Community microgrids andorra city

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When Hurricane Sandy made landfall in 2012, communities across the eastern seaboard were flooded, windswept and disconnected. In New York City and Long Island, large parts of the electrical grid went out, forcing residents to seek shelter to get warm, find food, and charge phones. Much of Manhattan went dark after a Con Ed substation flooded and failed.

Officials in New York are looking into potential upgrades including burying power lines so they aren"t disrupted by falling branches, adding switches and line networks so that power can be routed along different pathways to minimize outage effects, and raising substations and other critical infrastructure to avoid flooding.

Unfortunately, these interventions are expensive, especially if implemented at grid scale. Regulators must consider how electric rates will be impacted and how these investments align with other modernization and service upgrades. As with any expensive investment, these upgrades take time to implement.

For that reason, community and institutional leaders are increasingly looking into developing microgrids. In this explainer, we"ll take a close look at the infrastructure of microgrids - more specifically, community microgrids. We will show how they can play an essential role in local resiliency while delivering system-wide benefits.

Microgrids employ some of the same resiliency strategies as statewide initiatives, but for just a small portion of the grid such as an individual town or campus. For example, many support just the most important facilities in a town.

Though microgrids are not a new concept - they have existed in different forms since the beginning of the electricity industry - the use of microgrids to improve local grid resilience has been gaining traction in recent years. Interest in this topic continues to grow.

As interest has grown, bringing new players to the microgrid space, a slew of new projects with increasingly diverse functions has been proposed. These functions largely dictate microgrid design, project sizing, and resource mix.

For example, some microgrids exist to provide electricity to remote, unconnected areas. These are completely separate from the larger grid and are designed to serve all customers within their areas.

Others have been developed to gain economic synergies for local power. These include microgrids for industrial facilities that require large amounts of process heat. Developing a plant that not only provides the required heat but also produces electric power can help reduce the cost of production and ensure a steady, reliable power source.

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Microgrids may also be sited on campuses that have huge space heating needs and own numerous, interconnected buildings. This arrangement is the most common in the United States. Indeed, ownership by a single entity with large electric and thermal needs such as a university or military base was long considered a prerequisite for microgrid development.

However, in the years since Hurricane Sandy, a new ownership model has begun to emerge. This is termed a community microgrid. These microgrids are unique in that they seek to serve many different customers yet are not in place to enable electric access but rather to provide power for short periods of time when grid service has failed.

Typically designed to serve just the most critical facilities in a town, such as hospitals and emergency shelters, these microgrids can ensure communities are resilient in the short term while bridging the time lag until large-scale upgrades to vulnerable grid infrastructure can be implemented.

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