

Town Center Microgrids face unique and significant challenges from Electric Distribution Companies (EDCs) across the US. At the same time, microgrids of all types - Town Center, single-site and/or campus - also pose significant disruptive challenges for EDCs as they continue to evolve.

CHALLENGES **FROM** EDCs

EDCs can present significant barriers to TC microgrid success. Outside of specialized use cases, EDCs and their regulatory and economic environment generally stymie the development of TC microgrids.

These barriers include:

- Franchise rights that impede customer acquisition by non-EDCs.
- EDCs serving multiple customers require costly regulatory burdens that may be unnecessary for a TC microgrid doing the same.
- An EDC's legal right of preferred access, allowing it to cross multiple rights-of-way, is not available to a non-EDC facility.
- Technical issues concerning the management of DER.
- The resulting uncertainty and risk of developing and maintaining a system and the necessary investor cost-recovery.



CHALLENGES **FOR** EDCs

Microgrid technology is a fundamental element in the evolving change and disruption being experienced in energy supply distribution, both nationally and globally. The technology is implicated as a cause, solution, and investment opportunity in our current energy supply and distribution environment.

The following are examples of that change and disruption; these examples are inherently interrelated:

- The need for resilience and adaptation of public services affected by multiple environmental concerns, including changes in weather patterns and international public policy requirements to reduce atmospheric carbon.



Resilience & Adaptation

DEVELOPING LOCAL GOVERNMENT MICROGRIDS

- Non-carbon power generation technology advances that have led to increased supplies of solar, wind, hydrogen, and biofuel (e.g., renewable natural gas) at price points that are lower than or competitive with carbon-based fuel supply, depending on location.



Non-Carbon Power Generation

- Technological advancements in engineering (CHP, fuel cells, PV, battery storage) and digital technology (controls, switching, voltage/frequency management) have facilitated growth of DER supplies, behind-the-meter solutions, and the ability to interconnect supply with transmission and distribution grids.



Technological Advances

- The availability of investment capital attracted by potential returns from the lower cost of DER-generated power coupled with behind-the-meter solutions.



Availability of Investment Capital

- Public concern over environmental, health, and social equity/environmental justice issues that is driving state-level government policymakers and regulators to adopt new policies focused on reducing carbon-based energy supplies and replacing them with environmentally cleaner supply.



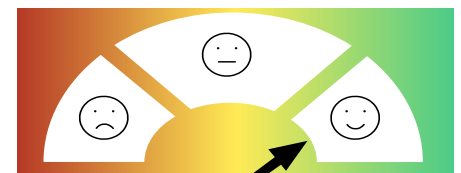
Environmental Health

- Energy supply markets and government incentive programs that provide financial encouragement for DER participation in supply transactions at the federal, regional, state and local levels.



Financial Encouragement

- Customer preferences for green power supply are playing a more important role in decision making.



Customer Preferences

- EDCs are evolving. With the advent of DER, EDCs are wrestling with new technical, regulatory, and financial challenges of managing local supply on their grids.



EDCs Are Evolving

Together, these disruptions affect the financial underpinnings of the investor-owned EDC utility model differently in each state. Depending on local circumstances, they are forcing utilities to respond, innovate, adapt, and become more customer-centric. Microgrids and DER are one slice of the power grid modernization issues that EDCs are working through. The task of finding pathways for their development is necessary as part of an overall approach to managing DER and grid modernization.

