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## Loss of Neutral

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By Matt Brunk

**Loss of neutral** electrically speaking is like engaging the enemy with no bullets even if you have the best armament.

It takes patience not just in IP telephony but also in other business operations. Some companies including bureaucrats, bet that they will wear you out first, and while many do, every now and then one of us scores a victory.



For over four years, we dealt with the local utility company off and on just like our power. Everything we did to electrically protect our building and wares was more than what we were required to do. "Maybe you have ghosts," said one of the managers from the utility. They monitored our power three times for 5-6 days and only after we would complain of more burned up appliances, fixtures, HVAC, water heaters, nearly everything except the IP-PBX and network gear. Nothing made sense and **in spite of our efforts and ongoing analyses** nothing solved the loss of equipment.

Next, we discovered that our whole panel protection unit was in need of replacement since the UL listing on the previous unit was discovered to have flaws including a possible fire hazard. An engineer from **Citel Protection** gladly took our drawings and input from our electrician and recommended a change of the whole panel protector which we did immediately.

Afterwards, the power problems prevailed. Then, in 2006, my schedule changed and I was in the office in the mornings and early afternoons more frequently. The "ghosts" started appearing. Thankfully, we have both incandescent and fluorescent lighting fixtures, otherwise we'd still be in the proverbial "dark." The incandescent lights began glowing and pulsating for 1, 2 and 3 minutes and would stop. When the power grid has issues and not minor insignificant fluctuations and every day spikes - but transformer issues, switching gear failures and things that aren't on any customers radar screen, you can bet that the battle will linger on.

Complaining to the utility did not invoke even plausible interest in our problems not to mention we were out of pocket a lot of cash which overtime would be a nice bankroll for anyone. At the suggestion of an unnamed person - it was hinted that I write a formal complaint to the **Maryland Public Service Commission**. So I did. "Loss of Neutral" was cited by various reasons that the PSC collected from the utility maintenance logs. For users, that means the **240 VAC or 120 VAC** inputs were very high - with one leg of the circuit being very low voltage and the other side or leg being very high (Hot).

**Liebert** has some **case studies** showing their UPStation **GXT series of UPSes** will protect even during a "loss of neutral." Our water heater, HVAC and other non-IT/telephony gear simply don't warrant batteries but for the network gear, Liebert's 'double conversion' GXT UPStations is definitely worthy of a look. According to **Power Innovations** "power quality is at an all time low and will be getting worse."

The good news is as of this writing, we've settled our claim with the utility. After the claims representative contacted me, we noticed for several weeks that the utility boom trucks worked the grid on our stretch of road for about 2 miles. For those with similar power issues - keep records, logs and whatever you do - keep track of your receipts and repair invoices, and don't give up. I can give you 5,427 depreciated reasons not to.

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