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## High-End Installations at Risk from Power Quality Issues and Surges in Northern California Homes

### The Challenge

Northern California is a popular ski destination for many, but the mountainous region creates problems for those living in nearby Lake Tahoe communities. Harsh weather coming in over the mountains, ski lift operation, and an outdated power infrastructure all contribute to frequent surges and poor power quality that puts technology in nearby homes at risk.

Regional integrator Powersurge Electric and Integration protects its high-end clientele against these threats with wiring and surge protection. The company's owner, Igor Reoutt, explains; “High winds and heavy snow or rain are usually a recipe for power troubles in our area. The second challenge is the old infrastructure and utilities but a lot of that is because we're up in the mountains, it's a challenging environment and something we need to find work arounds for often.”

Jimmy Paschke, Manager, Residential Sales for surge elimination company SurgeX, explains the effects that weather can have on power quality; “Harsh weather and high winds can absolutely impact power conditions. Electrical lines can be at the mercy of high winds and if the force is great enough to whip them around or cause downed trees, those can cause surge events within an environment.”

An outdated power infrastructure is a common, understandable culprit for poor power quality, and operation of the large ski lifts at resorts is a contributing issue. “These places require a lot of power, more than I've ever seen,” commented Reoutt. “When these big ski lifts fire up and start moving, they can create power imbalances that affect the surrounding area.”

Paschke explains how this occurs, “We're all sharing the same power grid. The motors used to get the chairs up and down the mountain are heavy duty and cause in-rush current. When these motors turn on, they can suck voltage away from other equipment, resulting in a voltage sag. While it eventually equals out, they could definitely cause surge events to a surrounding area sharing the same power grid.”

### The Solution

Electric and Integration installs surge protection in many of the homes in the area. Reoutt explains one instance, “My company was contracted for an install where we were responsible for the wiring and surge protection of one house, and another [integrator] took care of the wiring and protection of the house next door.” Both homes were connected to the same power pole.

...continued on back



For their installation in the mountains of Lake Tahoe, Powersurge Electric and Integration chose to equip the house with the SurgeX XR315 — outfitted with Advanced Series Mode technology and Impedance Tolerant EMI/RFI filtering. “As far as I am aware, the SurgeX technology is the only one out there capable of eliminating the surge energy and capable of doing so over and over and over again without degradation,” Reoutt explained.

The patented technology enables SurgeX products to completely eliminate surge energy up to 6,000 volts without degradation, and without producing harmful side effects such as ground contamination or common-mode disturbances. Reoutt and his team chose the SurgeX XR315 because they needed a long-lasting, non-sacrificial solution to protect their client’s sensitive electronics. Shortly after Powersurge Electric and Integration completed the installation, the SurgeX equipment was put to the test by a storm that came through the mountains. “A surge event hit the house that wasn’t protected with SurgeX equipment and smoked the whole system, resulting in the customer losing their entire Savant system,” said Reoutt.

Coincidentally, the home with SurgeX installed by Powersurge Electric and Integration and the one without had the same owner, and both houses were hit by the massive storm surge. “Not too long after the storm destroyed his Savant system, that same client contracted us to go back [to] replace all of his Savant equipment and install SurgeX to protect it once he realized that one of his properties was okay but the other one wasn’t,” said Reoutt.

## The Results

The importance of installing non-sacrificial surge elimination equipment like the XR315 was made clear first-hand to Reoutt when his team removed the surge protection component from the damaged property. Reoutt explained, “I know, based on what happened to the system on the other end of this piece of equipment that this [surge protector] is fried.” Reoutt noted that there was no visible evidence that the surge protector they removed was damaged; “For someone who didn’t know any better, they would think it’s still working fine because everything plugged into it works, and that’s dangerous.”

With SurgeX, Powersurge Electric and Integration succeeded in safeguarding their client’s installation from a harmful surge event, and were also able to easily take on new business by citing this unfortunate experience as an example to educate his clients. Reoutt and his team explain to potential clients how surge elimination in their home can put them at ease. “Surge protection is one of those things that my clients always ask about,” commented Reoutt. “My response is always the same; I just tell them this story of the two houses and explain how the one we did was protected by SurgeX and the other one wasn’t, and I tell them what happened from there.”

Powersurge Electric and Integration uses this installation as a prime example to explain the possibilities of surge threats; “To have a real-world scenario where two houses in the same environment, one protected by SurgeX and the other one not, experience damaging surge events and the SurgeX one to come out of the whole thing without a scratch on it and the other system smoked — examples just don’t get any better than that.”

After this experience, Powersurge Electric and Integration requires SurgeX equipment in all of their installations; they see it as a hidden asset. “Every job we do has a SurgeX piece in in. For me, it’s non-negotiable.” Reoutt explained. Power protection equipment goes a long way in safeguarding an automation, security or entertainment system; Reoutt continues, “If you don’t, and you have nothing in place to prevent disturbances like this, often times you’re left in the dark and you risk your investment in a system getting fried.”

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Powersurge Electric and Integration’s business is focused on high-end residential installations. “Because of the location, it’s become a luxury area,” said Reoutt. When you factor in affluent customers with high-end residential installs who want expensive, sensitive systems and electronics in an area with an outdated power infrastructure and storm-prone environment, it makes advanced surge elimination necessary. For Powersurge Electric and Integration that means that, “One way or another, SurgeX is getting installed.” Reoutt said, “SurgeX has helped make my life and installs really easy.”