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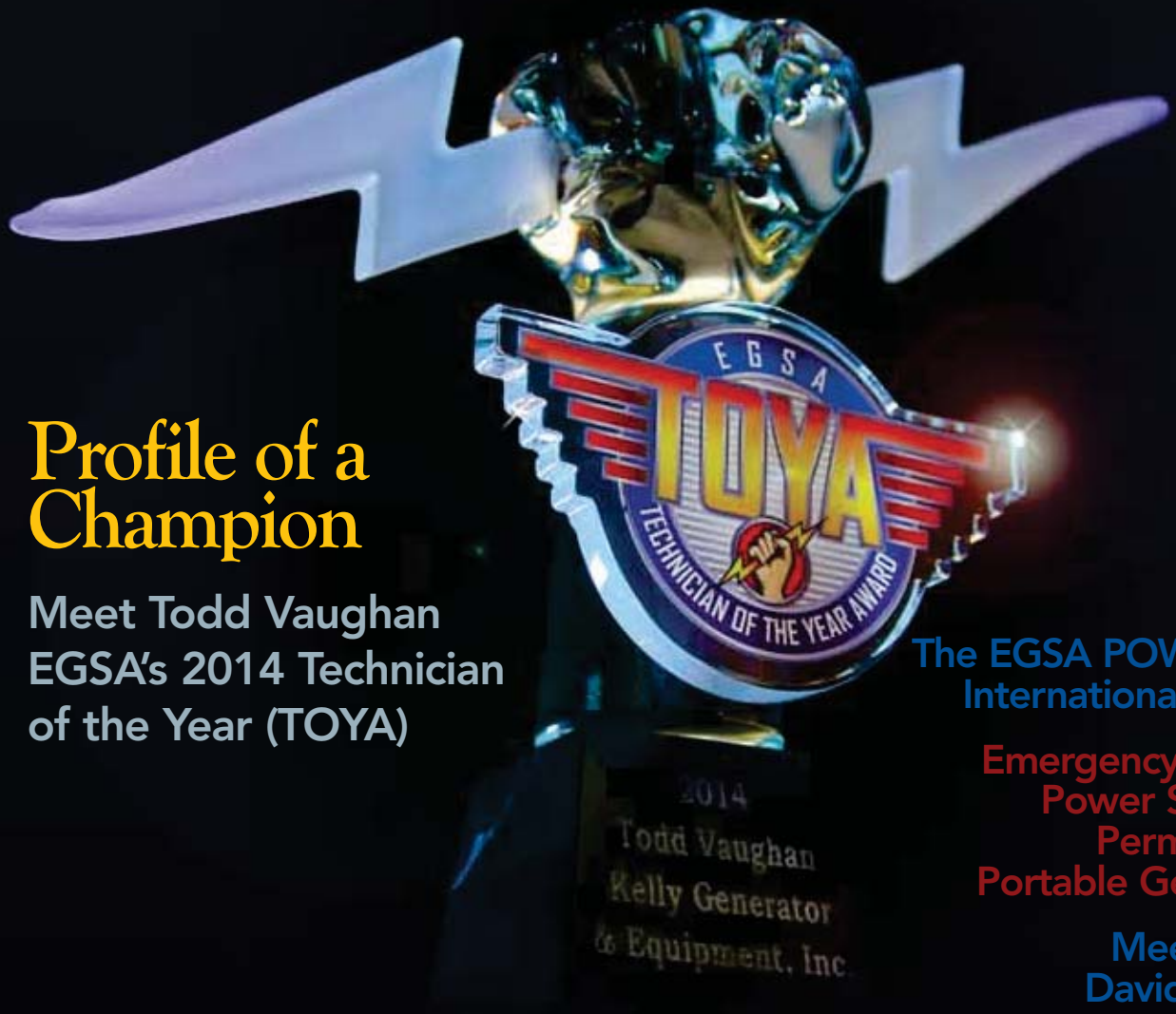

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Emergency Back-Up Power Solutions: Permanent vs Portable Generators

By Dan Rafter

Snow storms, high winds and heavy rain can shut down restaurants, banks, gas stations and grocery stores for prolonged periods of time. When these businesses have to close their doors, even for a day, their owners can lose big, in both sales and reputation.

A survey conducted by the Electric Power Research Institute estimated the total cost of power outages from 985 industrial & digital economy firms to be anywhere between $132 billion to $209 billion[1].

That's why many businesses today are investing in their own back-up power systems, thereby keeping their doors open when disaster strikes and grid power goes down.

Once it's decided to implement a backup solution, business owners have an important choice to make when determining what type of back-up power solution they should invest in:

Should they go with a permanent generator and an automatic transfer switch (ATS) which automatically turns on when power goes out? Or should they rent a portable generator and plug it into to a manual transfer switch (MTS) when an extended outage occurs or is imminent? Keith Daley, owner of Ad Hoc Energy in Norfolk, MA, knows which solution he would choose: the manual transfer switch.

Why? An MTS solution can provide significant savings while still protecting business owners from the consequences incurred by an outage.

"Business owners can save so much money by going with a portable generator and MTS setup," Daley said. "It's not even close, when you look at the actual cost. For many businesses, the MTS and portable generator is simply the better choice."

Cost Benefit Analysis of an MTS vs. ATS

The financial savings of an MTS back-up power solution are significant. As Daley said, it's not cheap to purchase, install and maintain a permanent generator.

It can cost business owners $25,000 to purchase a 100-kilowatt permanent generator and another $25,000 to install it. In addition, business owners would have to spend an additional $7,000 to purchase a 400amp ATS, making the total installed cost of the permanent generator and ATS to be roughly $57,000.

This doesn't include the cost of licenses, a fuel storage system, yearly maintenance, repair costs, and load bank testing. These additional annual costs can exceed $10,000, depending on the frequency of load bank testing and generator servicing.

Another factor to consider is the space that permanent generators require, along with the storage & handling of fuel. Many owners, especially those operating in crowded urban areas, might not have the available real estate required to house a permanent generator on their property.

In contrast, business owners wouldn't spend nearly as much to purchase a manual transfer switch and rent a 100-kilowatt portable generator. An MTS costs about $6,000 plus another $10,000 for installation, bringing the total to $16,000. That's roughly 28% of the permanent generator/ATS solution.

Purchasing a 100-KW portable generator can range from $25,000 to $50,000. To mitigate initial costs, Daley says that business owners can rent this size portable generator for about $700 a week. While there may be other nominal fees incurred for delivery or running the equipment beyond the hours specified in the agreement, in a worst-case scenario you're looking at a weekly fee of $1,400.

Note that there are some facilities, such as hospitals and data centers, that can't afford to be without power for any period of time and therefore require a permanent generator and automatic transfer switch. However, many businesses can afford to be without power for a short period.

"If you are a bank, a gas station or a large box store for instance, you can afford to be down for 20 minutes, 30 minutes or an hour" notes Michael Hellmers, President of ESL Power Systems, Inc. "You can modify your operations to work through the time it takes to wheel a portable generator in place or have one delivered to your site, hook it up and do the actual transfer. Both an MTS and ATS have their applications. We would argue that it makes financial sense for most businesses to choose an MTS and portable generator solution."

Selecting an MTS

Once the cost benefit analysis has been performed and the determination has been made to install an MTS for backup power connection, there are several factors to consider. In facilities equipped with an MTS, it is more efficient for the end-users to make their own connections to a portable generator, since certified electricians are in high demand during times of prolonged outages and would likely be unavailable or charging a premium for their services.

In lieu of paying steep fees for an electrician and to avoid the inconvenience of waiting for their arrival, an MTS equipped with color-coded, cam-style connectors, such as those equipped on a StormSwitch™ manual transfer switch, enable users to easily make these electrical connections in a quick and safe manner.

It is very important for the manual transfer switch to be interlocked. There are several different types of interlocking options. However, Daley prefers a lever system with circuit breakers, as it is a fail-safe in preventing cross connections and the user does not have to hunt for fuses at an inconvenient time. This type of interlock also eliminates the chance of losing or duplicating keys. Beyond its ease of use and safety features, there's one thing that separates a top quality and industry-tested MTS from its substandard counterparts, UL certification.

Building inspectors typically require new equipment to be "Listed". When comparing various product listings put out by Nationally Recognized Testing Laboratories (NRTL), it is important

to know what the appropriate category is for the specific application. For instance, UL 1008 is set aside for transfer switch equipment and certifies that the complete assembly has passed a rigorous testing procedure, including short circuit, temperature, hi-pot and structural, to ensure safety. In contrast, UL 50 only certifies that the actual box housing the equipment meets the minimum requirements for structural and environmental integrity.

Some facilities may require manual transfer switches to be service entrance rated (SUSE), which is an important consideration for equipment being installed at the building's utility service entrance.

Increasing Need for Standby Power

While there are many things to consider when installing a backup system, one thing is certain: businesses will feel the impact when power is lost for an extended period of time. "The reliability of the electrical grid in the United States is being called into question more often," Hellmers said. "Not enough money is being spent on major infrastructure repairs to the grid, plus we are seeing an increase in the number and severity of storms and weather related emergencies. Whether we are talking about ice storms, wind storms, hurricanes or significant heat, we are finding that a lot more companies and municipalities are looking at emergency backup power closer than they did five years ago."

With an increasing demand for emergency backup power, owners must ask themselves: How often should we expect to lose power in a given year? A 2013 report published by the White House estimates a total of "679 widespread power outages occurred due to severe weather" from 2003 thru 2012. Businesses can expect to lose power an average of 3.9 times per year. At this rate, it would take over 364 weeks for the permanent generator to pay for itself compared to the high-end rental charge of $1,400 a week for a portable generator. Not only is an MTS, such as the StormSwitch, easily operable by an average Joe, it is far less expensive and quite simply the better business decision.

A study conducted by the Congressional Research Service estimates the cost of weather-related power outages to be between $25 and $70 billion dollars annually (Campbell 2012). The costs associated with power outages can manifest in different form such as lost productivity & wages, spoiled inventory, delayed production, and the inconvenience of getting things back up & running.

Annual costs can vary and are highest in years with major disasters such as Hurricane Ike in 2008 and Super Storm Sandy in 2012, both of which resulted in damages of over $50 billion dollars.

Additionally, the occurrence of both major power outages and severe weather is increasing. The U.S. Energy Information Administration show that weather-related power outages have increased considerably since 1992.

Since 1980, the US has sustained over 140 weather disasters whose costs have topped at least $1 billion dollars. The combined total of these events has exceeded $1 trillion dollars (U.S. Department of Commerce 2013). Moreover, seven of the ten most expensive storms in the country's history occurred between 2004 & 2012 (U.S. DOC 2012).

It's clear that the need for standby power is not only necessary to help avoid damages, but also to gain a strategic advantage over competitors. Businesses that are up and running through a power outage, will gain the respect of area consumers. And that can pay off big when it comes to your reputation.

"I do like to talk about production," Daley said. "I can't tell you how many outages I've responded to where there's a wide area of two to three blocks without power. The one business that does have power? That business can't keep the customers away. It almost becomes a Disneyland attraction."

A Bright Future for Manual Transfer Switches

What is the cost impact if your business loses power for 1 hour, 12 hours, 24 hours, or 3 days? How long would it take for a manual transfer switch to pay for itself? Take into account perishable goods, lost sales, wages, spoiled inventory, delayed production and the headaches caused. Have you considered how your customer base might diminish if your competitor does have power in those critical times? Reputation goes a long way. You just may find that a StormSwitch manual transfer switch provides you the safe, flexible connection that you can't afford not to have. ■

1. Source- (ECONOMIC BENEFITS OF INCREASING ELECTRIC GRID RESILIENCE TO WEATHER OUTAGES Executive Office of the President August 2013)

About the Author

Dan Rafter is a freelance writer with more than 20 years of journalism experience. He's written for such publications as the *Chicago Tribune, Washington Post, Business 2.0 Magazine, BusinessWeek Online, Consumers Digest* and dozens of trade magazines.