials:

- Meeting agenda
- Meeting presentation slides
- Draft minutes from September 14, 2023, GMAC meeting
- DPU procedural memo dated August 7, 2023
- Master summary (spreadsheet) of ESMP recommendations from the GMAC (Chapter 3, 4, and 5)

Respectfully submitted,

Jennifer A. Haugh
GreenerU