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### General Electric Saves nearly \$6.5 M with Computer Power Management Features

***Available on nearly every Windows PC, "sleep" features cut energy costs by \$25-\$75 per PC annually***

GE information technology managers are saving over \$2.5 million a year – nearly \$6.5 million over three years -- simply by activating Windows power management features. That's enough energy savings to light over 23,000 homes for a year. Power management features – also known as "sleep" settings -- automatically place computers and monitors into a low power sleep mode after a pre-set period of inactivity.<sup>1</sup> Touching the mouse or keyboard wakes up PCs within seconds, allowing users to resume work without delay.

Computer power management features have an additional benefit: they're good for the environment. Because saving energy prevents pollution associated with generating electricity, GE's actions will prevent 20,000 tons of carbon dioxide emissions – equivalent to planting 5,600 acres of trees.

While changing desktop software settings in a corporation the size of GE is no small task, the payoff is huge. GE's implementation was aided by forward-thinking IT managers and by a highly structured, well-managed IT infrastructure. The steps that GE IT managers took to realize these impressive savings are summarized below.

#### Testing for Success

GE tests all proposed computer platform changes at their computer lab in Shelton, CT. There, on a test network, IT staff activated Windows power management settings – monitor shut down, system standby, and hibernation<sup>2</sup> – and examined their impact on PCs running Windows 2000 and XP. In particular, GE staff looked at how PC sleep affected core applications and desktop maintenance processes.

#### Software Updates and Patches

"Because we have a large number of laptops that may be off-line at any given moment, we stopped distributing software updates at night. Instead, we patch PCs whenever they log onto the network. This "opportunistic" patching strategy means users don't need to leave PCs powered at night -- allowing us to take full advantage of sleep settings while keeping PCs safe and secure."

– Albert Werner, GE IT Manager

<sup>1</sup> A typical Pentium IV computer uses 50 to 70 watts when active and only 2-3 watts in sleep mode (system standby or hibernate). A CRT monitor uses about 60 watts, and a LCD about 35 watts. Both use only 2-3 watts in sleep mode.

<sup>2</sup> System Standby saves user files and settings to RAM when the PC goes to sleep, which allows the PC to wake up within seconds. By contrast, hibernation saves this information to the hard drive. It takes slightly longer for a PC to wake from hibernation, but un-saved files and settings are recoverable in the event of a power loss. Another power setting, "turn off hard disks," saves only a modest amount of electricity and is not considered a true "sleep" mode.

Testing revealed:

- **Power management did not adversely affect the user's day-to-day experience or productivity.** There were no compatibility issues with the core software applications.
- **Power management did not conflict with network updates.** Because GE has many remote laptop users, it distributes all software patches "opportunistically" -- when the user logs onto the network. By contrast, companies that update computers at night must ask users to leave their computers powered 24/7.
- **Power management could be centrally managed.** GE used Computer Associates Unicenter Asset Management to distribute the necessary registry key changes, and, in the case of Windows XP, lock power management settings on user machines.

### **The Rollout Across GE**

After a successful evaluation at the computer lab, GE IT manager Albert Werner obtained approval from his CIO for a staged rollout of the new power management settings. "The pitch was simple. Power management would save money, not adversely affect day-to-day operations, and could be implemented quickly and easily," said Mr. Werner. "A no-brainer."

GE decided to begin activating sleep settings on 4800 PCs at GE's corporate headquarters. Prior to making any changes, IT staff educated end users via the "Inside GE" corporate news portal and an office-wide email. Although they anticipated numerous calls to the IT help desk following implementation, the calls never materialized. "We did not get one complaint across 4,800 users," said Mr. Werner.

Other business units – Consumer & Industrial Equipment Services, Transportation, Energy, and Rail – have followed GE corporate's lead. To date, the company has activated power management settings on approximately 75,000 PCs. The specific settings are:

- Turn off monitor after 15 minutes of inactivity
- Turn off hard drives after 30 minutes
- System Standby after 2 hours
- Hibernation after 3 hours

### **For More Information**

To learn how to activate power management features, please visit

[www.energystar.gov/powermanagement](http://www.energystar.gov/powermanagement) or contact Steve Ryan, US EPA ENERGY STAR Program: 202-343-9123, [ryan.steven@epa.gov](mailto:ryan.steven@epa.gov).