Vaduz rural microgrids

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Microgrids in rural America are relatively new, so much so that most Americans haven’t heard the term”Microgrid.” So, Microgrids are smaller independent power grids that can operate and are typically powered by more sustainable and renewable energy sources such as solar, wind, and hydro. Renewable energy sources can be finicky depending on environmental factors; however, microgrids have solved this problem by including batteries that serve as backup energy storage solutions for continuous power supply.

They aren’t necessarily new inventions introduced around the 1980s -1990s. It gained traction in the early 2000s, notably gaining critical attention and funding after the Northeast Blackout in 2003, triggered by a software bug in an alarm system at First Energy Corporation in Ohio. It affected over 50 million people across the midwestern United States, as well as parts of Ontario, Canada, caused by a high voltage power line brushing overgrown trees. After this, it started receiving corporate funding and was installed in areas with a high need for reliable energy (such as military bases, hospitals, and campuses)

Microgrids are revolutionizing rural America because this region is constantly in the splash zone of numerous natural disasters. It is sparsely connected to the main central power grids and suffers from frequent power shortages. Another factor lies with the cons of traditional power grids: they are more expensive and time-consuming to build and maintain. They also face higher energy costs due to their remote nature.

Microgrids are complex engineering marvels made of mainly three common components:

The Energy Research Institute highlights the benefits acquired from microgrid sites. “Microgrids can provide backup power during grid outages, ensuring continuous electricity supply access in rural America, delivering both resilience and sustainability.”

These microgrids play a huge role in the economic development of rural America. The reliable power supply sourced from microgrids attracts industries and corporations, further developing the region. An added bonus is its naturally resilient and independent nature to natural disasters like hurricanes, wildfires, and winter storms.

Not only that, even as industries begin to shift to the rural region and provide employment in the installation, maintenance, and operation of these power, the air quality still comes out as a net positive as greenhouse gas emissions don’t increase with microgrids using renewable sources of energy and not relying on fossil fuels.

Also Read: Hydrogen-Powered Cities: Could Hydrogen Be The Answer To Urban Energy Needs?

Problem: A Native American Tribe of the rural Blue Lake Rancheria in Northern California faced high irregular power supply at an extremely marked-up price due to its distance being further from the main central frame.

Microgrid Solution: A microgrid powered by solar panels with energy storage battery backup allowed the community to have reliable, consistent power.

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