WHITEPAPER

THE BENEFITS OF PC POWER MANAGEMENT (PPM) SOLUTIONS

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PC Power Management Made Simple

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Why Green IT Isn't Enough If You Want to Cut Energy Costs

NetWorld- May 18, 2010

"IT Director Gordon Katz estimates that by setting employees' computer monitors to sleep when they aren't being used, he saves his company enough electricity in a year to light the Cleveland Browns' football stadium for two seasons. "

The U.S. National average electricity cost for the commercial sector is 9.51¢ per kWh, translating into a total average annual cost of $149.10 for each desktop (USDE)

PC Power Management (PPM) Saves Energy & Money

Going Green Doesn't Have To Put You in the Red

Cutting costs and identifying ways to trim budgets is always a high priority. Industry leaders have known that a computer's power consumption has been a big problem. They have bought more efficient computers, monitors and other office items in order to save money. PC power management software (PPM) helps companies save even more money by efficiently shutting PCs off and turning them back on as needed. It optimizes a computer's schedule so that it is only consuming power when in use.

Though energy agencies and analysts often disagree on which methods are the most effective, one aspect they continue to emphasize is the investment in cost-effective PPM software.

- EMA estimates that workstations account for roughly 90 % of the total business power use
- The average PC wastes more than 50% of the energy it consumes (ASE)
- On average over 50% of a company's computers are left on when not in use
- 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 (U.S. EPA)
- The average desktop PC wastes 50% of the energy it consumes as heat, resulting in higher electricity bills and increased greenhouse gas emission (Climate Savers Computing Consortium)
- PC energy costs are the largest single contributor to overall IT energy costs and can account for a 25% of the costs in a modern office building – ranking just behind heating, cooling systems and lighting (Gartner)

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Increasing IT Energy Costs

PCs & monitors lead in power consumption. Overall ICT equipment makes up about 5.3% of global electricity use and 9.4% of total U.S. electricity demand. There are a number of ways to reduce these annual costs, but automated power management is one of the key solutions designed to improve energy efficiency and cut costs. Effective PC power management gives IT managers the ability to control energy consumption by identifying where they are using the most energy, and how to reduce power usage with minimal interruptions to day-to-day

ICT Equipment	World Consumption (Billion kWh)	U.S. Consumption (Billion kWh)
Data Centers (includes cooling)	112.5	45.0
PCs & Monitors	588.0	235.0
Modems/routers/etc.	167.0	67.0
Phone Network	1.0	0.4
Total ICT	868.5	347.4

Green IT presentation by Tim Miles, May 5, 2010. Office of Technology and Electronic Commerce, US Department of Commerce

Turn Off or Power Down PCs When Not In Use and Save $25 to $75 Per PC Per Year.
(US Department of Energy)

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Controlling Technology

Save Money and the Environment

Even though it's typically hidden, the cost of the energy needed to run business PCs can be significant. By taking control of power management and eliminating unused energy costs you can reduce your PC energy bill by up to 40%.

All businesses strive to improve efficiency, however combining this with green strategies like carbon emission reduction can be seen as a challenge. PPM helps reduce CO2 usage while helping an organization's bottom line. This knowledge allows for the development of a sustainable strategy for the future.

It’s no secret that in business every penny counts. Finding ways to control how money is spent is always a top priority. Ever increasing energy prices make this a key focus for most organizations. Start cutting costs and saving money on energy bills with PPM.

- Automated power management
- Save energy costs
- Reduce carbon emissions
- Generate comprehensive and detailed reporting
- Increase equipment life
- Reduce cooling costs
- And, in many cases increase IT workers productivity

Getting control of the energy used to run PCs, whether 50 or 5000, can produce a significant reduction in cost.

Intangible Benefits of PPM Solutions

- **Computers left on unnecessarily continue to generate heat resulting in increased facility heating costs. Simply powering down PCs when not in use saves on facility cooling costs**
- **PCs that are powered down when not in use reduces the possibility of confidential data being accidentally viewed by unauthorized individuals passing by unattended PCs**
- **Extended equipment life may result when PCs are powered down when not in use**

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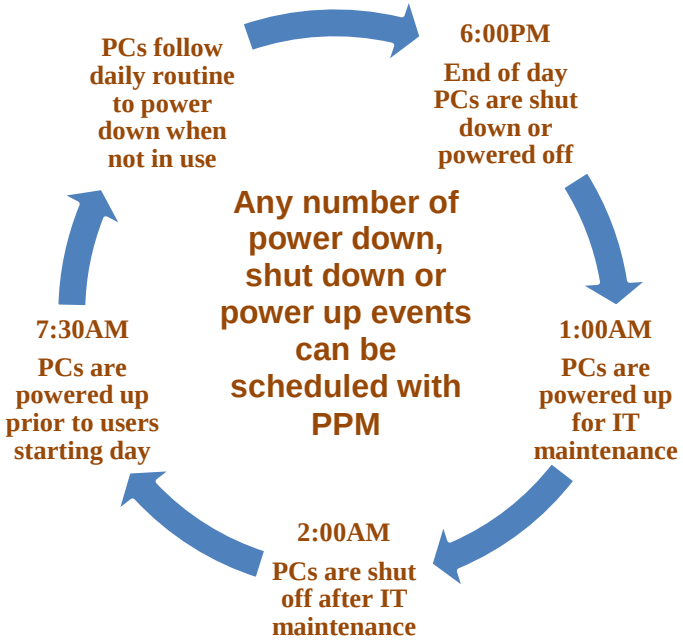
Centralized Management Console

A centralized Microsoft network management console provides automated control over the power saving settings of PCs, including when they should be powered down due to inactivity, time of day or day of the week. PPM software is installed on the Microsoft server and sends the power event commands at the appropriate times to each PC managed on the network. The following example shows possible power events for a typical day. These commands can be for a single PC or any number of PCs in a group.



Comprehensive network wide reporting is a compelling benefit of PPM. The ability to measure at an individual PC, group or network wide level is key to establishing and measuring the success of any energy management initiative.

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Saving Money and the Environment with PPM

Attractive PAYBACK While Doing Something GREEN

Using a PPM software solution is simple and inexpensive. It's easy for organizations of any size to justify the Investment. Also, local Energy Providers often provide incentives or rebates. (Check with Energy Providers in your area)

Forecasted Savings from PPM Solutions

Number of PCs	Annual Energy Savings (kilowatt hours)	Annual Energy Cost Savings*
100	56,088	$5,000
500	280,440	$25,000
1,000	560,880	$50,000
5,000	2,804,400	$250,000
10,000	5,608,800	$500,000
25,000	14,022,000	$1,250,000

US Environmental Protection Agency and US Department of Energy

Forecasted Impact on the Environment from PPM Solutions

Number of PCs	Pollution Prevented: CO2 in tons	Equivalent to: Acres of Planted Trees	Equivalent to: Number of Cars Removed
1	1.8	0.37	0.30
100	179	36.9	29.81
500	895	184.5	149.05
2,000	3,580	738.0	596.20
5,000	8,950	1,845.0	1,490.50
10,000	17,900	3,690.0	2,981.00
250,000	44,750	9,225.0	7,452.50

Three-Year Totals

Turn Off or Power Down PCs When Not In Use and Save $25 to $75 Per PC Per Year.

(US Department of Energy)

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Other Considerations

Remotely Access PCs That Are Turned Off

Quality PPM packages provide functionality that allow a user or IT staff person the ability to access the PC remotely. This is typically done through an interface in the PPC software that provides access through the companies VPN, a secure port or other communication software. It allows the user to enter the network, access the PC, turn it on, and login as normal. This functionality uses Wake On Lan (WOL) or Intel vPro technologies which are available on most PCs and laptops. (In some cases it is necessary to activate this functionality on the PC)

Flexibility Has Long Term Implications

All PPM solutions have the ability to turn PCs and laptops off at set times of the day. But what happens if a user leaves an application open on a PC when the PPM software is going to shut it off?

Some PPM solutions provide functionality to identify critical software applications that fall into the category “never shut down this PC if this application is running”. PPM solutions with this feature provide an extra level of protection to prevent interruptions of a critical application that is running at the time of a PPM energy saving event.

In normal shut down scenarios, there are two primary methods PPM solutions use to handle shut down events.

The first method is to create a script to close down an application left open accidentally. Scripts are custom built for each application on the PC. These custom instructions specify how to save and shut down each application that may be running at the time of a PPM energy saving event. The down side of using scripts is it takes time and money to create all of the scripts. And, continual monitoring is necessary to make sure that operating system upgrades/updates don’t prevent scripts from working properly.

The second method is both more popular and cost effective. It uses Microsoft’s built in functionality to save and close down any application left open on the PC. This method provides protection while minimizing cost and ongoing maintenance. Refer to each version of Windows (2000, XP, Vista, 7) for shut down and power down differences.

Don’t PCs and Operating Systems Already Power Down PCs?

Because of the different versions of operating systems and the many brands of PCs, power settings are commonly not activated or maintained on a regular basis. Also, some power settings may interfere with an IT organization’s software update/patch process. PPM provides a uniform policy for any organization to shut down or power down PCs when not in use. PPM works regardless of the brand of PC, version of Windows, or anything the user has done to disable the power settings.

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