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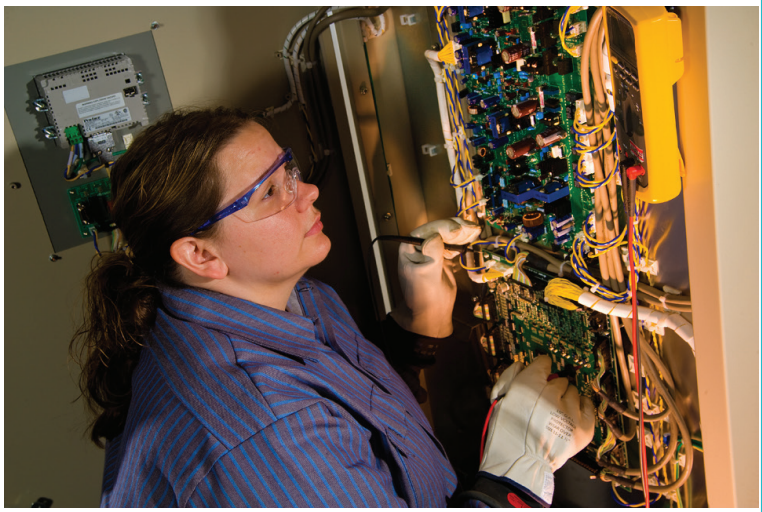
UNINTERRUPTIBLE POWER SUPPLIES

As Seen In:

ELECTRONICS PROTECTION

WHY PREDICTIVE MAINTENANCE IS THE PROPER MAINTENANCE *by Jason Eichas*

All too many companies focus on what it will take to recover from emergency situations: response time, parts availability and technician coverage when planning maintenance budgets. However, with proper predictive maintenance, trending and analysis, an emergency situation would be avoided all together. Planning for worst-case scenarios should be a priority. More focus applied to predicting failure points and preventing downtime could be a crucial difference between loss of power to your critical load and a scheduled downtime at your convenience. Ideally, this scheduled downtime should occur under controlled circumstances to maintain guaranteed uptimes.



The timing and benefits of an organization's maintenance structure can be explained as follows:

- Predictive maintenance refers to the use of maintenance to track and trend through data collection and analysis to predict the end of life of the critical components.
- Preventive maintenance is defined as the use of the manufacturer's replacement recommended plan to change critical components at the predetermined end of life.
- Emergency response or time and material maintenance is defined as the reactive or inconvenient response to failures or occasional maintenance at undetermined intervals.

Careful consideration should be used when deciding which strategy to use in your maintenance budget and the advantages and disadvantages of each.

Predictive maintenance is the data collection and trending of the performance of critical components to predict when in the future a failure of a major component in your UPS or associated critical gear could occur, leading to unplanned downtime. So you may say to yourself, "We already get battery maintenance, what more do I need"? But what do you do with the battery data that is collected? Do you look at the report that is provided? Does the service provider offer an end-of-life expectancy with its report or does s/he tell you that after four years you need to budget for batteries and at five years you need to replace them? What benefit does your company receive with this service that your company couldn't provide on its own?

You will know when a battery has prematurely failed and needs to be replaced, of course. Still, with proper trending and data sharing, you could actually run the batteries for six years! In a typical 15-year replacement cycle of the UPS, the batteries only need to be changed twice vs. the alternate of a preventive change cycle, hoping the batteries make the final year or two of the UPS's life cycle.

This approach provides no peace of mind that when the UPS goes to battery, the critical load will actually be supported. You can use this approach for the other critical components that the manufacturer is telling you to predictively change, such as capacitors and fans. Most manufacturers recommend changing capacitors at five to seven years. This means if your company follows its preventive maintenance cycle, capacitors are changed two to three times in the life of the UPS, adding thousands of dollars to your company's TCO (total cost of ownership). This also adds to the risk of potential unplanned downtime with premature failure.

By extending the cycle between change-outs and trending the performance throughout the life of the capacitors, you gain the advantages of a planned, proactive cost saving approach to maintenance. While another manufacturer recommends a 15-year change-out, or at the end of the cycle of its UPS, using predictive maintenance you are gaining a peace of mind that the capacitors make it to the end of the UPS' life. This can help you maximize uptime while delivering a predictable return on your company's investment.

Careful consideration of the preventive maintenance cycle is important. Still, if your company is not trending and collecting data in a visible location and analyzing the data along the way, the risk of an emergency maintenance visit is quite possible. While most service providers support and even promote this level of service, this response is very

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costly. This cost occurs not only with the unplanned downtime you are experiencing, but also the cost premiums to get a qualified technician to your site as fast as possible at generally non-contract rates.

In addition, if the service provider is not the original equipment manufacturer (OEM), the availability of OEM-specified new parts also become a challenge. Many third-party providers supply after-market or salvaged parts with none or a very limited warranty, which puts your company at risk of another outage. On top of being very costly, this type of failure is also impossible to predict.

While emergency coverage needs to be a focal point during negotiations of your service contract, the greater emphasis should be put on what the service company is going to provide your company to reduce the need for emergency response. You then need to consider, can your organization survive multiple unplanned outages and what could have been done to prevent them? Here is the only appropriate answer: Following the preventive maintenance cycle while monitoring the data points along the way. This procedure will calmly bring your company's UPS to its full end of life with predictive maintenance.

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