



EXPERIENCE CONTROL WITH CENTRALIZED PC POWER MANAGEMENT

Seek Simplicity, Automation and Granularity

PC power management presents companies of all sizes an immediate opportunity to significantly reduce energy costs, create smaller organizational carbon footprints and extend IT asset longevity.

This white paper presents facility managers, energy managers, sustainability officers, corporate responsibility officers, financial directors, green committees and IT administrators an introductory overview on:

- **The staggering realities of PC energy consumption.**
- **The tangible ROI and sustainability benefits generated by proper PC power management.**
- **PC power management considerations.**
- **PwrSmart™ from New Boundary Technologies.**

Globally, computers create 54 million tons in needless CO2 emissions/year, the equivalent of 11 million automobiles or 20 coal plants.¹

THE STAGGERING NUMBERS

The data and energy costs associated with failing to recognize and address PC power management are staggering:

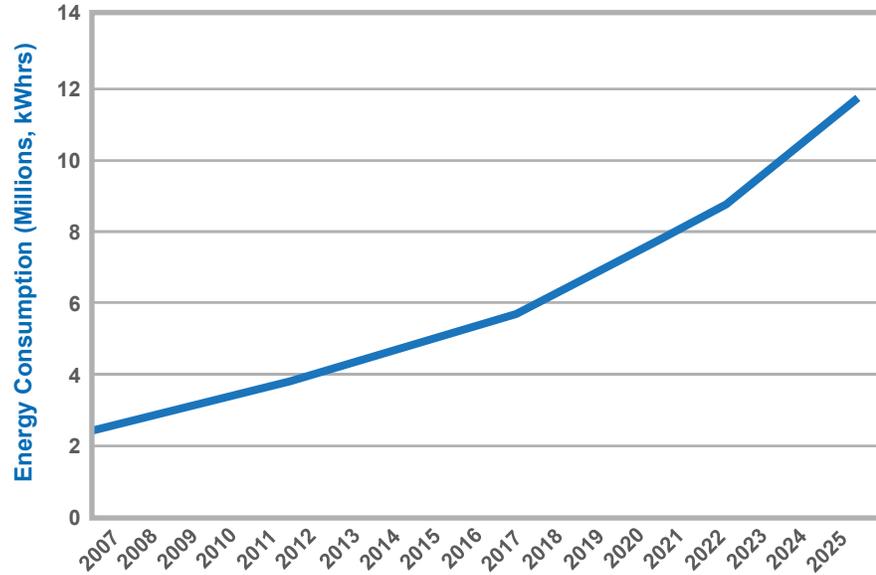
- Nearly 110 million U.S. workers use a PC regularly to do their jobs, yet only 36-50% of employees shut down their PCs at the end of the day.^{2,3}
- The average PC left on all day and night consumes more than 700 kilowatt-hours (kWh) of electricity per year – more than the average refrigerator – and wastes almost 400 kWh when running at full power when not in use.⁴



- The average desktop PC wastes half of the energy it consumes as heat, resulting in higher electricity bills and increased greenhouse gas emissions.⁵
- PC energy costs are the largest single contributor to overall IT energy costs and can account for a quarter of the costs in a modern office building – ranking just behind heating/cooling systems and lighting.^{6,7}
- U.S. companies waste anywhere between \$2.8 and \$4.0 billion annually and emit 20 million tons of carbon dioxide to power PCs that aren't shut down.^{8,9}

IT ENERGY CONSUMPTION

IT energy usage is rising by as much as 15% annually according to industry estimates. As organizations continue to add more hardware, devices and peripherals to the power grid, it will only become more of a business imperative to cut energy usage and reduce costs through simple means such as PC power management.



Louisiana State University

If the cost savings benefits alone aren't enough motivation, numerous local, state and national governments are establishing energy efficiency regulations that **require organizations to adopt "green IT" initiatives, such as implementing tighter PC power management policies.**

Automating PC power management can cut PC-related energy costs by 60% or more.¹⁰

THE ROI SUPPORTS THE EFFORT

The good news: Implementing an enterprise-wide power management strategy and solution has never been easier, and the ROI is tangible, immediate and well within reach for organizations of all sizes.

Forecasted Savings from PC Power Management

Number of PCs	Annual Energy Savings (kilowatt-hours)	Annual Energy Cost Savings
100	77,900	\$7,000
500	389,500	\$35,000
1,000	779,000	\$70,000
5,000	3,895,000	\$350,000
10,000	7,790,000	\$700,000
25,000	19,475,000	\$1,750,000

U.S. Environmental Protection Agency

Most organizations that implement a PC power management strategy to power down computers can save between \$25 and \$75 per PC annually.^{11,12}

Additionally, numerous utility companies and governing bodies also have stepped up to offer rebates pushing \$15 per computer to organizations that adopt and participate in a PC power management program, helping reduce or eliminate up-front investments.

SUSTAINABILITY MADE EASY

On top of immediate cost savings, PC power management creates smaller organizational carbon footprints and quickly and easily contributes to sustainability and green IT initiatives. PC energy usage accounts for 40% of organizations' total IT device consumption and adopting PC power management can reduce overall corporate energy consumption by 15%.^{13,14}

Three-Year Totals

Number of PCs	Pollution Prevented: CO2 (in tons)	Equivalent to Acres of Planted Trees	Equivalent to Number of Cars Removed
1	1.79	0.37	0.30
100	179.00	36.90	29.81
500	895.00	184.50	149.05
2,000	3,580.00	738.00	596.20
5,000	8,950.00	1,845.00	1,490.50
10,000	17,900.00	3,690.00	2,981.00
25,000	44,750.00	9,225.00	7,452.50

PC POWER MANAGEMENT CONSIDERATIONS

UNDERSTANDING COMMON NOMENCLATURE

It's easy to get caught up in some of the PC power management nomenclature, but three terms in particular require careful explanation: shut downs, power downs and power settings.

Shut Down

PC is completely turned off and all functions stop; users can not access the computer remotely.

Power Down

Also referred to as "sleep," "hibernate" or "suspend;" PC moves into an energy saving power mode to reduce energy consumption; PC is still technically on and remote user access is permitted. Variations:

- **Sleep | Stand By | Suspend:** PC is placed in temporary stand-by mode and resumes directly to screen and application(s) running prior to suspension; consumes more energy than hibernate.
- **Hibernate:** PC saves current desktop state and powers down; consumes less energy than suspending PC.

Power Settings

Power settings are operations that perform certain functions based on a pre-defined occurrence, such as shutting the screen down after five minutes of inactivity.

One study of Windows end-users found that almost half of them disabled the sleep timers on their PCs.¹⁵

THE CASE FOR CENTRALIZED PC POWER MANAGEMENT

A centralized PC power management solution is the most effective option for organizations that want to reap the greatest PC energy savings and sustainability benefits. These solutions overcome common barriers associated with end-user involvement, internal power management settings and decentralized approaches to PC power management, including:

Policy Compliance

Policy compliance is the most common issue associated with proper PC power management. For example, as new computers cycle in, computers get passed down or settings inadvertently switched, PC power settings start to “drift” – leading to uncontrolled PC power use across an organization. The scale and frequency in which PC power use would have to be monitored and changed manually makes it a prohibitive exercise for most organizations.

Additionally, even the most thorough desktop-centric power management program will be thwarted by a considerable number of users who purposefully change settings on their own despite leadership’s energy education and awareness efforts. A proper centralized solution eliminates drift and ensures any PC power settings that fall out of compliance are immediately reverted back into compliance.

User Education

Even if an individual wanted to get smart about PC power management, many PC users underutilize the PC power management features that are available to them, or do not use them at all. One reason for this is lack of awareness; research shows that nearly one-third of U.S. employees who use a PC at work have no idea what their computer’s power settings are, or how to change the settings.¹⁷ A solid centralized PC power management solution eliminates the need for any end-user involvement and inappropriate PC power setting selection.

Lack of Transparency

A common issue with many decentralized power management programs is the total lack of transparency surrounding a PC’s internal power settings. Windows operating systems lack the tools necessary to monitor, collect data on or report a PC’s energy usage and efficiencies. Centralized PC power management solutions deliver IT administrators greater visibility into PC energy usage across the network, allowing organizations to appropriately group-profile multiple PCs and optimize their settings for greater energy savings.

Newer is Not the Solution

While new computers have enhanced PC power management features, a centralized PC power management solution is still required to most efficiently manage all PCs – old or new – to achieve optimal efficiency and sustainability gains.

By some estimates, 90% of desktops do not utilize power management settings.¹⁶



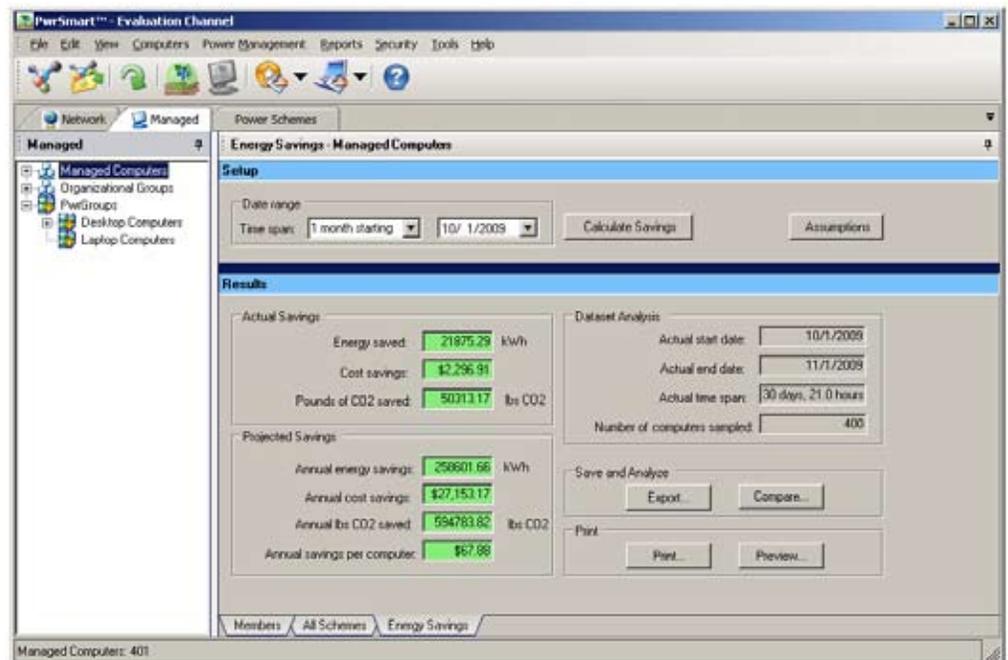
PWRSMART: SIMPLE, AUTOMATED AND GRANULAR PC POWER MANAGEMENT

A truly strategic and aggressive enterprise-wide PC power management program is the only way to ensure optimal energy efficiency and cost savings. PC power management generates measurable ROI and is a great first green IT project. Rapid, hard savings from PC power management can fund additional green IT initiatives.

To get there, companies need a solution that systematically and safely powers down PCs without compromising the ability to perform software updates and patches. Any solution must also give administrators the transparency necessary to optimize energy usage and report on power management – all while maintaining network security. Also paramount is permitting mission-critical computers to stay on 24/7 and allowing end-users to appropriately access their computers when needed.

One leading solution that fulfills these requirements is PwrSmart from New Boundary Technologies.

PwrSmart is a simple, automated PC power management solution that centrally controls PC power settings and energy consumption. The solution – available either as an installed software or a browser-based service – creates a self-monitoring, self-maintaining PC power management environment that reduces energy costs, extends the life of IT assets and supports green initiatives.



PWRSMART EXCELS IN ITS SIMPLICITY, AUTOMATION AND GRANULARITY

SIMPLICITY

- Intuitive interface makes it simple to create, modify and assign power settings across PCs
- Patented technology with PwrGroups™ make it simple to dynamically target and group computer configurations with similar power management requirements – standardizing PC power management across an organization
- U.S. EPA-recommended power schemes or custom power schemes are easy to implement
- Solution does not impact user productivity and is invisible to end-users
- Dynamic energy savings calculator displays real-time insight into managed systems based on multiple criteria
- Flexible reporting engine creates standard or customized reports

AUTOMATION

- Solution automatically applies, controls and enforces power management schemes with no manual intervention
- Patented technology monitors configuration changes and automatically enforces selected power management profiles and settings, even if end-users try to disable or change them
- Self-monitoring and self-controlling features maximize savings with minimal impact on IT staff

GRANULARITY

- Flexible and intelligent power management approach controls and enforces multiple power profiles on the same system to accommodate different power settings depending on the time of day
- Solution meets any update, maintenance, shut down and/or hibernation requirement on any computer, at any time
- PwrGroups dynamically target and group computer configurations with similar power management requirements
- PwrGroups encompass, but are not limited to: Active Directory groups, location, IP address ranges, hardware configuration, operating system languages or time zones
- Solution exempts PCs from scheduled power management events when specific parameters are met to ensure critical processes and applications are not interrupted
- Highly configurable, granular interface delivers customized views, simplified client installation and changing polling intervals
- Pre-defined security roles and customized permissions allow or deny access to specific functions

“We first tried to manage PC power management settings by going from computer-to-computer and manually running power management scripts – a cumbersome and inefficient process. Today, PwrSmart makes controlling PC power management settings simple.”

Dalton Godwin
Nova Hreod’s IT manager

PWRSMART IN ACTION

Many PwrSmart clients, spanning a variety of industries and sizes, have found the solution delivers rapid ROI.

Sentara Healthcare

Sentara Healthcare (Norfolk, Va.) uses PwrSmart to manage six power classifications across its 10,000-plus PCs, workstations and devices. These classifications articulate which computers should automatically power down at night and which workstations must stay on 24/7 to ensure the delivery of health services/patient care. With PwrSmart’s “set it and forget it” functionality, any changes to the power management settings automatically revert into compliance. The organization estimates savings of \$200,000 annually using PwrSmart for PC power management.

Nova Hreod Magnet School

Nova Hreod (Swindon, England) uses PwrSmart to centrally control power settings and energy consumption. In a typical month, the school saves nearly \$5,000 (£3,000) using PwrSmart to ensure its 595 non-laptop computers are powered down when not in use. Over the course of three years, Nova Hreod will save nearly \$180,000 (£108,000) and 78,000 kWh using PwrSmart.

Additional PwrSmart Customers Forecasted Three-Year Savings

Client	Number of PCs	Dollar Savings (USD)	Kwh Reduction	Pollution Prevented (CO2, in tons)	Equivalent to Acres of Trees Planted	Equivalent to Number of Cars Removed
Large University	17,000	\$3,300,822	12,359,000	28,900	5,780	4,590
Internet Retailer	4,000	\$619,000	9,348,000	7,160	1,476	1,192
Canadian Territorial Government	400	\$55,524	528,800	380	251	219

START SAVING TODAY WITH CENTRALIZED PC POWER MANAGEMENT

Contact New Boundary Technologies today to see how implementing centralized PC power management and PwrSmart can help your organization quickly and easily reduce energy costs, increase IT and operational efficiency, create a smaller organizational carbon footprint and extend IT asset longevity.

New Boundary Technologies offers
free energy savings audits
and **30-day**
free trials of PwrSmart.

Call 800.747.4487 or visit
www.pwrsmart.com for more details.

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Footnotes 1. Climate Savers Computing Consortium 2. PC Energy Report 2009 3. U.S. EPA 4. U.S. EPA 5. Climate Savers Computing Consortium 6. Gartner 7. New Boundary Technologies 8. PC Energy Report 2009 9. U.S. Dept. of Energy 10. U.S. EPA 11. Climate Savers Computing Consortium 12. U.S. EPA 13. Gartner 14. New Boundary Technologies 15. PC Energy Report 2009 16. Climate Savers Computing Consortium 17. PC Energy Report 2009