Essential Check-list for your critical power system

By **Andrew Hodge**, *Service Sales Manager, Chloride Harath*

The increasing incidence of power cuts across UK and Europe has alerted companies dependent on critical power to the necessity for their operations to be protected by standby equipment, such as Generators and Uninterruptible Power Supplies (UPS). What is less well understood is the care required in specifying the most suitable back-up system, as an inappropriate choice will still leave a business vulnerable.

Chloride Harath, a leader in critical power service solutions offers the following ten tips:

Design

Before a standby system is installed, a thorough analysis should be made of the specific application to ascertain the load, operating environment and the most appropriate design for providing critical power. This is seldom done well, if at all and consequently many standby systems installed are simply incapable of fulfilling their emergency role. Always consult a supplier with in-house design services for a total power solution.

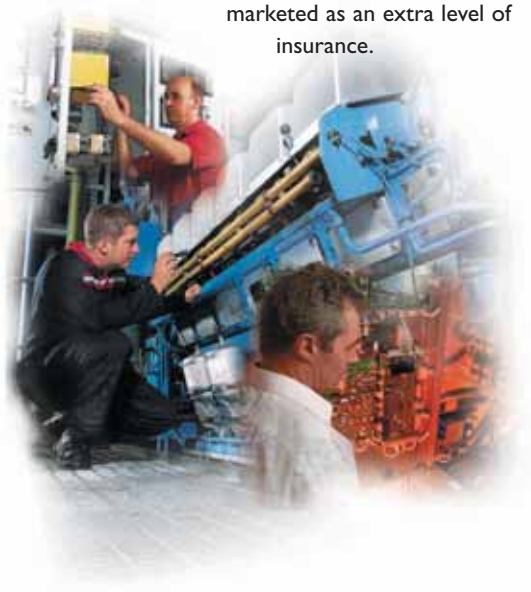
Installation

Surprisingly often in critical applications the quality of installation has not been given sufficient attention - often as a direct result of a "lowest price tender" system. Where systems have been installed down to a price rather than up to a required quality, risks are ever-present.

Poor quality components, low quality workmanship, under sizing of cables, wrong settings on adjustable components and circuit breakers, inadequate cooling systems, poor fuel systems, etc all lead to high probability of failure.

Maintenance

Equipment needs regular maintenance to perform at its best and this should be considered a must not an option. There is always resistance to spending more than the initial cost of the equipment. Where the equipment does not display any outward signs of noise, motion or activity, as in the case of a UPS, it is easy to forget it after it has been installed. To overlook maintenance would be a grave mistake. The UPS is there to protect and support businesses in an emergency, so it has to be ready. Maintenance is an integral part of the UPS system, and should not be marketed as an extra level of insurance.



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Batteries

Batteries are the heart of all back-up power systems and are the main cause of operational failures.

Without continuous battery monitoring, users of the majority of static UPS systems, centralised emergency lighting systems and rectifiers are unlikely to have any warning before their system lets them down.

Age

Most organisations would not dream of using critical IT equipment beyond 3 - 5 years of age. The same organisations seldom consider upgrading or renewing a circuit breaker or a generator control system. Some standby generator systems date back 30 years and beyond.

Even if a system is correctly designed, installed and maintained it could still fail due to its age. This is simply because buildings are dynamic creations, where the original criteria for the critical power installation may change over time. As part of your maintenance agreement insist on a regular assessment of the critical load and the system's ability to support it.

Temperature

Main standby power components, diesel generators and UPS generate substantial amounts of heat. As any installation draws in its cooling air at these elevated ambient temperatures it is immediately heated further by the heat rejected from the equipment. This effect often forms a vicious circle, ultimately resulting in the standby system losing its thermal equilibrium with temperatures climbing inexorable upwards until the whole system fails.

Chloride, a total service provider, carries out more than 500 load tests each year and has found that many systems installed in the UK struggle to maintain thermal equilibrium at sub 30°C ambient temperatures. Very few systems would sustain thermal equilibrium at 35°C and above.

Network Resilience

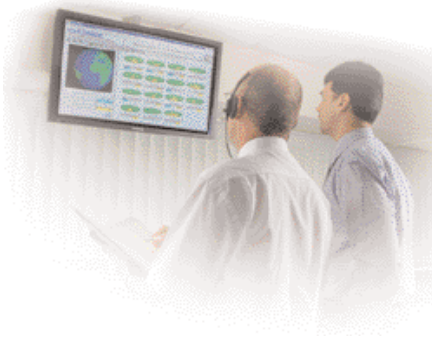
The National Grid considers that its period of greatest demand is in the winter, which is true given a holistic view. It is, however, not true for any "Hi-Tech" organisation where the heat generated by their equipment is a liability. In these cases the period of increased demand is in the summer when air conditioning is drawing its greatest load. National Grid openly states that it reduces the resilience of its network in summer in order to accommodate their maintenance. It follows then, that specific parts of the network, such as the commercial centres of any City, are subject to less resilience at the very point when they are at their most vulnerable.

Security

Critical power systems often have no physical security leaving systems prone to tampering or sabotage, maybe by the disaffected employee. Access control and personnel screening is often lacking, whilst night shift absenteeism and even alcohol abuse have been known to leave systems unmonitored.

Remote Monitoring

Mission critical systems are often left unattended outside normal working hours. Watching over the UPS and mains power remains essential; what happens if a weekend problem goes unnoticed until Monday morning?



Companies running 24/7 remote monitoring packages for both UPS and generators are becoming an essential part of the maintenance mix, providing immediate identification of problems, pre-emptive maintenance and '*remote fix*' capability.

Finally…

As problems experienced by critical power system end-users are very likely to be one or a combination of factors outlined here this list represents a checklist for reassessing the reliability of existing critical power systems.

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