Study Suggests Taking Care of Power Equipment and Carrying On in Stormy Weather

By UPSonNet
Dated: Mar 20, 2009

UPSonNet study reveals that Power Loss incidents, amounting in USA to $80 billion annually and causing enormous damages to industry, communication and data centers, occur mainly due to poor maintenance of transformer, generators and cables.

Forty two major worldwide Power Failure reported incidents were analyzed by UPSonNet. All occurred during February 2009, each affecting thousands up to hundreds of thousands people. The study results indicate that most failures are due to defective transformers, standby generator starting problems and undergound cable malfunctions. Proper preventive maintenance could have eliminated most defects and the associated power failures.

According to the research most power outage incidents occur during stormy seasons.
Rains and storms close electric path causing shorts and arcs that trip line breakers. Utility poles catch sometimes fire due to the electric arcs.
Salt used in some areas as winter road treatment, creates potential for electric arcs near freeways and major roads.
Trees falling during storms cut power lines, creating shorts and arcs between adjacent power lines or from power lines to ground.
Air conditioning during summer, overloads electricity supply tripping line breakers.
Lack of rain causes power outages in places where considerable amount of power is generated by hydropower.

Natural causes, reported as rains, trees, ice, heat, drought , as well as any incident reported as transmission line failure, which may or may not refer to natural causes, form together only thirty five percents of total power loss incidents. Defective equipment is responsible for forty six percent of power loss incidents and is the main reason for power losses. Seven percent of outages occurred due to automotive accidents. The reason of additional twelve percent is unclear.

Although most installations are equipped with Uninterruptible Power Supply (UPS) systems, no single UPS or its battery failure was reported.
Till late eighties, year by year, first autumn storm was accompanied by collapsing of defective UPS's and worn out backup batteries. No UPS Company had enough staff, or batteries to treat all irate calls from customers. The chaos stopped when microprocessor based UPS control was introduced in early nineties, enabling automatic testing of UPS's and batteries, by performing periodic power outage simulation exercises. The exercising detected defective systems, which were corrected when mains power was still available, before the stormy weather season.

Likewise, most of the studied power equipment, which failed during storms was revealed to be already defective, and couldn't perform within its designed limits. Lightning and switching grid voltages are generally attenuated to the clamping levels of line isolators and surge protective devices. Healthy transformers and cables should be able to withstand these voltage levels, and backup generators should start when needed.

The study reveals that most outages, do not happen due to acts of God but due to negligence of humans, and can be avoided by performing periodical preventive maintenance and monitoring which alerts when scheduling corrective actions is required.

Simple, cost effective monitors based on technologies such as Partial Discharge (PD) and Infrared tomography enable detection of transformer defects. Power outage simulation exercising can reveal generator’s starting problems.
PD, Power Factor measuring and other monitoring methods, offered by test instruments manufacturers, can detect in time underground cables, which require treatment.

For more information about "Taking Care of Power Equipment to Carry On in Stormy Weather" see: http://upsonnet.com/Newsletter09/February.html

###

UPSonNet started operations in 2006 (now operating also in Israel) is an Information Source, publishing about Power Protection and Power UPS field. Website presents unique and important information. including Cost Effective Selection guides, UPS Industry prices, most extensive UPS-Glossary (http://upsonnet.com/UPS-Glossary/a-c.html), and Essential News Briefs (http://upsonnet.com/UPS-News.html), updating within minutes a day about important industry and products, developments and trends.

Category	Computers, Business, Internet
Tags	power loss, power outage, transformer failure, equipment failure, uninterruptible power supply, ups, power outages
Email	Click to contact author
Phone	+97235470246
Fax	+972722765799
Address	UPSonNet Harishonim 88 pob 3635
Zip	47136
Country	Israel
Link	http://prlog.org/10202503

Scan this QR Code with your SmartPhone to-
* Read this news online
* Contact author
* Bookmark or share online