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FREQUENTLY ASKED QUESTIONS: MONITOR POWER MANAGEMENT - A SIMPLE WAY TO SAVE MONEY AND ENERGY

What is power management?

Power management is a process that allows monitors and computers to enter low-power states when sitting idle. The low power modes of inactive computers can involve reducing central processing unit power consumption or spinning down the hard disk. Inactive monitors with enabled power management enter low-power modes by turning off monitor output.

Why should I use power management?

Nationwide, computers and monitors in commercial and industrial (C&I) settings use 32 billion kWh of electricity each year -- over 1.5% of all electricity consumed by the C&I sector. Two simple steps can save more than half of this energy:

- Enabling power management functions that place monitors in low-power mode during periods of inactivity.
- Turning off computers and monitors after work.

How much can my organization save?

Office surveys show that 56 percent of users enable monitor power management, but only 37 percent of users turn off their computers and monitors at night. Using this rate as the baseline, ENERGY STAR estimates that recommended power management practices could save approximately 380,000 kWh per year for every 1,000 computers and monitors. At an electricity cost of 10¢ per kWh, \$38,000 will be saved annually.

Why focus on monitor power management and turning the computer and monitor off rather than computer power management?"

ENERGY STAR has two initiatives, one focused on computers (the CPU, hard drive, etc.) and the other on monitors, which work with the high-tech industry to develop power management specifications. In addition to these initiatives, this effort focuses on providing large organizations with the tools to enable monitor power management and to turn computers off at night. This approach captures almost 80% of the potential computer and monitor energy savings.

Although many individual users have successfully implemented it,



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computer power management enablement in the past has lead to complications with Internet and network connections. Internet access and network connectivity, of course, are standard features of a personal computer in a large organization. If you have enabled computer power management successfully please continue to use it. Stand-alone machines, not connected to the Internet or networks, have been known to be good candidates for enabling computer power management.

The Instantly Available PC (IAPC) Initiative being led by Intel hopes to address many of these issues. The IAPC Initiative is a new way of viewing power management requirements for today's fully featured home or office desktop PC. The goal of IAPC is to have a high-performance, feature-rich PC that is power efficient when active and idle, always connected even when "off," and instantly available to users whenever needed. For more information, please visit the following web site:

<http://developer.intel.com/technology/iapc/>

How can I manually enable monitor power management?

A fact sheet entitled *Instructions for Manually Enabling Energy Saving Features of Monitors* details how end users can enable monitor power management. In addition, ENERGY STAR has developed software that lets network administrators enable monitor power management from a central location. Instructions for enabling monitor power management are also available on-line at www.energystar.gov.

What are the Energy Star requirements for computers and monitor power management capabilities?

Since 1994, EPA has defined ENERGY STAR specifications for computers and monitors that call for lower energy use and require that power management capabilities be enabled when shipped. ENERGY STAR-labeled computers are required to power down to 15 percent of their maximum power use. ENERGY STAR-labeled monitors are required to power down to 15 watts or less after 15 to 30 minutes of inactivity and down to 8 watts after 70 minutes of activity.



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How can I tell if my monitor is enabled for power management?

In Windows 95, 98, Millennium Edition, and 2000, users can check monitor power management status directly by clicking on the *Start* button, then selecting *Settings, Control Panel, Display, Screen Saver,* and *Monitor Settings*. Another way to tell is if the screen goes blank after a period of inactivity, monitor power management is enabled.

How can I tell if my monitor is in an energy-saving low-power mode? How long do I have to wait for my monitor to recover?

Some monitors signal low-power modes with an indicator light on their front. Newer monitors usually turn the power indicator light from green to amber when in a low-power mode. Monitor recovery time, which depends on monitor type, indicates the type of low-power mode. If recovery from the blank screen is instantaneous, the monitor is likely in the first power management mode, *standby* or *sleep*. If 10 seconds or so are required for recovery, the monitor is likely in the second, lower power, mode, *suspend*.

Does monitor power management affect receipt of e-mail or downloading of files from the Internet?

If monitor power management is enabled, the screen may go blank during long download sessions. However, this will not interrupt the download operation. Power management also does not affect receipt of e-mail, faxes, or phone calls.

Does power management affect the useful life of my computer or monitor?

Power management does not have a negative effect on the useful life of computers and monitors. On the contrary, when equipment powers down, it generates less heat, collects less dust, and reduces mechanical stress, promoting a longer and more reliable life for the computer and monitors.

Are computers and monitors with power management more expensive?

No. Computers and monitors with power management are not more expensive than equipment without power management capabilities.



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Why does power management, enabled for my monitor, appear not to be working?

Some monitors, even after power management enablement, may not enter sleep mode because they may be incapable of power management, or a screen saver may be interfering with power management operation.

Why does my monitor wake up a few minutes after going to sleep?

In rare instances, some screen savers can cause this, but the screen saver can usually be reconfigured to avoid this problem. Avoid screen savers that require hard disk access. In addition, some networks can reawaken a computer after a short period of power management. See if the machine manages power correctly when not connected to the network. If so, see if the server or network card can be reconfigured.

What power management options are available for my Windows operating system?

The table below illustrates the different power management options in Windows.

- Windows 95 allows the user to set periods of computer inactivity before the monitor enters standby (a first “sleep” mode that allows for quicker recovery), monitor turns off (a “suspend” mode that takes longer to recover) and hard drives turn off.
- Windows 98 introduced system standby and eliminated the monitor standby setting. System standby allows the system devices, such as monitors and hard disks, to enter a low power state that allows for almost immediate recovery. Because standby does not save your desktop state to disk, a power failure while on standby can cause you to lose unsaved information.
- Windows ME and Windows 2000 added the system hibernate feature, which saves everything in memory on disk, turns off the monitor and hard disk, and then turns off your computer. Upon reactivation, the desktop is restored exactly. It takes longer to bring your computer out of hibernation than out of standby.



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- Windows NT does not support ENERGY STAR power management features that can be activated through the Control Panel.

Windows Operating System's Power Management Option Availability					
Power Management Option	95	98	NT	ME	2000
Monitor Power Management					
Turn off Monitor	Y	Y	N	Y	Y
Monitor Standby	Y	N	N	N	N
Computer /System Power Management					
Turn off Hard Drives	Y	Y	N	Y	Y
System Standby	N	Y	N	Y	Y
System Hibernate	N	N	N	Y	Y

The availability of these options depends on the compatibility of operating system (including APM/ACPI), BIOS, and processor hardware.

How can I save energy if power management is not possible on my monitor?

If power management is not possible, you can switch off the screen when not in use for prolonged periods. For conventional CRT-type screens, this will save about half of the power used by the computer. During non-use hours, such as nights and weekends, you can turn off both your monitor and your computer, which reduces energy use to near zero. Note that newer monitors have a separate wall socket for both the monitor and the computer, so both have to be turned off. In earlier computers, the monitor was usually connected to the computer's power supply, so that the monitor was turned off when the computer was turned off. In addition, the switch on the front of the monitor may be only the standby power switch. Some monitors have their on/off switch on their back or side.



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Do screen savers save energy?

Often including complex images and graphics, screen savers generally do not save energy. Screen savers were developed to prevent the permanent etching of a pattern on older monochrome monitors. Screen savers would prevent this by either blanking out the screen entirely or by displaying a constantly moving image. Modern display screens do not suffer so much from this problem so screen savers are used for entertainment. If you want to use your screen saver in conjunction with monitor power management, set the screen saver “wait time” to less than the period of inactivity before the monitor shuts off automatically.

I use a Macintosh. Can I use power management?

OS 7.5 (and later) systems have two monitor energy-related control panels. Energy Saver 1.0 places an external ENERGY STAR -compliant monitor into sleep mode. The screen control panel can place an internal monitor into sleep mode. The user should check operating instructions for lists of compatible monitors.

I use Windows NT. Can I use power management?

Version 4.0 of Windows NT Workstation does not support ENERGY STAR features that can be activated through the Control Panel. In some computer models, ENERGY STAR features can be activated through the computer's set-up initiative, or bios. You should contact computer support staff for assistance if you're not familiar with bios settings.

Whom Do I Contact to Learn More?

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