



# Power Outages Don't Belong in a Connected World



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**H**ere's one of the greatest ironies of all-time ... many of the world's most innovative technologies are being powered by technology that's more than 100 years old.

Our nation's electric grid debuted in the 1880s, and while it has grown considerably, the technology behind delivering the country's power has not changed much since then. Today's average power plant is more than 30 years old, the average transformer more than 40 years old.

As the grid ages, it fails more and more often. The grid fails more than twice as often now than it did thirty years ago, and power outages often last three-to-five times longer. In fact, the U.S. experiences more black outs than any other developed nation on earth. And while severe weather remains the leading cause of power outages, the grid faces growing threats from increased power demand and outright vandalism. The grid has suffered more than 360 attacks in just the past five years.

While grid technology has not changed much, consumer expectations have. Customers today expect to be connected 24/7, plugged into virtual worlds of on-demand information and instant communications – expectations that take continuous power to meet.

Given that it is a question of “when,” not “if,” the grid will fail, communications companies must make backup power a strategic priority and not an afterthought. Customer retention in a connected world may depend on it.

Conventional wisdom points to diesel generators and lead-acid batteries as the backup power sources of choice. They have been popular choices because of inertia rather than advanced technology. Both have been around for decades, and their escalating costs and operational shortcomings are well documented.

But companies looking to upgrade their networks are faced with an interesting question: can you modernize your infrastructure using last-generation

technology? Lead-acid battery technology has not changed in decades, nor have diesel generators. Plus, the emission concerns that surround diesel and short runtimes that plague batteries often are inconsistent with corporate sustainability and customer service goals.

The backup power status quo is neither clean nor cost-effective. The lack of reliable, sustainable power alternatives has left business leaders frustrated.

Reliability is a must for any backup power solution. What good is an established solution if it doesn't work when you need it? Fortunately,

THE U.S.  
GRID FAILS  
**285%**  
MORE OFTEN  
THAN IN 1984

**62%**  
OF CELLULAR  
FAILURES  
ARE DUE TO  
POWER LOSS

technology advances tend to offer performance improvements and cost benefits compared to the legacy systems they replace.

Such is the case of advanced fuel cell technology. Fuel cells have long-held promise as a clean distributed power source. Fuel cells work by converting hydrogen into electricity through a chemical reaction with no combustion

equaling no emissions. The only byproduct is water. Hydrogen is the most widely used industrial gas in the world and the most abundant element in the earth's atmosphere. Hydrogen is also safe, having been produced, stored, and delivered routinely in the U.S. for more than 50 years. More than a dozen major automotive brands now have hydrogen fuel cell electric

vehicles (FCEVs) in development, which should accelerate the development of an even more robust hydrogen fuel infrastructure.

NASA and the U.S. military have relied on fuel cells for years for mission critical applications, but fragile components and high production costs have prevented fuel cells from being commercially viable. Until now.

Altergy has completely reimagined fuel cell technology. Altergy's patented Freedom Power Technology™ replaces brittle graphite with rugged stainless steel, and leverages a breakthrough contact design and the world's only automated fuel cell assembly line to produce fuel cells that are dramatically more compact, durable, and less expensive than traditional fuel cells or legacy backup power technologies. In fact, zero-emission Freedom Power Technology can reduce Total Cost of Ownership by 50 percent or more.

While Freedom Power Technology is revolutionary, it is also proven. Altergy fuel cells delivered uninterrupted power through Hurricanes Sandy, Joaquin and the Napa Valley earthquake. Trusted by government security agencies, they represent the largest deployed fuel cell network in telecom with more than 8.3 million watts delivered and 32 million hours logged.

It will take an estimated \$500 billion and at least two decades to modernize the nation's electrical grid. You can, however, modernize your backup power solution today. [CCA](#)

#### About Altergy Fuel Cells

Altergy Systems®, the global leader in reliable backup power solutions for telecom applications, delivers proven fuel cell technology that provides on-demand power for extended runtimes with zero emissions. Altergy Freedom Power™ fuel cells have logged more than 32 million hours of runtime, provided uninterrupted power where legacy systems have failed, and have replaced batteries and generators in more than 8.3 million watts of applications ([www.altergy.com](http://www.altergy.com)).





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safety & success against any structure.*

  
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