

Fuel Cells Backup Power Solutions for Communications

With the rapid development of mobile communications industry, the construction of new outdoor base stations is growing rapidly, a large number of base stations caused high carbon emissions cannot be ignored. At the same time, in recent years, natural disasters' frequent occurrence and a grave situation of electricity supply in remote areas makes the operators considering the form of outdoor base stations, especially in remote areas, have to focus backup power supply after power failure, to ensure normal operation of power station and the key communication services without interruption.

The traditional outdoor base station use diesel generators and lead-acid battery as backup power.

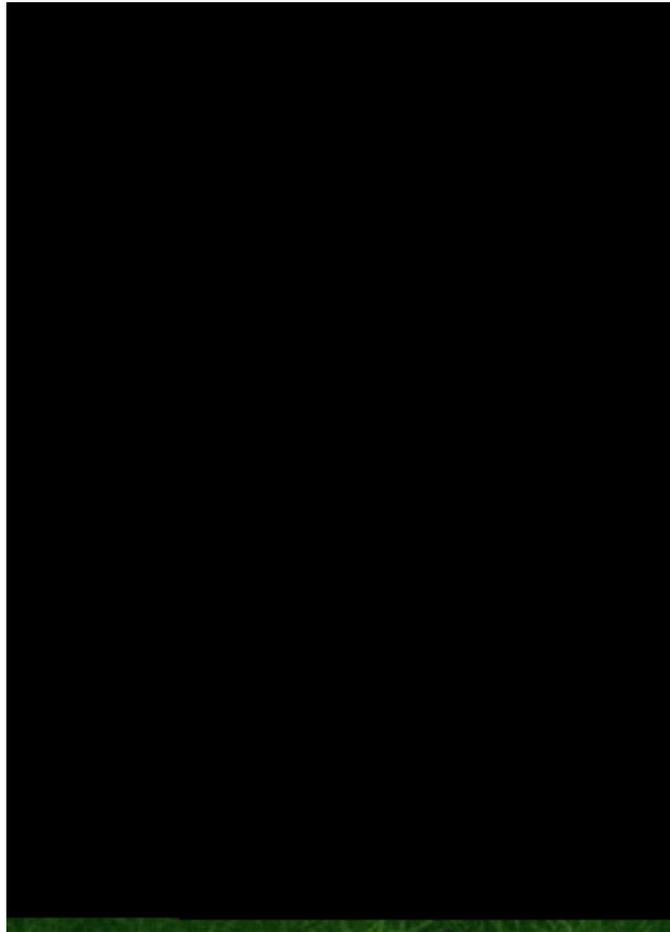
Lead-acid batteries can only provide hours of continuous power supply under normal circumstances, which can become stretched when occurs extreme weather. Under the ideally ambient temperature, its working life only years generally; in the environment under adverse conditions, its life is greatly reduced and unpredictable, which rise the operator's total operating costs (TCO) .When lead-acid at the end of its life, the operator should consider how to deal with it to control the environment pollution.

Diesel generators will produce a large number of harmful gases and disagreeable noise, so serious environmental pollution. Diesel generator's mechanical structure determines it's a far cry from meeting demands the telecommunications equipment's high reliability requirements, and moreover, it require regular maintenance to the site which increases the cost of ownership. Even in some regions, diesel generators can easily become the targets of theft.

Traditional outdoor base station back-up power solutions are shortage in the long sustained energy supply, energy conservation, cost and so on under such circumstances

Compared to traditional solutions, fuel cell backup power solutions can provides operators better choices.

- Fuel cells' energy supply duration is not limited to the number of cells. As



long as continues to provide fuel, then the fuel cell can supply energy continually which can ensure base stations without interrupting communications when occurs long power outage (8 hours, 24 hours, 48 hours or longer), to enhance the satisfaction of the end user.

- The life of fuel cell backup power is up to 10 years, just for yearly maintenance inspection (replace the air filter and adding fuel), which greatly reduce the purchasing costs and maintaining costs of the equipment capital in its life cycle. Fuel cell solution contains better environmental adaptability than traditional solutions, which have lower temperature requirements of the work environment, thus it can effectively reduce the energy consumption of air conditioning and other auxiliary equipment maintenance costs. If the base station traffic load are increased and need power expansion, merely by a simple operation, fuel cell solution can easily achieve power expansion; whilst it can in conjunction with a solar / wind energy used in renewable energy or hybrid solution, reducing the cost of smooth upgrade.
- Fuel cell backup power does not produce carbon dioxide, sulfide, nitride and other toxic gases. Almost silence when operating, therefore reducing noise pollution. After the end of the life cycle, we have perfect product recalling system, which can effectively eliminating environmental pollution caused by waste. As fuel cell has fewer energy conversion and not need floating charge, it has much higher utilization efficiency than traditional solutions.
- Fuel cell backup power almost has no moving parts, structure simply, supporting redundancy, the MTBF can achieve carrier-class equipment reliability.
- For extreme conditions caused by very low and high temperature, dry, wet, lightning, earthquake, etc., fuel cell backup power supply can work properly.
- Fuel cell backup power system integrating remote monitoring module, so the network maintenance center of operator can monitor and maintain the key components of the fuel cell power module by this module remotely rather than to the site regularly.
- According to local situation and actual needs of clients, we will help clients to choose the right "one stop" (end to end) hydrogen refueling solution.

The green & energy-saving communications backup power that independent grid and able to provide ultra-long power supply will undoubtedly become the trend of development.