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A microgrid is providing efficient, reliable, cleaner power for 100 year-old Blue Lake Rancheria's government offices, casino, hotel and other critical infrastructure.

Power On: Blue Lake Rancheria Kick Starts its Microgrid

Diversifying power sources through its microgrid, Blue Lake Rancheria provides emergency services, cuts infrastructure costs

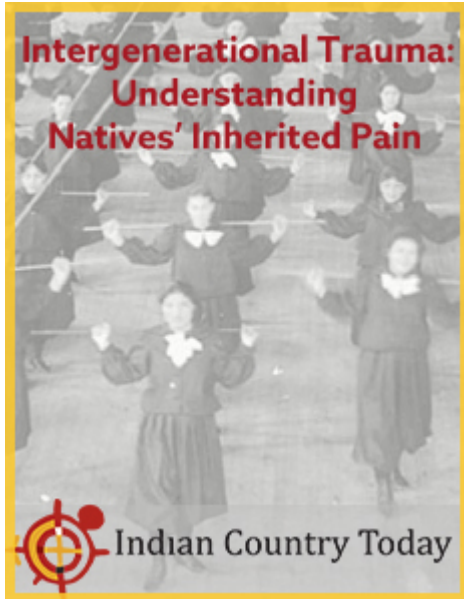
Kristin Butler • May 4, 2017

It's not a question of if an earthquake or tsunami event will occur on or around Blue Lake Rancheria, it's when and how severe. Blue Lake Rancheria, a century-old Indian reservation in Northern California, sits at the nexus of a triple junction of faults on the Cascadia Subduction Zone. But with its low-carbon community microgrid now live, the tribe is very prepared. "If an earthquake hit us right now ... we would be able to provide emergency power at this site for, really, as long as we need it," Jana Ganion, Sustainability Director for Blue Lake Rancheria, said during a press conference last week.

Emergency preparedness is just the tip of the iceberg for what this large-scale power system is doing. Powered by the area's largest solar array (located in Humboldt County) and a megawatt hour of Tesla battery storage, the microgrid is generating electricity and more across 100 acres for tribal government offices, economic enterprises and critical Red

Cross services and emergency evacuation facilities. Plus, it's lowering the Blue Lake Rancheria Tribe's infrastructure costs by at least \$200,000 annually, while reducing at least 150 tons of carbon per year, and increasing clean energy jobs by 10 percent within the reservation.

Essentially, the microgrid uses decentralized energy resources and intelligent software by Siemens, German industry giant and technology leader in the space, to provide its residents and economic enterprises with reliable power without interruption. The microgrid also allows Blue Lake "to support the larger grid by shaving peak demand loads," Ganion said.



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By diversifying its energy sources, Blue Lake's power is reliable. "We are often without road connection, we are very tenuously connected to the power grid with one 70-megawatt line. We are very tenuously connected to the larger natural gas grid with one pipe. We've done a really good job here on the north coast of developing local power resources," Ganion said.

"In an emergency we can disconnect from the grid and operate in 'islanded mode,'" Ganion added. "In islanded mode, the micro-grid allows us to pull from the cleanest, lowest cost of energy at all times." Weather data and forecasting further allow the tribe to fine tune its energy tactics and strategy.

Developing the microgrid was a collaborative effort with Humboldt State University's Schatz Energy Research Center, Siemens, Idaho National Laboratory and additional partners, funded in part through a \$5 million grant from the California Energy Commission's Electric Program Investment Charge (EPIC) program.

The tribe's microgrid deployment is setting the stage for collaboration between state, tribal, federal, and local entities, academia, technology providers, and utility partners. "At its core, this microgrid is an example of motivated governments investing in distributed grid improvements and low-carbon energy in a novel and replicable way," said Arla Ramsey, Blue Lake Rancheria's Vice Chair. "Our partners have contributed their expertise and goodwill far above what we expected. This partnership approach has transformed our energy sector with significant employment and other economic co-benefits."

The microgrid includes a 500-kilowatt solar photovoltaic system designed and built by REC Solar and a 950 kWh Tesla battery storage system, all managed and controlled with Siemens Spectrum Power Microgrid Management System (MGMS) software. The system allows the reservation to operate independently of the power grid in coordination with local utility Pacific Gas & Electric.

"The Blue Lake Rancheria has been a pioneer in bringing together a number of different energy technologies in one location through their microgrid," said David Rubin, PG&E's Director of Service Analysis. "We have welcomed the opportunity to participate in this microgrid project because it showcases the use of multiple distributed energy resources while playing an important role in the community in the event of a natural disaster or another emergency."

Micro-grids are one way tribes and other entities can leverage their investments and move the needle toward a lower carbon energy footprint as fast as possible. The Blue Lake Rancheria Tribe is eager to share its design plans, lessons learned and more with other governments and organizations interested in replicating its microgrid. "We're receiving lots of calls from other tribes and campus-style entities like universities, hospitals, and other critical infrastructure," Ganion said.



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