



Can a ‘Microgrid Gap’ Solution Keep the Power Flowing Until the Real Thing is Built?

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California City is looking to attract energy-intensive cannabis growing operations and other businesses, but it is short on power, said Mayor Jeanie O’Laughlin. The city is in talks with Southern California Edison (SCE) about potential solutions.

SCE, for its part, is also seeking solutions.

“We are working collaboratively with community stakeholders and city leaders to develop short-, medium- and long-term solutions to meet the electrical needs of California City,” said David Song, a public information officer for SCE.

Meanwhile, Nye County, Nevada, has attracted cannabis growing facilities, but the local utility, Valley Electric Association, is also short on power, said Kevin Wright, a consultant in the cannabis industry.

To solve such challenges in Nevada, California and elsewhere, microgrid provider Instant On has proposed a “microgrid gap” solution that provides microgrids — mostly made up of natural gas generators, fuel cells and energy storage — that can be built in as little as 30 days and used until permanent or renewable microgrids can be built, said A. J. Perkins, president of Instant On. He and Wright also created a new company, Disruptive Power Solutions, to service the Nevada cannabis facilities.

The plan in California City is to add renewable microgrids, said Perkins. In Nevada, the plan is to bring in a natural gas line, said Wright.

Power users generally have to wait 12 to 24 months for a traditional microgrid — often renewable — to be permitted, installed and brought online at their property, said Perkins.

Cannabis growers sign on to microgrid gap solution

In one of the first applications of its microgrid gap solution, Disruptive Power has signed a contract to provide a 1-MW gap solution to the owners of five cannabis indoor growing facilities being built in a 140-acre master planned cannabis community in Nye County, west of Las Vegas, said Wright. Each grower has signed a contract for 200 kW.

Power is an essential part of indoor cannabis growing facilities. Energy costs make up 20% to 40% of their operating costs, said Wright.

In fact, the energy consumption of indoor cannabis operations in the US is 1% of national electricity use, or \$6 billion each year, according to Lawrence Berkeley National Labs. An average kilogram of product is associated with the release of 4,600 kilograms of carbon dioxide emissions.

Pricing for the gap

Under the microgrid gap solution contracts, energy buyers pay no upfront costs for natural gas turbines, fuel cells, batteries and controls, said Perkins. They pay a flat rate.

“They get many of the benefits of a microgrid — without capital costs or without having to wait for a full microgrid to get built. They will receive power within 45 days, and it’s a flat rate based on their usage and can be upgraded as they expand,” he said.

The gap solution allows cannabis growing facilities to begin operating as soon as possible and generate millions in income while waiting for a permanent solution, said Perkins.



Indoor cannabis facility. Photo courtesy of Kevin Wright, Disruptive Power Solutions

"Our cost of power is on par with the blended rates of California utilities, including demand charges," Perkins said. "When people think about the rate, they only think about the energy." Indoor cannabis operations in California are often subject to demand charges and time of use rates that result in power costs as high as 36 cents/kWh, he added.

If customers begin with the gap solution, Instant On can gather the data needed to help design permanent, often renewable, microgrids for new buildings. It's difficult to design a microgrid for a building not yet completed, especially a cannabis operation, Perkins said.

Power today, power tomorrow

"Our goal in a gap solution is to fill in the gaps between the power they need today and the power they'll use in full operation." "Island now, interconnect later," Perkins said.

While the natural gas that's expected to fuel the gap solutions in Nevada is more polluting than solar, it is less carbon intensive than diesel in the power production process.

Growers often use diesel when there's no power available from the utility, said Perkins. He added that some businesses just don't have the space for solar panels.

For the renewable microgrids, solar can be added if there's enough land capacity. For each 1 MW of solar, five acres of land are needed, said Perkins.

"One of the biggest challenges of solar is the land mass needed. We are building 15-, 20-, 50-MW microgrids for these entities. We don't have the land or roof access to build solar to support it. That's where fuel cells and biomass come in," said Perkins.

Plan for California City

In California City, Instant On's plan is to build a renewable microgrid within three years and roll the temporary microgrid gap solution contracts into agreements for power from the renewable microgrid. The power would come from a community choice aggregation (CCA) created by Instant On that would own and operate the renewable microgrid.

The plan is to provide 3 GW of power for California City under a 25-year contract, said Perkins. Mayor O'Laughlin said she's not sure the city has signed an agreement yet.

Most likely, the CCA would distribute the power through a new centralized power plant with poles and wires. If the city were to wait until the local utility, Southern California Edison, were to provide power, "They would be waiting until 2030 at minimum," says Robert Milner, CEO of Advanved NRG.

"It would be less expensive to build a central power plant for the CCA and run transmission and distribution lines to transmit energy," said Perkins. He doesn't plan to take business away from SCE, but to work in cooperation with the utility and supply power to areas that SCE can't now supply.

Perkins noted that some will criticize the gap solution because of its use of natural gas, which is prohibited in some California cities — although not in California City. But many cannabis facilities are now running their entire operations using diesel generators. With natural gas microgrid gap solutions, energy production will be less expensive and less polluting than diesel, Perkins said.

"At the end of the day, when power is shut off due to a public safety power shutoff (PSPS), diesel is turned on. Natural gas may not be clean compared to solar, but I'd rather have a natural gas generator compared to diesel. My charge is to protect families and businesses from PSPS," said Perkins.



A. J. Perkins, president of Instant On, will be among the speakers at Microgrid California.