



## SOLUTIONS FOR BUSINESS

# IT performance and energy savings

### What you need to know about IT equipment and your business

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A hotbed for energy consumption, IT equipment can significantly impact your bottom line. Find out how to cut energy costs, improve operations and enhance IT performance through energy efficiency.

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In today's modern world, it's nearly impossible to conduct business without technology. However, the energy required to support IT equipment can be hard on the bottom line. While computers and servers are critical for communication, data processing and storage, surveys suggest much of the energy they use is wasted.

The Uptime Institute estimates nearly 30% of servers aren't hosting any data, with each one costing about \$4,000 to operate and maintain. Those extra servers also generate considerable heat, driving up air conditioning costs.

Solutions for IT energy waste include equipment upgrades, software utilization and employee education. According to ENERGY STAR®, simply turning off a computer at night can save \$50 each year. Simple steps like this can add up to big energy savings. Read on for cost-saving measures you can take to maximize IT server room efficiency.

### Best Practices

Quick tips to improve IT operations and energy efficiency.

- Disable screensavers, which prevent computers from entering "sleep" mode.
- Consolidate equipment. ENERGY STAR® suggests one printer for every 10 employees for up to 40% in savings.
- Use the correct size server rack to properly house IT equipment.
- Consider dedicated AC units and ventilation systems.
- Practice proper cable management.
- Isolate servers to reduce noise and label wires, computers and other hardware.



## Quick tips for server room energy savings

### Cost-saving measures for managing energy use in your server room.



#### Reduce Energy Load

**Consolidate:** Conduct an inventory on printers, copiers and servers. Track the number of people sharing printers and copiers and the number of applications running on each server. Identify unused servers or units with low utilization. Consolidate, reassign or switch off equipment to optimize usage.

**Go virtual:** Traditionally, server room operators installed one physical server for each application. Server virtualization uses software to convert one server into a virtual machine that can perform multiple tasks. In addition to saving space, you'll reduce energy consumption and waste.

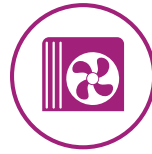
**Reduce data:** Redundant files account for more than half of a typical company's data. Deduplication software, which finds and eliminates unnecessary copies, can reduce data by more than 95%. Going forward, retain unique files or data blocks and provide pointers to duplicates.

**Try tiered storage:** Store data on different servers based on relative demand. Tiered storage, also known as information lifecycle management or hierarchical storage management, stores high-priority, frequently used data on equipment using less energy.

**Head to the cloud:** Migrate applications off-site to cloud-computing services, which are likely to be using very efficient servers. Savings are slightly offset by increased network energy consumption.

#### Upgrade for energy efficiency

When you replace older desktop computers, laptops and servers, purchase ENERGY STAR® certified units. In addition to delivering more processing power, ENERGY STAR servers are 30% more energy efficient than standard models. Likewise, ENERGY STAR certified computers use 30 to 65% less energy, depending on usage.



#### Reduce Cooling Load

**Vary fan speed:** Server room air-handling fans consume considerable power. Most fans run at a constant speed while the server load fluctuates. Variable frequency drives (VFDs) save energy by adjusting fan speed based on demand.

**Economize:** Air-side economizers bring in cool outside air and distribute it to the servers. This reduces the need for air conditioning. Economizers are integrated into the central air handling system, with ducting for intake and exhaust air. Because servers require continuous cooling, economizers are effective even in hot climates where they can take advantage of cooler evening temperatures.

**Arrange for air flow:** Servers typically take in cold air through the front and exhaust hot air out the back. To improve air flow and reduce the need for cooling, arrange servers in parallel rows with the front of the servers facing each other. According to the U.S. Department of Energy, hot aisle/cold aisle arrangements can reduce air-handling fan energy use by up to 25%.

**Reset the temp:** The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommends a server inlet temperature setting of 65°F to 80°F. However, many server room operators set temperatures as low as 55°F. Raise the temperature to within the manufacturer's recommended range to produce significant energy savings.

**Customize your server room:** Many small server rooms were not designed to be server rooms. Build or customize an existing room with features that specifically support server operation. For instance, add a mini-split air conditioner to provide dedicated cooling rather than relying on the building's A/C system.

**Control humidity:** Ultrasonic humidification provides clean, precise humidity control in your server room. Instead of heating water molecules, vibration creates a fine mist (1 to 2 microns). This process uses 90% less energy than electric-resistance heating.

## Start saving today.

For more ideas and to learn what rebates are available, call the Solutions for Business team at (866) 333-4735, email us at [aps.solutionsforbusiness@dnv.com](mailto:aps.solutionsforbusiness@dnv.com), or visit [aps.com/businessrebates](http://aps.com/businessrebates).