Event Summary and Key Takeaways

NASEO-NARUC Microgrids State Working Group

Virtual Workshop: Microgrid Regulatory and Programmatic Strategies

March 29 - 30, 2022 | 1:00 - 4:30 pm ET

Workshop Overview

The National Association of State Energy Officials (NASEO) and the National Association of Regulatory Utility Commissioners (NARUC), with the support of the Smart Electric Power Alliance (SEPA), convened a virtual two-day workshop on March 29th and 30th to discuss microgrid regulatory and programmatic strategies with members of the NASEO-NARUC Microgrids State Working Group. Made possible by the U.S. Department of Energy Office of Electricity, the workshop included facilitated discussions and breakout groups with thirty-five decision-makers from public utility commissions and State Energy Offices designed to engage peers across the country regarding successful microgrid programs and regulatory efforts.

Key Takeaways & Lessons Learned

Additions to Structuring the Framework

The following list breaks down specific topics areas that were discussed during the workshop and how they can be incorporated into the NASEO-NARUC State Microgrid Programmatic, Policy, and Regulatory Framework. These takeaways and lessons learned are not attributed to any specific individual, State Energy Office, or PUC.

- **Microgrid Definitions:** The more clearly defined "microgrid" is within a state, the easier it is for State Energy Offices and PUCs to develop programs that meet the needs of communities and other impacted stakeholders. A microgrid definition can be set in place by the state legislature, the PUC, or the State Energy Office and once the definition is in place, states can then determine criteria to specify optimal locations to host microgrids. Some examples of these definitions are below:
    - **Level 1, 2, & 3:** The NJBPU defines microgrids through Level 1, 2, & 3 categorizations.
    - **Hybrid/Multi-Customer:** NJBPU and the Hawaii PUC both include a definition of hybrid or multi-customer microgrids within their programming language. Defining these types of microgrids was of particular interest to State Energy Offices and PUCs due their resilience benefits and potential regulatory barriers for areas such as crossing public rights-of-way (ROWs).
    - **Mobile:** There was significant discussion among the State Energy Offices and PUCs on microgrids that can be relocated to areas experiencing outages. Some states have utilized mobile microgrids to provide supportive resources (i.e. 5G internet) to residents and businesses during a severe weather event.
- **Multi-Customer Microgrids:** State Energy Offices and PUCs are interested in several aspects of multi-customer microgrids. This includes looking at what is working and what is not working with muti-customer microgrids within their states or regions, what role the commission plays in defining and writing rules for multi-user microgrids, and what role the state government plays in creating new definitions to allow for these types of microgrids.
- **Regulatory & Law Revisions:**
    - **Compensating renewable generation:** Commission attendees discussed the challenge of correctly compensating for renewable energy credits (RECs) that are generated by a clean energy microgrid.

    - **Interconnection & Right-of-Way (ROW):** Changes to interconnection and right-of-way regulations remain important topics and many states are still in the initial stages of considering or implementing changes to these rules.
    - **Net Energy Metering (NEM) Rates:** State Energy Offices and PUCs are interested in more information on the role of existing NEM rates and how the rates should be updated to account for microgrid assets.
    - **Tariff Revisions:** PUCs discussed the development of microgrid or resilience-as-a-service tariffs and explored several examples.
- **Standby Rates:** Many states are considering revisions to standby rates for microgrid customers.
- **Clean Energy and Microgrids**: Several states are pursuing demonstration microgrid projects to test a potential microgrid's ability to both reduce carbon emissions for specific customers and for the overall electricity grid. One potential demonstration project could include testing different technologies that could be incorporated into the microgrid (e.g. solar PV, battery storage, and fuel cells) under different adverse and blue sky weather conditions.
- **Critical Infrastructure:** There are several different approaches to defining critical infrastructure within State Energy Offices and PUCs. One State Energy Office program approached critical infrastructure by inviting program participants to define what they saw as critical within their community themselves. Another program also left the determination of critical infrastructure up to municipalities to decide when applying to the program. Another State Energy Office specifically characterized one of the key components of success for its microgrid program as the flexibility they put in place for defining critical infrastructure. When critical infrastructure is defined on the state level, many State Energy Offices and PUCs are starting with specific locations such as wastewater treatment facilities to analyze microgrids' potential. Various states are working towards inventorying and prioritizing critical infrastructure, especially within areas with multiple vulnerable facilities such as a fire station, an emergency shelter, a school, and a senior community with evacuation challenges.
- **Data Challenges:** Building off the critical infrastructure challenges outlined above, several states mentioned that they have difficulty monitoring how many critical facilities their state has, where they are located, and where microgrids would be most beneficial. Some states addressed this challenge by having local jurisdictions identify their own critical infrastructure.
- **Utility and Community Stakeholder Engagement:** The process of stakeholder engagement differs between states and will often depend on what businesses or individuals are involved or impacted by a certain project. Key stakeholders to engage

around a microgrid program might include end-use customers, community-based organizations, consumer advocates, environmental groups, emergency management agencies, municipalities, and local distribution utilities. One commission had a community development group serve as the point of contact between a utility microgrid project development team and the local community. Having the state group serve as a go-between allowed for more open communication and streamlined the process. In another state, the State Energy Office put a requirement in place for applicants to the program to establish a project coordination team that included key stakeholders that would be impacted by the microgrid. The goals of this coordination team were to (1) identify logistical issues early in the research and development process and (2) identify data needs, information gaps, and coordination opportunities necessary for the deployment of a successful microgrid project. Overall, the State Energy Office found that requiring utility participation from the beginning of the process is very valuable.

- **Cybersecurity:** Many states are interested in cybersecurity tools for distribution-level resources. There is support in this space being provided by NASEO and NARUC through the Cybersecurity Advisory Team for State Solar (CATSS) project. CATSS provides tools, education, and technical assistance to states in several ways, one of which is by developing an actionable solar cybersecurity strategy toolkit.

- **Equity Definitions:** State legislators are starting to define equity, environmental justice, disadvantaged communities, front-line communities, and vulnerable communities. This allows State Energy Officials and regulators to structure microgrid programs that are equitable and far reaching.

- **Financial Assessment:** Some states emphasized the importance of financial assessments for microgrids. Financial assessments need to be made at every stage of the project development process to ensure that a microgrid is financially feasible for a community.

- **Federal Funding Needs:** Many states have not yet started microgrid programs due to a lack of adequate funding. Both State Energy Offices and PUCs would be interested in more resources and information on federal opportunities such as the Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) program and Department of Energy (DOE) State Energy Program (SEP) and how to utilize these funds for microgrid projects or programs.

- **Shared State Resources:** For State Energy Offices and PUCs that are beginning to explore microgrid programs, it has been valuable to use existing programs from other states as blueprints for their own programs. It would be helpful to have a collection of state examples including sample requests for proposals (RFPs), and other potentially duplicable resources for those new to the process. Having these shared resources can also help with preventing lost information from staff turnover. (See “Shared Resources” at the end of this document.)

State Lessons Learned & Considerations

- **Generation Types:** State Energy Offices and PUCs discussed difficulties they have in supporting 100% renewable microgrids, noting that many currently operational microgrids rely at least partially or completely on natural gas. On the flip side, microgrids powered by natural gas introduce unique challenges due to environmental and health concerns. One regulated utility had to get an Environmental Protection Agency (EPA) exemption to use natural gas in a microgrid. In addition, renewable energy microgrids may be cost prohibitive. For example, one state found that they had to utilize natural gas in one project as the DER-CAM model determined that storage was too expensive to support the microgrid.

- **Intersection of Electric Transportation & Microgrids:** Several states are considering electric vehicle (EV) charging, resiliency, and solar to address electric transportation needs. One state is incorporating microgrids in its EV roadmap and is receiving federal funding for its EV chargers. Another has a goal of placing EV chargers supported by solar + storage microgrids within 50 miles of each other. In addition, an existing, partially ratepayer-funded microgrid incorporates EV charging facilities into the design. The project received a DOE grant for superfast EV charging in multi-unit dwellings and aimed to complement the EV infrastructure and usage with the microgrid development. Microgrids also generally improve resilience for vehicle fleets.

- **Loan Funding:** A State Energy Office found that trying to fund microgrids through loans was challenging and often did not meet their state goals. Funding, both public and private, is an important topic that states continue to need support with.

- **Military:** Several states mentioned that the military has a history of developing microgrids. They are important stakeholders and funders for microgrids.

- **Piloting:** One state emphasized the importance of having a piloting phase for microgrids and developing a large set of metrics for which to gather operational data.

- **Regulatory Authority:** Different states have different regulatory environments which impact oversight of microgrids and, in many cases, state legislation determines a state commission’s regulatory oversight of microgrids. For example, some PUCs felt they lacked authority to pursue regulatory changes to facilitate microgrids, opting to wait for regulated utilities to propose changes through rate cases or grid modernization proceedings. On the other hand, public power and cooperative utilities, who in most states are not regulated by PUCs, may determine their own path forward for microgrid rules. For example, in a state where public power is prevalent and the commission does not regulate electric service, a power review board reviews and approves projects, and transmission companies set the pace for approvals.

- **Regulatory Trends:** Many states are bumping up against outdated laws for what constitutes a public utility. These laws and rules impact multi-customer microgrid development.
- **Resilience:** State Energy Offices and PUCs are not necessarily looking to prioritize installing microgrids, but are looking for the best resilience options. Many states are at the starting point of evaluating definitions and options for resilience and determining where microgrids fit within this process.
- **Stakeholders:** One commission found that solar developers and residential customers are key stakeholders in the microgrid discussion who often share similar views. State Energy Offices and PUCs are constantly determining what stakeholders are missing from microgrid programs and regulatory discussions and how that might be skewing the outcome of a proceeding or policy implementation. There is a lot of value in getting a wide range of feedback and proposals from different stakeholders.

State Needs Assessment

The workshop featured a discussion with State Energy Offices and PUCs on what their greatest needs are and how NASEO and NARUC can be supportive.

- **Forums:** State Energy Offices and PUCs are interested in online forums to promote peer-to-peer learning around microgrids.
- **Modeling:** State Energy Offices and PUCs would like more information on the different modeling systems from GIS to the DER-CAM model. Many State Energy Offices and PUCs are not even aware of the DER-CAM model or how to use it effectively.
- **Resources:** State Energy Offices and PUCs would benefit from a compiled list of resources of which states have projects, programs, and tariffs for other states to replicate and learn from.
- **Topic Areas:** State Energy Offices and PUCs would like to see additional webinars on topics such as community microgrids, city-level projects, critical infrastructure, energy and water interdependencies, BRIC and SEP, data considerations, tariffs, pilot projects, cybersecurity, and specific state case studies.

Stakeholder Mapping

- **Equity is a Growing Component:** Many State Energy Offices and PUCs are starting to incorporate equity into their microgrid programs and regulation. Several programs place a large emphasis on developing microgrids that serve underserved and frontline communities. State Energy Offices and PUCs are also starting to be charged with clearly defining vulnerable communities and historically underserved areas. Several State

Energy Offices and PUCs shared that these communities experience challenges in accessing federal funding and providing cost share when required, and suggested that states support communities by doing feasibility studies and analysis to support grant applications.

- **Determine which Entity Leads the Engagement:** States can require local utilities to run a stakeholder engagement process and form working groups, while other states lead the stakeholder engagement through the State Energy Office, PUC, or an external facilitator. The District of Columbia Public Service Commission (DC PSC) had the commission lead their PowerPath DC working group and they were also responsible for compiling all the information and producing a final report. DC PSC was able to cast a wider net for constructive input from stakeholders including environmental consumer advocates and other concerned citizens by having the commission lead the effort. Some of the recommendations from the working group directly led to further investigations into actual microgrid projects, the development of a microgrid tariff, and a stronger relationship between the DC Department of Energy & Environment and the local utility, PEPCO, that has led to further conversations and site analysis.

- **Require Stakeholder Engagement:** Maryland requires microgrid grant applicants to form a planning committee that encourages stakeholder engagement. In one state, there historically has been contention between utilities and distributed generation operators. Stakeholder engagement can improve the relationship between these entities and lead to beneficial input to State Energy Offices and PUCs. At the end of the day, processes should support the concept that stakeholder engagement is not a zero-sum game, and rather creates new opportunities and benefits for the whole group. There is value in having stakeholder participation at both the state and site-specific levels. According to many State Energy Offices and PUCs, utilities should be viewed as the most critical stakeholder from the initial planning stage if any microgrid program or regulatory objectives want to be achieved. In addition, other examples of key stakeholders that should be engaged in the process include community-based organizations, end-use customers, housing authorities, consumer advocates, environmental advocates, military bodies, and representatives of critical infrastructure (e.g., hospitals, airports, wastewater treatment facilities, public shelters, schools, local branches of the Red Cross, grocery stores, and emergency service providers). An affordable housing program worked with six net-zero homes for low-income customers to integrate microgrid controls. The project developed a solar array and storage battery bank for the entire community. Working with the local utility accelerated the project's development and removed potential barriers from the beginning.

- **Leverage Knowledge from the Stakeholder Group:**
    - A State Energy Office found that a committee approach to microgrid development helped them to identify why certain ideas such as putting a microgrid at an airport would not work. This was because access to the state

airport was in a floodplain. Microgrid location feasibility studies should balance the sometimes-conflicting principles of placing projects where they can serve vulnerable customers but also where they can best serve the community in case of disruptive events.

- One state did not have a microgrid initiative or committee and instead approached their stakeholders by developing a series of educational webinars. The State Energy Office framed microgrid development around critical infrastructure and leveraged existing groups that are working on these topics: the liquid fuels committee, the emergency management agencies, and other offices that view microgrids as resilience providers.

- One State Energy Office emphasized that by learning about critical infrastructure from the local population rather than by having the state define terms upfront allows communities to better understand their own critical infrastructure. In addition, the Federal Emergency Management Agency's Community Lifelines resource can be helpful in defining critical infrastructure. State Energy Offices can also assist local governments in identifying community needs for optimal sizes, durations, and locations for microgrids to address community objectives.

Shared Resources

Commission Links:

- **District of Columbia PSC:**
  - PowerPath DC
- **Hawaii PUC:**
  - Hawaii PUC docket search: (Docket No. 2018-0163)
- **New Jersey BPU:**
  - Town Center DER Microgrid Design Incentive Program Application
  - Microgrids.io website developed for New Jersey
  - New Jersey Mobile Microgrid
- **Wisconsin PSC:**
  - Critical Infrastructure Microgrid and Community Resilience Center Pilot Grant Program Design
  - Wisconsin Critical Infrastructure Microgrid Maps
- **National Association of Regulatory Utility Commissioners Links:**
  - *Federal Funding Opportunities for Pre- and Post-Disaster Resilience Guidebook*

State Energy Office Links:

- **Connecticut DEEP:**
  - DEEP microgrid program filings
- **Kentucky Office of Energy Policy:**
  - Kentucky Microgrid Resilience Study
- **Maryland Energy Administration:**
  - Fairmount Heights LMI household clean energy award
  - FY22 Resilient Maryland Program
- **New Jersey BPU:**
  - Microgrid Mapping Software

Miscellaneous:

- Argonne Energy Zones Mapping tool:
- Federal Highway Administration: State DOTs Leveraging Alternative Uses of the Highway Right-of-Way Guidance
- National Efficiency Screening Project, BCA of DERs
- Renewable Thermal Resource:
- OSTI Net Zero Carbon Microgrids
- SEPA: The Role of Microgrids in the Regulatory Compact
- EIA: State Maps and State Profiles to assist GIS mapping for microgrid analysis