

# Powering Your Data Center's Future

## How Can You Make Sure Your Power Equipment Investments Will Last?

**OF ALL THE EQUIPMENT** in a data center, power systems may be the most important, considering that none of the other equipment will run without them. Making smart investments in power is crucial, but can also be challenging—an IT manager has to anticipate changes, evaluate equipment based on long-term goals, and work within a specific budget.

According to industry trend watchers, changes in power equipment for the next few years are likely to include the use of high-voltage DC power systems, which don't have some of the losses associated with double-conversion UPS; continuing traction in flywheels and fuel cells; and the use of containerized data centers because they offer faster deployment and potentially better power and cooling. Another potential strategy for data centers is using servers that have internal battery backup, which would eliminate the need for UPS systems. This trend is driven by availability and efficiency, but it's not cost-effective yet because battery backups are more expensive than UPSes.

Staying on top of these types of trends is important, especially given fluctuating adoption rates.

While monitoring the market, though, it's possible to do some future-proofing even as equipment and strategy changes loom. Here are some tips on how to make the most of your expertise and funds.

### Key Points

- Understand your total cost of ownership with all power equipment, as that can help drive more efficiency and create a better power equipment mix.
- Align power requirements with overall business goals to anticipate changes in company growth and scope.
- Determine your tier level and compare equipment based on common features and functionality.

### Know Your TCO

When selecting power systems, focus on those that result in the lowest total cost of ownership, advises Jim Hall, marketing manager at Staco Energy Products ([www.stacoenergy.com](http://www.stacoenergy.com)). He notes that these costs include the price of acquisition and also operating and maintenance costs, with an eye toward energy-efficient practices.

"IT loads are evolving rapidly, requiring the power planner to consider use of higher-density loads, such as blade servers, which consume more power than rack servers," Hall says. "IT should deploy power architectures that integrate, scale, and provide high reliability."

Included in this mix will be power backup, power conditioners, power distribution, cooling, racks, cables, and power management



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software, he notes. Concentrating on using these efficiently and with best practices will drive down energy use and lower TCO.

## Align With Business Goals

Hall adds that managers should look beyond current needs by aligning their horizon with the overall business plan, which is typically a three- to five-year view of a company's operations and goals.

Business plans that take Human Resources plans and capital into consideration are more comprehensive and more likely to capture future requirements that result in better predictability of power consumption, Hall notes. This lifecycle approach can help determine future needs and avoid over- or underestimating future power requirements.

This strategy will also help identify when more capacity is required to maintain operations in the future. For example, Hall says, if a facility can accommodate downtime for a complete system shutdown, but the IT manager foresees this changing in the future, he can plan to migrate toward a higher tier structure and plan architecture and equipment purchases accordingly.

## Practice UPS Consolidation

In order to protect UPS investments, enterprises should consider consolidating UPS units so fewer of them are running, notes Mark Lafferty, director of strategic solutions and services for servers and storage at CDW ([www.cdw.com](http://www.cdw.com)). Often, these units operate at higher capacity and have more energy efficiency than people realize, and they're not being utilized to their full potential.

Lafferty believes that many IT departments over-engineer the UPS to accommodate future growth, but that leads to maintaining the UPS at a much lower capacity than necessary. When that happens, energy efficiency can plummet, and ROI suffers.

## Check Your Tier

When looking for equipment that is "future-proofed," an IT department should determine what tier level is required for business. Not all applications require Tier 4 operation, Hall points out, so a data center manager should consider looking at which areas require less-than-continuous operation, which requires less initial cost and operating expense.

When moving tiers, consider that certain maintenance actions still require a complete load shutdown. Adding UPS units, a UPS bypass, and UPS control means that there's a dual critical bus path-

way if a data center migrates from Tier 1 to Tier 2, for example. "Corresponding considerations must be taken into account when migrating to higher tier structures in terms of architecture, layout, and equipment purchases," Hall says.

## Comparison Shop

When considering new equipment purchases, Hall recommends that data center managers do an apples-to-apples comparison because topologies can vary. Look at strength and length of warranty as a means of verifying confidence, he advises. The number of providers, and their focuses, varies widely depending on whether they concentrate on larger or smaller data centers.

If shopping on behalf of an SME that needs less complexity, don't be tempted by products with more functionality than needed. Also, Hall adds, plan according to the future needs of the business rather than current needs. **P**

## Best Investment For The Future: Predictive Monitoring Of Batteries

Successful lifecycle management includes predictive monitoring, according to Jim Hall, marketing manager at Staco Energy Products ([www.stacoenergy.com](http://www.stacoenergy.com)). One element of this approach that's gaining attention is proactive battery monitoring, which is the first line of defense during a power outage. Battery life will vary based on elements such as how often the batteries are used, temperature of the battery cabinet, ambient temperature, and other factors. Keeping UPS batteries cool will extend their service life, as well.

"Monitoring battery strength and knowing when they are nearing the end of their service life allows IT managers to schedule their replacement at a convenient time," Hall says. "This has a significant impact on ROI, since this remains the leading cause of power interruptions during an outage."