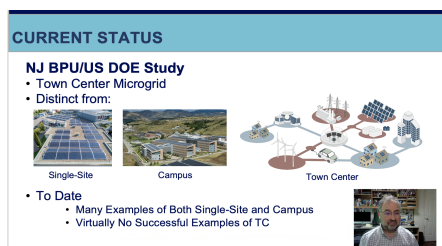




Slide 1: This webinar– and the 7 others in the **Developing Town Center Microgrids** series – discusses results from a research project undertaken by the New Jersey Board of Public Utilities with financial support from the United States Department of Energy. All of the webinars, the original report and fact sheets can be found on NJIT's microgrids.io website.

I am Marc Pfeiffer, your host of these webinars and the principal researcher and author of the study on which they are based.



Slide 2: The purpose of the project was to explore the process of procuring and financing “Town Center” microgrids which, for the purposes of the study, were defined as *“microgrids developed in downtown areas of communities that deliver power to a physically non-contiguous group of critical facilities, often involving multiple distributed energy resources and crossing multiple public rights of way.”*

In other words, microgrids with DER that support critical facilities when EDC power isn’t available, and can regularly run islanded from EDC supply and distribution.

Town Center (TC) microgrids are distinct from two other common types of microgrids: 1) single-site microgrids that serve a single building like a hospital, school, or public housing building; and 2) campus microgrids that are deployed at institutional campuses in government, education, and business sectors to power multiple structures through onsite generation. In both cases, the owner has control over the resources. There are many examples of successful single-site and campus, critical and noncritical facility microgrids. TC microgrids, on the other hand, are far more complicated and are – at least to date – far less common.

CURRENT CHALLENGES

EDC Franchise Rights

- Statutory or Regulatory Regime
 - May restrict non-EDC entities from distributing energy or accessing Right-of-Way




Slide 3: In fact, based on the results of the study, the idea of a truly successful TC microgrid as an off-grid power supply for critical facilities remains an aspirational one. Outside of specialized use cases, the traditional role of electricity distribution companies (EDC) and the existing regulatory and economic system under which they operate constitute significant challenges to the development of TC microgrids. The first of these challenges include:...

- EDC Franchise Rights: Most states have a statutory or regulatory regime that may limit the ability of an entity other than an existing EDC from distributing energy to customers or accessing the right of way (RoW) to do so.

CURRENT CHALLENGES

Financial Challenges

- Cost Recovery
 - EDC can allocate costs over large customer base
 - Non-EDC microgrid = much smaller pool of customers
- Cross-Subsidization
 - Added resilience actions could cross-subsidize different customer classes
 - Example: Underground wires





Slide 4: The next challenges are Financial : In the cases where there is a legal work-around to the franchise rights issue that allows the microgrid to serve at least a subset of the desired customers, then operating the microgrid may be too costly. Two issues are part of this:

- Cost recovery: Unlike an EDC that may be able to allocate these costs through rates over a large segment of its customer base, the cost of a non-EDC-owned microgrid must be recovered from a customer pool which may be much smaller than the number of persons benefited.

The second issue is:

- Cross-subsidization: Alternatively, if the project can work with the EDC to underground otherwise above ground lines, it adds ratepayer value through the added resilience it brings. On the other hand, it could cross-subsidize different customer classes, something state regulators frown upon. However, if the EDC can factor in an appropriate value into its rate base for cost recovery of the improvement, there may be a fruitful intersection of interests for all parties. The challenge is how to put a value on resilience for public purposes without unduly shifting costs. We'll be talking about that issue in Part 7 of this series.

CURRENT CHALLENGES

Regulatory Burden

- Microgrid = EDC
- Compliance = Economically Unfeasible

Regulatory Compliance

- State regulatory environment affects:
 - DER ownership, controls, systems revenue, cost and technical issues
- Can complicate financial challenges for microgrids
 - Financial
 - Cost recovery
 - Customer service requirements





Slide 5: Continuing with our challenges let's talk about the

Regulatory one. It has two aspects:

- The first is Regulatory Burden: Depending on a state's regulatory environment, a microgrid that serves more than one customer could result in the regulation of the microgrid owner as its own EDC. If this is the case, the cost burden of regulatory compliance, unless waived or modified, may make the project economically unfeasible.
- The other aspect is Regulatory Compliance: Each state has its own regulatory environment that affects DER ownership, controls, system revenue and cost implications, and technical matters. These issues complicate the financial challenges of TC microgrid design and financing, cost recovery, and customer service requirements.

CURRENT CHALLENGES

Technical Compliance

- General consensus ≠ agreement on the details
 - Standards, controls, redundancy, etc.
- DER industry standards are continuously evolving

Societal and Public Policy Issues

- TC Microgrids may add resilience and reliability
- But...may conflict with other state policies
 - Greenhouse gas reduction policies
 - EE programs that reduce loads
 - Fiscal sustainability of the grid





Slide 6: Next challenge is Technical Compliance: Both EDCs

and microgrid designers advocate that electrical system safety is paramount. While a general consensus, this can break down over implementation details. Agreement on standards, controls, redundancy, and power supply reliability elements, particularly at the point of common coupling (where the DER enters the distribution system) is hard to come by. In addition, because of the ongoing evolution of DER, industry standards (e.g., IEEE) are evolving as I speak and reasonable parties may have different approaches to addressing them.

Our final challenge is Societal and Public Policy Issues: While TC microgrids may add resilience and reliability in emergency situations, not all configurations will be consistent with balancing short- and long-term statewide policies of ensuring the fiscal sustainability of the grid, greenhouse gas (GHG) reduction policies, and funding of energy efficiency (EE) programs.

Additional Webinars in the Series

- #2: Procurement Challenges
- #3: Financing Challenges
- #4: Public Policy Challenges
- #5: EDC Challenges
- #6: Technology Challenges
- #7: Other Challenges
- #8: Moving Forward with TC Microgrids



Slide 7: While these challenges are significant, they are not necessarily insurmountable. The remainder of our Webinar series – and the fact sheets that accompany each webinar – unpack these issues in more detail by addressing the following Town Center Microgrid Development challenge categories

Webinar #2: Procurement Challenges

#3: Financing Challenges

#4: Public Policy Challenges

Webinar #5: EDC Challenges

Webinar #6: Risks and Technology Challenges

Webinar #7: Other Challenges

Webinar #8: Moving Forward with TC Microgrids

