Reducing Desktop Power Consumption: How IT and Facilities Can Both Win

Whitepaper

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How IT and Facilities Can Both Win

By Mike Stevens, President, Strategic Writing

These days, organizations of all sizes are awash in a sea of green. As a result of growing environmental sensitivity, businesses are feeling pressure from activists, consumers and government at all levels to make their operations more eco-friendly, and marketing departments are doing their best to cash in on this situation. "Greenwashing"—the practice of hyping eco-friendly product features that are dubious at best—has become commonplace.

Two of the biggest business targets for greenwashing are Facilities Management and IT, in part because these two departments often need to work together to comply with energy conservation mandates. And greenwashing is not a small problem. In fact, 32 percent of the attendees at an April 2007 tradeshow sponsored by Today's Facilities Manager cited "separating fact from fiction—what's greenwash and what's not?" as their biggest problem in dealing with environmental issues.

Obviously, no one in Facilities Management or IT has any time to waste on questionable products, green or otherwise. But hidden among the many green claims that have little merit, there are products that can deliver quantifiable benefits and quick paybacks, including broad environmental benefits such as the reduction of a company's carbon footprint.

Power Save from Faronics is such a product.

This paper will examine the ways in which Power Save helps companies meet their environmental objectives, focusing on three areas:

- How Power Save reduces energy consumption associated with IT departments in new ways that extend beyond the data center

- How Power Save's design features address the practical concerns of IT departments, such as preserving maintenance windows

- How organizations can benefit financially from a Power Save implementation through collaborative approaches to funding

The Challenge that Won't Go Away

Three factors are working to ensure that green challenges—and pressure to reduce energy consumption in particular—won't go away. The first is the Federal government. In 2006, Congress passed legislation specifically funding an EPA study of data-center power consumption. When that study was released, it suggested that a 25 percent reduction in server power consumption was in order. Although no mandates have been issued yet, they are certainly a possibility, and they may well extend beyond the data center to other areas of IT operations.

The second factor is public opinion. Consumers are beginning to care about what companies are doing to preserve the environment. As a result, many companies are instituting significant green reforms—and then bragging about them in the media. Reducing the corporate carbon footprint has become particularly important, and this issue is of course directly related to the challenge of reducing power consumption.

(Even when public opinion isn't a factor, forces within the private sector favor power reduction. Many companies are being asked about their environmental policies by potential customers as part of the bidding process.)

The third factor is cost. The average industrial price of commercial electricity increased to 9.5 cents per kWh in 2006,[1] the most recent year for which data is available. Looking deeper into the picture, the price of coal, which generates 56
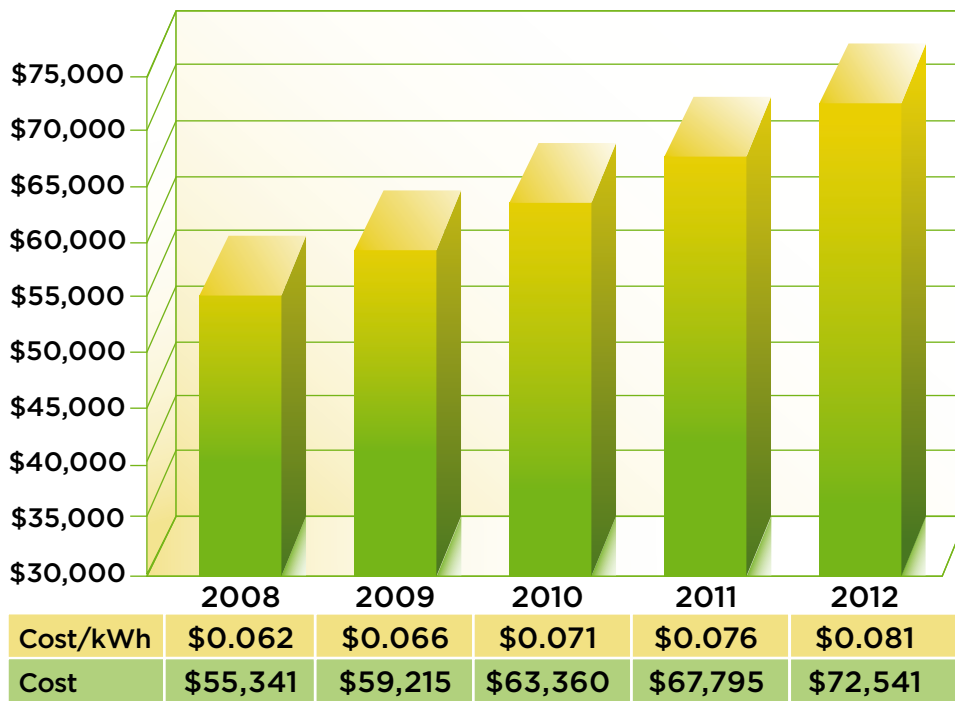
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1   U.S. Energy Information Administration: http://www.eia.doe.gov/neic/rankings/stateelectricityprice.htm

percent of the electricity in the U.S.,[2] is trending upward,[3] and other energy costs that enter into the total mix are also rising. (On February 19, 2008, the cost of oil passed the $100-per-barrel mark, an astonishing and disturbing price level.) Reducing energy consumption is becoming an increasingly important way to maximize profitability, and energy conservation is an area where IT can make an important contribution. The U.S. Department of Energy estimates that 13 percent of commercial energy use comes from computers. According to Gartner, energy use in 2008 will account for 48 percent of all IT budgets.[4]

Beyond the Data Center

Until recently, the focus in reducing IT energy consumption has been on the data center, and vendors have pursued a variety of exotic cost-cutting technologies that range from server virtualization to storing energy in flywheels instead of batteries. But there is another opportunity for substantial reductions in power usage: the desktop. The energy used by 1,000 workstations in one year is equivalent to 880 barrels of oil, or 43,180 gallons of gasoline. It results in the release of 380 tons of CO_2 into the atmosphere and the creation of 130 tons of landfill waste. And, assuming those 1,000 computers are always on, this energy costs more than $90,000. All these numbers can be significantly reduced by the simple practice of turning off desktop computers when they are not in use.

The Rising Cost Of Powering 1,000 Desktop Computers

	2008	2009	2010	2011	2012
Cost/kWh	$0.062	$0.066	$0.071	$0.076	$0.081
Cost	$55,341	$59,215	$63,360	$67,795	$72,541

Potential energy savings for a typical company: This graph assumes a 9-hour work day, a 260-day work year, 150 watts power consumption per computer/monitor desktop, and an annual energy-cost increase of 7 percent.

Of course, as any IT professional knows, taking this step isn't as simple as it sounds, and the wrong approach can have serious unintended consequences. That's why a sophisticated, non-disruptive solution is required to manage desktop power consumption without creating problems.

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2   U.S. Energy Information Administration: http://www.eia.doe.gov/cneaf/coal/page/coal_analysis.html

3   Commodities Now, February 21, 2008: http://www.commodities-now.com/content/market-news/market-news-2008021983119.php?PHP
        SESSID=d18b847bb9f0224167aa38ecb88fa265

4   CIO Asia Magazine: http://www.cio-asia.com/showpage.aspx?pagetype=2&articleid=7699&issueid=129

Managing Desktop Power Consumption

The most obvious problem with turning off an organization's computers when they're not in use is that IT departments need the not-in-use periods to perform routine maintenance such as patching and installing updates. If an organization's workstations have been shut down manually or via standard operating system functionality, maintenance is impossible.

Power Save solves this problem with a Wake-on-LAN (WOL) feature that allows IT departments to boot desktop computers for scheduled maintenance whenever desired. WOL can also be used to ensure that all systems are turned on and ready to use as soon as employees arrive in the morning.

A second problem associated with turning off desktops when they're not in use is the issue of defining "not in use." The standard power-saving functions that come with the Microsoft Windows or Mac operating systems rely solely on the absence of mouse and keyboard activity. Power Save expands this definition to include CPU usage and disk activity. This allows a very precise definition of what conditions trigger power-saving actions. Equally important, Power Save can block power-saving if any designated application is running. With Power Save, employees who go to lunch halfway through creating an important presentation will never come back to find all their work lost because their computers automatically shut themselves down.

A third problem related to power saving is defining what it means for a computer to be "off." Again, Power Save provides a variety of options, which include turning off the monitor and putting the computer in standby, hibernate or shutdown mode.

A fourth problem relates to the issue of reporting. The engineering cliché, "If you can't measure it, you can't control it," is true, and the operating system's power-saving functions cannot provide any data about the number of hours an organization's computers are on or off. In contrast, Power Save has a built-in power-consumption reporting tool that provides detailed workstation utilization data showing how much power and money are being saved based on regional electricity costs. Generating power-consumption reports is necessary not only to verify system performance but also to demonstrate and quantify financial benefits.

	Windows	Mac	Power Save
Reacts to mouse activity	✓	✓	✓
Reacts to keyboard activity	✓	✓	✓
Allows choice of energy-saving mode (standby, hibernate or shutdown)	✓	✓	✓
Reacts to disk activity	✗	✗	✓
Lets administrators define "inactivity" thresholds for all parameters	✗	✗	✓
Blocks energy-saving actions when designated applications are running	✗	✗	✓
Cross-platform	✗	✗	✓
Central console for remote management	✗	✗	✓
Built-in report generation to quantify savings	✗	✗	✓

Comparing Energy-Saving Features of Windows, Mac, and Power Save

In sum, Power Save meets all the practical needs of IT departments facing a power-reduction challenge without imposing any burdens of its own. It's non-intrusive, it doesn't require a dedicated server, and it can be deployed via all the popular desktop-management tools, including LANDesk, ZENworks, BigFix, Microsoft SMS, Altiris, and Apple Remote Desktop.

Funding a Power Conservation Initiative

Funding a desktop power conservation effort presents unique challenges. There are no straightforward approaches, because Facilities Management is virtually always responsible for the power consumed by desktop computers, whereas only IT can implement a power-reduction solution.

To be successful, these two departments must work together to answer the following questions:

- Who owns the problem?
- Who owns the budget?
- Who owns the benefits?

In one scenario, Facilities Management pays, and IT implements. (The amount of time required to deploy and manage Power Save is trivial.) In another, IT pays and implements, but negotiates a reward based on payback. For example, the money saved in the first year could be allocated to fund a new position or a hardware upgrade.

No matter how funding responsibility is allocated, organizations can in many cases benefit from the growing number of rebate programs offered by public utilities. These cover anywhere from 25 percent to 100 percent of the license fees for Power Save.

Whatever the funding model, organizations can expect a substantial ROI. A payback period of 3 to 6 months is typical, even for organizations that currently use standard power-saving capabilities.

Power Save in Context

Power Save is part of Faronics' suite of endpoint security and management products. This suite includes Deep Freeze, a widely deployed utility that protects and preserves original computer configurations. Restarting a PC or Macintosh computer equipped with Deep Freeze resets that machine to its original state, regardless of what changes have been made by the user. The result is a protected, parallel network, free of viruses and unwanted programs.

Conclusion

Organizations implementing green initiatives now have the option to significantly reduce the power consumption of desktop computers while meeting the practical needs of the IT department. Power Save from Faronics provides a broad set of parameters for triggering power-saving functions, and it doesn't rob IT of needed maintenance windows. It is a simple, non-disruptive utility that pays for itself in months, while helping companies to achieve their broader environmental objectives.

About the Author

Mike Stevens began his career as technical writer in semiconductor manufacturing, and then switched to marketing. At his own Silicon Valley-based agency, he worked with an impressive list of clients, including HP, EMC, Fujitsu, and Microsoft. His primary focus for the last seven years has been enterprise software.

About Faronics Corporation

Faronics delivers software that helps manage, simplify and secure multi-user computing environments. Its products ensure 100% workstation availability and free IT personnel from tedious technical support and software issues. Faronics' technology innovations benefit educational institutions, healthcare facilities, libraries, government organizations and corporations. To learn more, visit http://www.faronics.com.