Microgrid benefits andorra city

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Policies and ethics

Microgrids keep the power flowing during an outage by disconnecting from the grid in what"s called islanding. The system"s controller seamlessly switches from grid power to the microgrid"s local power sources when it senses an outage. Solar, generators, battery energy storage or the microgrid"s other distributed energy sources then serve its customers until the grid"s power is restored.

In addition to providing reliability, a microgrid provides its customers with energy resilience by avoiding power outages in the first place, or quickly recovering if they do occur. In the case of an outage, the microgrid can be programmed to restore power to an entire facility, or just the most critical components. Once grid power is restored, the facility can resume normal operations more quickly because it did not have to shut down completely.

Microgrids can reduce the energy costs of their customers by efficiently managing energy supply, which helps customers budget for energy costs in both the short and long term. Energy prices fluctuate throughout the day and an advanced microgrid can leverage this variability by controlling how much power is drawn from the grid versus local battery storage and generation sources. In areas where electricity costs are high, microgrids may be able to consistently provide energy at a lower cost.

A microgrid can be used to strengthen the broader electric grid by augmenting normal grid operations or easing the strain on the central grid during periods of peak demand. It becomes another resource that grid operators can call on during these periods. Microgrids can also be less expensive to build and maintain than new grid substations, transmission lines or other grid infrastructure.

Cyberattacks are a threat to the national power grid, but microgrids are a proactive step that utilities can take to shore up any vulnerabilities. The distributed architecture of a microgrid makes it more resistant to cyberattack because should one generator be attacked, the microgrid has other power sources to rely on to keep the power flowing.

Power outages are costly, especially to research facilities, data centers, manufacturers and grocery stores that lose perishable products. Microgrids offer economic value to society by averting the loss of inventory and productivity during a power outage. They also attract high quality employers to a region and, as local energy plants, they create and keep jobs within the community.

Because of their ability to provide reliable, resilient power, a growing number of communities are installing microgrids to serve their critical infrastructure during outages and disasters. Hospitals, police stations, fire departments, communications centers and wastewater treatment plants are among the top priorities of local

governments looking to ensure their ability to provide emergency services. Shelters, grocery stores and gas stations can also be included in the microgrid"s service area to help keep the community safe.

The concept of microgrid is evolving by leaps and bounds and assumes various forms depending on location and local requirements (Wouters 2015, 23). At the same time, the definition of microgrid is not based on a minimum or maximum size of a microgrid system but rather on function (Soshinskaya et al. 2014, 661).