

MicroGrid's Trial by Fire

Craig Wooster's cell phone rang at 5:00 am on Monday, October 9, 2017. His assistant project manager was at a roadblock on Highway 29 near Calistoga. "I can see fire everywhere," he said. Craig flipped a light switch and discovered that the power was off. He called his son, Troy, and asked him to put the Stone Edge Farm MicroGrid into island mode.

The rising sun was a small, dark orange ball as Craig left Sonoma that morning to address a conference in Costa Mesa. As he drove south past Sonoma Raceway at Sears Point, he could see fires in three directions. Back at the farm, P.J. Zaft began to run all of the irrigation systems.

Through Tuesday, a number of smaller fires spread and merged to form larger firestorms. Wednesday, October 10, was a major evacuation day in Sonoma. At the farm, the solar panels continued to generate power despite the haze, but with everyone leaving the farm, the normal loads were off.

To maintain stability when batteries are full and panels are still producing electricity, the electrolyzer is usually turned on to make hydrogen while stabilizing voltage and frequency. But Craig was reluctant to create hydrogen with flames threatening. So Troy, who was about to comply with an evacuation order, was asked to shut down some of the photovoltaic panels.

"It's against our philosophy to 'waste' solar-generated electrons," Wooster comments. "And we had never thought about operating in island mode *in absentia*. No one was on the farm, so there was no human involvement other than monitoring from afar. But isn't that what a microgrid should do?"

While the MicroGrid functioned flawlessly with local control for ten days, Wooster says there were about "two dozen takeaways" from this event. For example, there was no system in place to curtail solar generation. "I think we were more mentally prepared for an earthquake than a fire," he says. "We were given a great opportunity to experience a natural disaster and learn from it."