

ActiveLED® White Paper Series

Off-Grid Lighting & DC Systems

**Lighting
Performance
During and After
a Disaster**

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ActiveLED®
Energy Efficient Lighting and Controls



Rationale

During emergencies and disasters, lighting can calm fears, illuminate escape routes and make all the difference when it comes to survival. Up until recent years, there haven't been any adequate lighting solutions that were capable of surviving a large shock, vibrations, prolonged periods in a high humidity environment or even submerged in water, yet fully functional once the adverse conditions subside. This has changed over the last decade with the advent of LEDs being used more commonly as the general lighting source.



Conventional Lighting

In commercial and industrial applications, conventional or traditional lighting often use metal-halide or some form of mercury-laden bulb or fluorescent tube technology that can easily break when subjected to vibration, concussion or shock. As a result, these types of lighting are more likely to not be available during an emergency. In addition to this, they add insult to injury by poisoning the environment and nearby humans and animals with unhealthy amounts of mercury. Also, because this conventional lighting operates via line voltage, it requires larger generators or grid power to operate; all of which can cause additional issues during emergencies and disasters.

LED Lighting is Designed for Emergencies and Disasters

State-of-the-art LED lighting can offer a real alternative as the best performing lighting technology during disasters. When appropriately designed, LED lighting fixtures lend themselves to being more robust, outperforming any conventional lighting technology both during and after a disaster.

Unlike any other conventional lighting technology, appropriately protected LED light sources do not suffer from vibration, power fluctuations or humidity. They are also able to start immediately, even at extreme ambient temperatures that range from -58° F to 149° F (-50° C to 65° C).

Driven by low voltage power drivers, LED light sources tend to work extremely well with DC power sources like batteries, solar panels or windmills, as well as being driven from the power grid or conventional generators. Due to their much lower power consumption they can additionally provide adequate lighting for a much longer period when driven from emergency power sources like generators or batteries.

LED lighting systems can be designed so that they do not lose any light-output with use nor do they change their correlated color temperature (CRI). Although, many mainstream lighting brands design for obsolescence, some players do provide guaranteed light output without restrictions over the product warranty period. These are the best lighting fixtures to use for emergency and disaster proof lighting.

Of course, quality products that are designed to last nearly two decades are made from better heat transporting materials that are more expensive to make. This being said, their return on investment (ROI) is usually better than a conventional built-to-fail and therefore cheap lighting product. The better ROI is also due to savings associated with little or no maintenance costs. Regularly identifying, monitoring and replacing failed lighting bulbs or fixtures is simply not required when using much longer lasting and highly reliable LED light fixtures.



Off-Grid Lighting & DC Systems: Performance During and After a Disaster

Most importantly, during or after an emergency or disaster, energy sources may be scarce. As previously stated, LED lighting is designed to run four times longer from a generator while producing the same light output of conventional lighting technologies. Also, LED lighting technology can be run from batteries with five times more efficiency as conventional lighting, making conventional technology not as suitable to be run off batteries for an extended period of time.

Conclusion

Until a better and even safer way to produce more efficient light comes along, it can be reasonably assumed that LED lighting will be the lighting technology of choice for some time to come. It just makes sense to invest in higher performance LED lighting which saves between 70% and 90% more energy compared to conventional lighting.

Every organization that wants to ensure they stay in business through and after a disaster need to look into the latest technologies that will give them the edge on recovery. LED lighting is better suited to sustain vibration, shock and humidity than conventional HID, Fluorescent or Induction Lighting. Learn more about the technology and strengths LED lighting at activeLED.com.

