

Net Zero Grid Planning Lab

Minutes from Workshop #3:

Stakeholder Collaboration

May 11, 2022

Participant List

MassCEC

- Ariel Horowitz
- Rees Sweeney-Taylor
- Jade Lu
- Rhys Webb
- Paige Asbury
- Rachel Powlen
- Sophia Napoletano

Coalition for Community Solar Access

- Mike Judge

EPRI

- Rob Sheridan
- Min Long

Eversource

- Brett Jacobson
- Gerhard Walker
- Lavelle Freeman
- Shakir Iqbal

Department of Energy Resources

- Joanna Troy
- Eric Steltzer
- Marian Swain
- Samantha Meserve

Executive Office of Energy and Environmental Affairs

- Undersecretary of Energy and Climate Solutions Judy Chang
- Benjamin Miller

Metropolitan Area Planning Council

- Jesse Way

National Grid

- Carol Sedewitz
- Elton Prifti
- Gia Mahmoud
- Michael Porcaro
- Samer Arafa
- Benham Khaki
- Melissa Liazos

Northeast Clean Energy Council

- Jeremy McDiarmid

Office of the Attorney General

- Kelly Caiazzo
- Liz Anderson
- Shannon Beale

Introduction

Dr. Ariel Horowitz, Senior Program Director, MassCEC

Rob Sheridan, Technical Executive Consultant, EPRI

Today's Agenda

- Welcome
- Recap Workshops #1 and #2
- Stakeholder Panel Q&A Session
- Panelist Open Discussion
- Next Steps

Workshop #1: Forecasting Electrification Growth

- What key elements of the electrification plan will impact the distribution system?
 - EVs
 - Buildings – changing demands over the course of a day and seasonally (substantial growth in winter with electrification of heat)
- Agreed to move forward in presenting discussions around the All-Options pathway
 - Challenge of taking aggregated system-wide numbers and trying to figure out how they will apply to local distribution systems
- Eversource and National Grid shared plans of how they are incorporating anticipated decarbonization into electric energy and electric demand forecasting processes
 - Lots of work to transition from one large number to individual discrete forecasts across all hours in a year and over 15+ years

Workshop #2: Distribution Planning

- Distribution grid is composed of thousands of individual feeders, each one of these feeders acts independently based on the customers it serves
- Distribution capacity: What does it mean? Where can it be applied?
 - Capacity is going to vary circuit by circuit and at each location along that circuit, so being able to accurately represent circuits in models and place loads at appropriate locations is important
- Subgroups: National Grid and Eversource walked participants through how they apply their distribution planning in a particular location
 - Came to understand that there are different needs in different locations
 - Discussion about capacity utilized for serving the immediate load and to ensure that system can be flexible enough to cover maintenance and future growth
- What is the load curve/load cycle going to look like over time? How will it change in its magnitude and its shape?
 - Different time of day for peak?
 - Different min/max/average?
 - Shift from summer constraint to winter constraint?

- What will happen in spring and fall when loads aren't as high, but generation could be high?
- It's like real estate: distribution planning is all about location!
 - Where the loads develop with respect to infrastructure already out there is critical for determining distribution level impacts

Stakeholder Panel & Roundtable

Moderator: Rob Sheridan, Technical Executive Consultant, EPRI

Today's Panelists

Joanna Troy, Director of Policy, Planning and Analysis, Department of Energy Resources

Jeremy McDiarmid, Vice President for Policy and Government Affairs, NECEC

Roundtable Participants

- EEA, DOER, MassCEC
- Coalition for Community Solar Access
- MAPC
- AGO
- Eversource and National Grid

Question #1: Please introduce yourself by describing what role your organization has in achieving the Commonwealth's Net Zero goals ... And ... Please share how you and your team expect to be engaged with the EDCs to ensure the distribution system is developed appropriately to enable those goals:

- Joanna Troy, DOER: DOER is the policy arm at the energy policy forum (DOER, DPU, DEP) for the Commonwealth. It focuses on energy and non-adjudicatory action. DOER provides some of the detail on how the programs are implemented.
 - DOER is split into divisions:
 - Implementation Division manages the Green Communities and Leading by Example
 - Renewables Portfolio Standard Division oversees design & implementation of SMART, Clean Peak and Renewable Portfolio Standard
 - Energy Efficiency Division
 - Policy and Planning Division
 - Joanna is head of the Policy and Planning Division. The Division manages offshore wind procurement and participates as the policy directors for planning and participation in EV and grid modernization proceedings at the DPU.
 - Participate as the policy drafters for comments at DPU
 - Interact with EDCs, usually immediately before a filing or within the regulatory process

- Hoping to not only interact as a regulatory reaction, would like to interact with EDCs as they develop things
- Interested in coordinating with the EDCs to better understand:
 - How grid modernization can help meet Massachusetts' Net Zero policy goals
 - How emerging customer technologies can advance clean energy goals in a cost-effective manner
 - What level of customer adoption of technologies such as EVs, heat pumps, solar systems, etc. are necessary to meet net-zero goals
 - How volt/VAR considerations will impact net-zero goals
- Jeremy McDiarmid, NECEC: NECEC interested in creating markets for clean energy of all kinds and to create a pathway to 2030, 2040, & 2050 goals.
 - Interact with EDCs at regulatory level (e.g., DER interconnection, strategy around how to plan for changes in distribution system), talk strategy around legislation and innovation to strengthen grid, pave the way for additional clean energy deployment to get there.
 - Interested in understanding how EDC goals mesh with overall MA goals
 - Interested in understanding EDC-planned phase-in and cost of T&D infrastructure; what is the added capacity required to meet clean energy goals, and where must capacity be added?

Question #2: What does your policy and/or regulatory engagement process look like? How do you decide what topics to address and what positions to take?

- Jeremy McDiarmid, NECEC: driven by the mission and membership of the organization. Engage in regulatory processes in a variety of ways, but make decisions based on whether they think there's a clean energy development indication and whether NECEC is positioned to make a difference.
 - Using the interconnection process as an example, NECEC builds a good relationship with EDCs to find areas of common ground and drive things forward to achieve common goals.
- Joanna Troy, DOER: DOER's motto is to build a clean, affordable, equitable, and resilient future.
 - When looking at EDC filings, DOER prioritizes these four aspects, with "clean" as the priority of their mission.
 - When looking at filings, DOER has to determine how proposed programs will help MA achieve net zero by 2050 and other goals identified by the Decarbonization Roadmap.
 - It can be difficult to identify which technical proposals will advance clean energy goals because most DOER employees are planners as opposed to engineers.
 - Generally, DOER picks the proposed topics that will increase clean energy in the most cost-effective way.
- Follow-up question from Rob Sheridan, EPRI: Within DOER, do they have any metrics to measure clean, affordable, equitable, resilient plans?

- Joanna Troy, DOER: DOER has more defined legislative emission limits. The Undersecretary is working on reasonable targets for the amount technology adoption needed to reach limits (e.g., how much solar is needed, how many EVs, etc.).
- These limits and targets don't get very granular so it's challenging to measure.
- Rob Sheridan, EPRI: Within DOER, are there opportunities for people to align on the metrics, not only on a technology basis, but on a results basis?
 - Joanna Troy, DOER: DOER does have benchmarks we need to meet, but we don't have as much of a requirement of which technologies will best reach those benchmarks.
 - Benjamin Miller, EEA: The 2021 Climate Law requires net zero by 2050 on an economy-wide level. The climate law also adds on numerical requirements like sector sublimits, key benchmarks/metrics for implementing climate policy they have to track progress towards (including some highly specific data).
 - Things like the number of EVs and heat pumps and offshore wind progress, and most importantly GHG emissions are to be tracked.
 - There is optionality and uncertainty in the pathway to 2050. Numerical tracking is useful but sometimes it leads to over-examining specific metrics.
 - Those metrics were included in the law due to frustrations in how long it takes to determine annual emissions after the year's end. Other metrics can serve as proxies for success towards emissions goals
 - Joanna Troy, DOER: The general theme is expediency. There are multiple paths to 2050, modeling is not always exact but it provides prioritization and metrics to track.

Question #3: What information do you look for from the utilities, and when do you need that information to be successful in achieving your goals?

- Jeremy McDiarmid, NECEC:
 - It depends, but there are a couple levels of info wanted from EDCs:
 - Big picture goals and trajectory of where they see themselves going and how NECEC can be helpful in achieving shared goals;
 - Distribution planning
 - Cost
 - Timing of planning
 - Added capacity brought to the system to
 - Meet electrification goals
 - Provide interconnection opportunities
 - Land availability
 - How to achieve goals in climate plan and remove limiting factors to accelerate pace of planning and construction
 - How to deploy more as cost effectively as they can
 - Timing: having a conversation to share ideas before the filings start. Shrink the discovery process and eliminate questions and concerns in a less formal process before it goes on the record.

- The more time the development community has to react and communicate, the better.
- Joanna Troy, DOER
 - Metrics are tough because the preferred data shows how policies are connected to decarbonization, which is hard to quantify.
 - DOER's involvement is to make sure electrification aligns with state's decarbonization goals. If not, DOER will have to regulate to make it happen.
 - Success for DOER is achieving decarbonization using the current structures. They want decarbonization to be successful so that less cost-effective legislative and regulatory processes aren't necessary.
 - Involvement of Commonwealth policy offices in planning is to see how long-term planning fits with long-term decarbonization goals. Would like to identify shortcomings before it becomes a problem so DOER can take that into account in their policy.
 - Qualitative info DOER is looking for are barriers for planning process. Communication can come earlier and more informally. Preferably outside of regulatory proceedings so discussion can happen before the program has been decided and the barrier exists
 - Quantitative metrics: harder to define.
- Contribution from Dr. Ariel Horowitz, MassCEC
 - Stakeholders have suggested it would be helpful to understand the dependencies and risks and different alternatives that EDCs considered in thinking through any particular proposal?
 - What is it that EDCs are looking for in terms of information, risks, dependencies of alternatives that can be considered before a formal docket? We are moving into a phase of customers adopting decarbonization technologies as a driving force for emissions reduction.
- Jeremy McDiarmid, NECEC
 - ⊖ Part of it is the overall risk appetite of EDCs, as informed by regulatory process; the need for everything to be useful. There's a need for forecasts to be accurate, which hampers EDCs from making long-term plans. Time is of the essence and the time for proposing, planning, and getting approval is a long, data-intensive process. Looking into the future is never going to be perfect. The regulatory world and consumer advocates should be more comfortable in that uncertainty.
- Joanna Troy, DOER
 - "Risk" of what? EDCs focus on service reliability and DOER is focused on meeting decarbonization goals. Ultimately, DOER is trying to avoid additional regulation and programs. They want information on GHG reductions because of a project and how their projects are directly tied to benchmarks. If possible, they want a way they can work with EDCs to better frame their metrics.
 - Underline difference between a goal and a law
- Jeremy McDiarmid, NECEC: The risk of inaction tends to be dwarfed because there is no regulatory constituency that represents that risk.

- Rob Sheridan, EPRI: Risk aligns with one's perspective. What is the perspective that makes the most sense for evaluating distribution system investments as they're being considered and reviewed by stakeholders? Issues and plans need to be presented in commonly understood language and avoid language subject to multiple interpretations.
- Joanna Troy, DOER: It's good for EDCs to talk through programs (even unapproved ones) with DOER to inform how DOER speaks to DPU.

Question #4: Is there information you may be able to provide to the utilities to support distribution system planning?

- Jeremy McDiarmid: NECEC can provide:
 - 1) Big picture trajectory of where the clean energy development community is going
 - 2) The ability to bring a collection of voices to the table so EDCs don't have to have bilateral convos with each developer
 - 3) Perspective on how they can lend their voice to support shared interests in legislature, at DPU
 - 4) Can bring problems, concerns, disagreements to EDCs in advance of a public setting; work through issues before it becomes a protracted debate
 - That's what they can provide, seeking feedback from EDCs to tell them if they're valuable
- Joanna Troy, DOER:
 - Understanding on the framework of the benchmarks and decarbonization goals; an interpretation of what the decarbonization roadmap really means.
 - Question for Eric Steltzer, DOER: Director of Renewable Division: what does the statewide target mean when interacting with the forecast?
 - Big space between forecasting and the decarbonization benchmark – where does the Commonwealth want us to move?
 - What areas have not only technical potential but also zoning, stakeholder potential, etc.
- Jesse Way, MAPC: Lots of municipalities are developing climate action plans that mirror Massachusetts decarbonization goals.
 - There's an opportunity to develop dialogue between EDCs and municipalities to see which municipalities are taking action to decarbonize. EDCs can focus their efforts here in the near- and medium-term
 - EDCs can understand when projects are coming online and where there is a forum for municipalities, EDCs, and regional planning authorities.
- Dr. Gerhard Walker, Eversource: Consolidating forecasts could be useful to EDCs
 - For DOER: understanding where the thinking is going on SMART programs and infrastructure is helpful for EDCs to make forecast models and to know where resources will end up on the system.
 - EDCs need to know where resources are going to end up on the system to develop reliable forecasts for distribution planning

- Today's approach uses current data instead of future insight, so forecasts are less reliable.
- Jeremy McDiarmid: The utility has to wait to have solid data to predict where the development is going to happen but by the time there's more planning, the distribution planning falls behind
 - Want the regulatory process to enable collaboration in the energy development community before it becomes a debate
- Dr. Gerhard Walker: Forecasts are policy driven and policy can change, thus nullifying the forecast. Anything forecasted on the status quo needs to be taken with a grain of salt
- Samer Arafa, National Grid: Likes the amount of collaboration they've had with NECEC when working on filings over the past year
 - Have gained access to a wide range of developers and need to continue this
 - NECEC also has continuous access to National Grid, and National Grid would like continuous access to NECEC
 - Would like something similar with DOER because it would help in forecasting. National Grid can hear thought processes in policy and planning. They can figure out how to incentivize things properly and what programs they can create to do so
 - So many variables changing at the same time, so continuous feedback is useful
- Digaunto Chatterjee, Eversource: going back to the risk discussion:
 - Risk of inaction
 - Imagine climate has hit 1.5C and the reality is increased frequency and intensity of storms
 - Avoiding this risk because they are already doing something
 - Risk of being too slow
 - Planning > design & engineering > approval > site approval > construction
 - Planning is only the first step, and a small piece, of the process. To move faster and de-risk this, they need to standardize planning. Should include how many heat pumps, how much solar, how it comports with climate goals as a standard.
 - Standardize procurement, siting, permitting, construction; standardization can expedite planning and make it easier to forecast
 - Risk of under planning (building less infrastructure than needed)
 - Smaller risk, but creates higher rates because of inefficient planning
 - Having to catch up with electric buildout. People could have unreliable power, rolling blackouts, etc.
 - Unduly burden ratepayers with higher rates.
 - Risk of over planning (building more infrastructure than needed)
 - Cost to ratepayer as a result.
 - Utilities have to balance the trade-off between reliability and affordability
 - Ultimately, there is "analysis to paralysis". At some point, stakeholders have to be collectively behind the utility
 - Need stakeholder collaboration so that the utilities are administering the collective decision-making of all stakeholders.

- The ideal EDC role is to administer the collective decision-making of policy planners, especially in decarbonizing the Commonwealth
- Jeremy McDiarmid: risk of overplanning – need higher risk tolerance of making bold projections of decarbonization needs. Need consensus on what sort of systemic changes are needed to make it work.
- Eric Steltzer (DOER)
 - Looking at the technical potential of solar studies
 - Two-way street for information
 - DOER needs hosting capacity maps for the solar study and analysis
 - Key information for DOER solar studies: cost estimates for upgrades of the system, for varying circuits. Where is it most cost-effective to have ground-mounted vs building-mounted solar? Cost info would be helpful for DOER to analyze specific circuits

Question #5: (Multiple Choice Question)

- A. What issues would you like to see greater focus on within the distribution plan?
 - B. What are one or two things that you would like to see changed?
- Or
- C. Is there something concrete you would like to propose for this group that would help support the distribution planning process going forward?
 - Jeremy McDiarmid: Would like to see a greater focus on pace of distribution planning and regulatory process.
 - How costs get allocated across customer types and time; would like to speed up process in a way that won't hurt reliability but will help achieve targets.
 - Reinforce context in which the planning happens. Planning is the beginning of a years-long process to get the planned upgrades built. The more the regulator understands this, the more important a fast pace will be to them.
 - Joanna Troy: Would like to discuss planning in a cohesive way before it becomes specifically regulatory. DOER wants a conversation with EDCs before solutions have been identified to talk about why things need to happen at a high level so they have a better understanding of what's coming. Focus on strategic planning and developing metrics that can track progress.
 - Would like some high-level interaction between DOER and EDCs and consideration of alternative options; greater transparency in the planning process
 - At regulatory level, the decision is usually already made, making it difficult to explore other options because that opens more regulatory paths.
 - Follow-up from Rob Sheridan: Joanna mentioned tension before filing and focus on strategic plan before decisions are made. Would DOER prefer to focus project-by-project or at a higher level (ex. spending planning)?
 - Joanna Troy: DOER doesn't need to know everything, but wants to know the objective of how everything fits together. When something is filed, they can already have the understanding of how something advances clean energy.

- Jesse Way: Transparency is important. The distribution grid is a technical topic and needs to be understood by other audiences so municipalities can understand further constraints and opportunities.
- Dr. Gerhard Walker: There needs to be exchange between stakeholders:
 - The risk for overbuilding: is there a connection between funding opportunities and where things are overbuilt?
 - If capacity on the system is available, it doesn't end up being a risk, which is supported if the EDCs and DOER closely coordinate.
- Joanna Troy: Would like to emphasize transparency
 - Looking at stakeholder feedback, they're becoming more interested and read-up on energy policy. Going to see stakeholders that want to know more information and data about their grid.
 - How much solar can be built in a municipality, where can the MBTA put their charging facilities, etc.
 - More of these questions will pop up. Transparency is key for this.
- Carol Sedewitz, National Grid:
 - Understanding how all EDC actions are achieving DOER actions – is Joanna referring specifically to distribution planning? Or also other actions like grid mod, AMI, etc.?
 - Joanna Troy: Would prefer the broader sense. All these things help the planning process.
 - Would like to speak ahead of time and have an ongoing dialogue.

Open Discussion

Is there anything from this workshop (or that we missed) that you would like to highlight or comment on?

- Jeremy McDiarmid: The more dialogue and understanding from various stakeholders, the better. There's a lot of alignment in overall goals and need to take advantage of this to forge a common path that's transparent and fast to meet overall Commonwealth goals.
- Dr. Ariel Horowitz: Would like to highlight what Digaunto Chaterjee said about arriving at a standard.
 - Our motivating question is: what do different stakeholders want distribution planning to look like to satisfy their concerns?
 - It is great to hear that there has been all of this consensus on goals and what people want outcomes to look like. It would be great if could arrive at consensus for what standards would look like to enable some of those benefits of standardization.
 - One of MassCEC's commitments is to foster continued engagement among stakeholders.
- Jeremy McDiarmid to Rob Sheridan: Is there a summary document or explicit next step in the program? Or is this the end of the engagement and it will be up to MassCEC & DOER to keep up with engagement?

- Segue into Next Steps

Conclusion and Next Steps

Dr. Ariel Horowitz

- Thanks to the panelists Jeremy McDiarmid and Joanna Troy, and for everybody that engaged.
- MassCEC's next steps: EPRI will be writing a white paper to cover issues brought up in workshop and projected system cost in broad strokes
 - Draft within a month or two
 - Goal is to share the issues brought up in the workshop with stakeholders within and outside the workshop
- Ideas from stakeholders:
 - Specific conversation around equity and distribution planning
 - Substation tour
 - Technology demos outside of regulatory proposal context, for a more hands-on view of what EDCs are proposing
- MassCEC is committed to continuing these conversations as long as people find them useful. Will reach out.

Rob Sheridan

- Appears like group is interested in continuing engagement. No more workshops planned, but will be writing white paper on workshops and opportunities & barriers with respect to distribution system planning and achieving the 2050 All Options Pathway
- Has enjoyed understanding how EDC processes are aligning with pathways and getting feedback
- Thanks to Jeremy and Joanna for being panelists.