

Don't Get Caught with Your Power Down

Emergency power can save your business during power outages and other critical events. But you need to ask the right questions to get to the right solution for you.

Customers bustle. Lines swell. Cash registers ring out. Business is booming. Then without warning: Zap! Pop! The store goes dark. There's a power outage. No emergency backup. In a blip, the business loses critical data from its registers (that are really point-of-sale computerized terminals). Data that was supposed to be stored in servers disappears. Customers stream out. Sales plummet. Operations are crippled.

The Northeast blackout of 2003 affected 50 million people in eight U.S. states and in Canada for up to two days, caused at least 11 deaths and cost about \$6 billion.

This scenario isn't uncommon. Power outages and power quality disturbances cost the U.S. economy billions of dollars annually, whether they're caused by hurricanes, earthquakes or a faulty electrical grid. For example, the cascading Northeast blackout in 2003 was tripped by a high-voltage power line in Ohio that shut down after brushing against some overgrown trees. It left 50 million in the dark for up to two days, caused at least 11 deaths and cost about \$6 billion.¹

Healthcare, telecom, Internet service, food storage and other companies in critical industries know emergency power is table stakes – insurance against unplanned downtimes. But other organizations aren't so well versed in this arena. Identifying and getting the right equipment, price, vendor and customer service to back up critical systems aren't easy to determine. Is it worth the investment? What brand should I consider? What type of devices do I need? What should I ask a contractor? This paper will help address and provide a business case for emergency backup power.

Expect the unexpected

Within the span of a week in August 2011, the East Coast was hit with a 5.8-magnitude earthquake followed by Hurricane Irene that caused billions of dollars worth of damage across its wide swath. While you can prepare for what's coming, it's the unplanned events that should concern you. In recent years, Americans have experienced a sharp rise in power outages and blackouts. Many outages aren't even caused by disasters or storms. On average, outages total 92 minutes per year in the Midwest and 214 minutes in the Northeast, according to one estimate.²

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1 Minkel, Jr. "The 2003 Northeast Blackout--Five Years Later." Scientific American.com. Scientific American Inc., 13 Aug. 2008. Accessed on Web: 29 Sept. 2011. <http://www.scientificamerican.com/article.cfm?id=2003-blackout-five-years-later>.

2 Amin, S. Massoud. "U.S. Electrical Grid Gets Less Reliable." IEEE Spectrum Magazine. IEEE, Jan. 2011. Accessed on Web: 29 Sept. 2011. <http://spectrum.ieee.org/energy/policy/us-electrical-grid-gets-less-reliable>.

Outages or power problems can occur anytime from anywhere – a lightning strike is a prime example. These circumstances can spark, say, power surges (short-term high voltage spikes that are 110 percent above normal), power sags (when voltages dip 15 to 20 percent below normal, or electrical line noise (caused by radio frequency or electromagnetic interferences), among other disturbances.

Several devices can help protect against unforeseen power problems. Surge protection devices can guard against transients (short-term power anomalies), surges and electrical line noise. But companies may need more robust defenses, such as Uninterruptible Power Supply (UPS) systems to protect IT equipment and/or generators to provide long-term power. But you need to consider several factors and other variables when deciding on the right solution.

Asking the right stuff

Whether you're a large company or a small business owner, the same basic questions apply when you're seeking a standby power system, such as an electric generator.

The first thing you need to ask yourself: what do I want to back up? It could be several pieces of equipment, such as data servers and computers, or an entire facility. What you want to back up – and what your budget will allow – will determine the size and capacity of a generator.

What's the cost to my business if I lose power?

What do I want to back up?

Second, what fuel source – propane, diesel or natural gas – do I want? Some local jurisdictions will make that determination for you; for example, they'll say only diesel fuel can be used because they deem natural gas supplies in that area unreliable. Keep in mind other factors as well, such as how clean a fuel burns; exhaust, storage and supply considerations; and where you site a generator – inside or outside a facility. For instance, it may be difficult to haul diesel fuel to the roof if you decide to place a generator up there.

What fuel source do I want?

What kind of maintenance do I need?

Third, how reliable is my generator and what kind of maintenance do I need? Without regular service a generator may not kick in when you're hit with an unforeseen interruption. But this should force you to think about what you're getting and spawn other questions, such as: Which manufacturer should I choose? How long will the equipment last me? Do I need to get a service contract? How fast will a service company come during an emergency? How often should I get the equipment serviced? These questions are important along with environmental, storage and supply concerns of the fuel used.

Tolerating blips and other interruptions

These days, many companies heavily depend on computer systems, data servers and other high-tech equipment to run their businesses. Any power problem could critically interrupt operations or fry equipment, resulting in lost work. While a generator may provide electricity for hours, it usually takes several seconds for it to power up – enough time to lose data. In this instance, a battery-powered Uninterruptible Power

Supply system is essential. When a disruption occurs, a UPS device provides power for a few minutes or up to several hours depending on your needs – valuable time to save data and work and safely shut down your machines.

When deciding on whether to install a UPS device ask yourself several questions: How frequently do I lose power? How long is the power usually out? What's the cost to my business if I lose power? Getting the right UPS device also depends on your needs and budget.

UPS devices regulate voltage and guard against spikes and sags, which can damage systems. Most can automatically shut down equipment before all battery power is used. They can also monitor and record the status of a power supply, restart equipment after a long outage, display current voltage and sound alarms on problems. There are different types of UPS systems depending on a company's needs – off-line or standby; line-interactive; ferroresonant; and online/double-conversion.

Standby and line-interactive are the most affordable among the devices and provides basic protection. Online double-conversion provides the highest level of protection. Also some units can be paralleled. A company can connect multiple UPS devices to provide scalable and redundant power.

Research, research, research ... and ask

Identifying the proper emergency power system for a facility can be challenging. When choosing a generator, UPS system and surge protection, businesses need to factor in several criteria – manufacturer's reputation and brand, price, size, load capacity, type of fuel, location of unit, local regulations and maintenance. They'll need to ask questions: How should I design our backup system? How much backup power do I need? What kind of contractor is qualified to install such a device? These questions aren't easy to determine. Online research, seminars and published material are good ways to get information. Asking engineers, sales representatives, electrical contractors and others can help determine the best path forward.

This is where National Power Corporation can help. We can provide information and install power products, including UPS systems, generators, surge protection and other critical equipment. Our representatives, who have years of experience and advanced technical skills, can assist engineers, contractors and owners on the scope and bidding requirements of new builds, installations or upgrades. We can help you make the tough decisions, such as comparing brands, quality of equipment and price.

Still, even the best equipment won't work when needed if it's not serviced and maintained correctly. National Power distinguishes itself by providing unparalleled service to its customers. We provide local support and can be on site in a short amount of time if a problem arises.



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