

10 Things You Can Do Right Now To Be More Green

Free & Low-Cost Ways To Reduce Energy Consumption



There are two constants in the life of a data center operator: increasing demand for computational power and increasing electricity rates. “The cost of the electricity needed to power the exponential growth in server CPU cycles is squeezing IT budgets worldwide,” says Julie Brown, marketing manager at Server Technology (www.servertech.com).

Julie notes that companies are responding by adopting aggressive energy reduction plans. “Power costs are growing faster than IT budgets, so data centers must find inexpensive ways to become more efficient,” she says.

Given limited budgets, data center managers must pursue energy-efficiency initiatives that have low initial costs and high return on investment (ROI). As Janet Ferry, director of data center business development at Bluestone Energy (www.bluestoneenergy.com), points out, “Building a new data center—even redesigning an existing data center—is cost-prohibitive for a lot of companies.” She encourages IT groups to rethink what’s possible and approach problems creatively.

Below are 10 no- and low-cost ways to reduce data-center energy consumption and move down the path to a greener tomorrow.

Prevent air mixing. Separating hot and cold air is critical for optimal power consumption of servers and the CRACs that support them. “Direct cool air to the intake side and set up your HVAC system to pull out the warm exhaust air,” Ferry suggests. Establish hot and cold aisles and use blanking panels, kick plates and curtains whenever possible.

Implement need-based cooling. While you’re in hot/cold mode, conduct a quick audit of your data center and see where the cold air is blowing—if more cold air is pumping to servers with low utilization rates than to servers running hot, then consider an adaptive cooling mechanism to direct cold air to the components that need it most.

Maintain proper floor tile placement. Floor tiles in data centers are thoughtfully placed initially and then often never move again. Are your perforated tiles directing airflow to the right places? Are blanking panels placed so they’re contributing to your hot/cold isolation efforts? Raised floors have moveable tiles for a reason—use them.

Rethink temperature and humidity specifications. In most cases, it’s no longer necessary to set your CRAC to “frigid.” Data center operators are beginning to design environments that can handle higher inlet temperatures—up to 95 degrees in some cases. Depending on your region’s ambient humidity, you may be able to discontinue

energy-sapping dehumidification efforts.

Put lighting on a motion sensor. Data center lights are usually on, even when nobody is home. “Unless data-center personnel are actively involved in a project, the data center is often unoccupied,” says Mike Bailey, PE, director of engineering at Ecos (www.ecosconsulting.com). Sensors have improved over the past few years, and placing an inexpensive, off-the-shelf motion sensor on your data center’s lighting circuit will help curb unnecessary energy use without irritating occupants. Remember to leave a few fixtures off the motion-sensor circuit so that the data center would not be completely dark during an emergency egress.

Check out available incentive programs.

Most utilities can help you analyze your current and anticipated usage patterns to determine the potential savings of available efficiency incentive programs. But be aware that some utilities don’t completely understand the needs of data centers, especially those with heavy IT demand. If you’re not getting the help you need, consider contacting an experienced energy consultant to determine which programs you qualify for.

Key Points

- Look for solutions that save power for both servers and supporting infrastructure.
- Make sure tile placement, lighting use, and HVAC requirements match current needs.
- Analyze consumption patterns to identify the best power reduction opportunities.

Partner with your facilities group. Energy efficiency efforts may be a tough sell internally for data center managers. Mike Bailey explains, “Only about 10 to 15% of IT managers pay the electric bill out of their budget, so even though energy savings are good for the business overall, it’s all pain and no gain from the IT perspective.” Partnering with facilities is an important first step to spreading labor and expenses across the organization. You’ll also gain the HVAC expertise of your building engineers.

Implement monitoring. A well-planned monitoring system shows where your energy is going. “It gives the data center manager the data he or she needs to make informed decisions on how to improve power efficiency, reduce costs and go green,” Brown says. “Where data center managers may have monitored power in the past, there’s a need now to measure to the most accurate levels for power management—from the cabinet power distribution unit (CDU) level to the per-outlet level,” she says.

Planning for future needs is just as important as evaluating current usage. Donald Klein, vice president of business development and marketing at Modius (www.modius.com), says, “The first step is to get organized about data collection. That way, as you plan future improvements, you will know what impact they are having on your facility.” Be sure to collect information from your power and cooling chain as well as chassis data from the racks themselves.

Increase server efficiency. Klein notes that while replacing servers is hardly a low-cost option, each upgrade you make will have a cumulative effect. “By upgrading your older volume-based servers to newer-generation servers, you’re going to get a much better efficiency ratio,” he says. Look for units with low idle power usage. ■

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