



Ken Koty

## Ken's Korner

### DATA CENTER LOAD SHEDDING

What happens when you combine regular backup generator preventative maintenance and load testing with load shedding?

#### **A SIGNIFICANT SAVINGS ON YOUR ELECTRIC UTILITY BILL!**

This was the practice I followed at our data centers. By participating in load shedding with our local electrical service provider I was able to save over **40%** off our annual electric bill. For larger data centers the savings can easily reach six or seven figures.

#### **GENERATOR MAINTENANCE**

Diesel generators are an important part of a data centers continuous uptime. They require regular maintenance, and testing under load to ensure they will perform at a moment's notice when experiencing a power failure. Generators are an important part of our critical backup infrastructure along with UPS systems and their batteries. Generators should be tested on a regular basis, and a log book should be kept recording important data like oil pressure, coolant temperature, voltage and KW output readings, specific gravity readings, and battery voltage.



#### **LOAD SHEDDING**

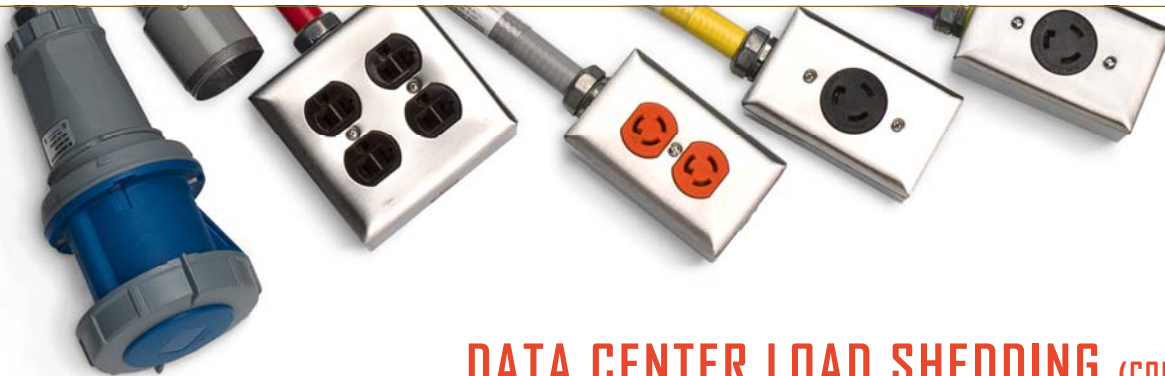
To take advantage of load shedding I called our electric utility provider and checked to see if they would be interested in my company load shedding during peak periods. I offered to run our generators to provide power to our data centers during high electric demand periods. Our power company would contact us 30 minutes prior to needing us to power up our generators and take our data centers off the utility grid, freeing up the power we would normally consume for the rest of their other customers. Rather than build additional peaking plants that might only be needed a few times a year we effectively became a peaking plant for our power company. By providing this load shedding service the power company rewarded us with a 40% discount on our year round electric utility.

Closed transfer switches lowers the risk to your critical load, and remember the UPS system is there in the event you have any issues. You can't make your own power for less than the utility company charges, but being rewarded with a significant cost reduction per KW year round, adds up to a significant cost savings.

You need to periodically load test your generators, so by using load shedding you effectively are getting paid by the power company to perform these tests. The timing isn't always convenient but the savings make it well worth the effort. Here in the Midwest peak energy demand was typically between 2:00 and 7:00 pm. Summer heat would dictate the need for more frequent load shedding, and over the years the demand increased along with the population of our utility providers service area.

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## DATA CENTER LOAD SHEDDING (CON'T)

### WHY LOAD SHEDDING

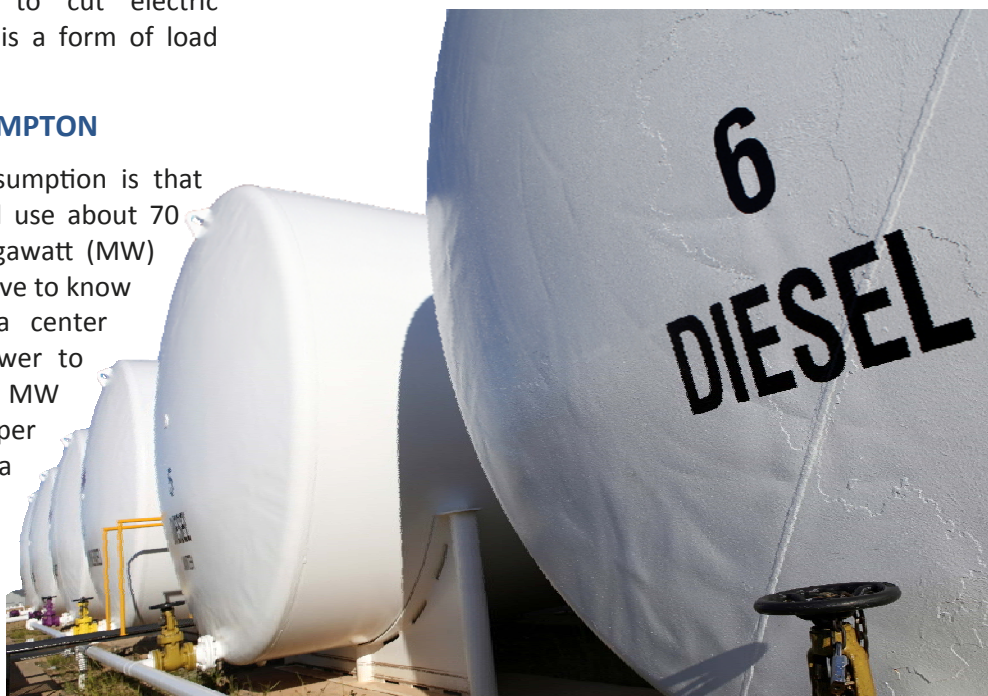
Most electric utility providers aim to have electrical generating capacity built and in place to generate the sum of all of the anticipated peak demands of all of its customers during the highest peak demand period. If the highest peak demand exceeds the capacity of the power company, they can either build another power station, or purchase power from another service provider to cover those peak hours, neither choice can resolve sudden surges in demand. If peak demand continues to exceed capacity, the power company may resort to rationing of available electricity to customers, leading to brown outs or risk exceeding capacity and overloading breakers experiencing a system wide blackout. Many electric utility providers look for ways to cut demand during these high peak periods. Getting companies to cut electric consumption during these peak times is a form of load shedding.

Building new power plants (even peaking plants) are expensive, a cost that will be passed on to the power companies customers.

Load shedding can not only save you money on your utility costs to run your site but also shows your community that you are a good neighbor.

### CALCULATING FUEL/COSTS CONSUMPTION

An easy rule of thumb for fuel consumption is that diesel generator(s) running parallel will use about 70 gallons of fuel per hour for every megawatt (MW) they are asked to produce. So all you have to know is your total KW input to our data center including the cooling system, and power to your critical load and multiply the total MW by 70 gallons per hour, times the price per gallon of fuel. If you have a smaller data center with a load less than a megawatt use 7 gallons per hour for every 100 KW of load you are using to run your site.



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Ken Koty, former data center facilities manager with over 30 years of hands-on experience shares management practices that made him a 12 year award recipient for continuous uptime from the Uptime Institute. PDU Cables does not guarantee the results of outcomes by using information contained in this document.