

Being Green and Saving Green: Making the Case for PC Power Management

By Dave Ascani, CFO, Persystem Software

Being Green and Saving Green: Making the Case for PC Power Management

Whether your reasons are economical or ecological, PC power management can be a significant part of your organization's energy and environmental initiatives.

Growing public concern over the environmental impacts of e-waste and power consumption has led many companies to seek new ways to implement 'greener' solutions into their everyday processes. While some are grand in scope, there are several simple things that can be done to increase efficiency across the organization. Powering down your company's computers from a central console can go a long way towards being and saving some green.

Annually, some have estimated that more than 30 billion kilowatt-hours of energy is wasted because people simply do not power down their computers¹ (1). Enforcing a PC power management policy not only dramatically reduces energy costs, but can also significantly assist in reducing an organization's carbon footprint.

What is PC Power Management?

Power management is usually associated with facilities management but in recent years has become a significant issue for IT management.

When most people think of power management, they tend to think in macro terms and envision data centers and server farms. But even with the costs associated with powering, heating and cooling a modern data center, a recent report by analyst firm Enterprise Management Associates (EMA) indicates that workstations still account for roughly 90% of total business IT utilization².

While simply asking users to power down their PCs at the end of the day is a quaint idea, in reality it takes a true PC power management plan to manifest the type of results that really impact your bottom line. Experienced IT managers have found that even with a company policy to shut down computers at night, the best they can expect to achieve is a 40% compliance rate even with an advertised company policy. Let's face it...users don't take power management seriously.

Impact the Bottom Line?

For the sake of example, let's consider a mid-sized organization, Acme Widgets. Acme provides half of its 400 employees with a mid-range tower-style desktop PC and monitor from a major manufacturer. The company bought these new 2 years ago as part of an IT upgrade initiative and has been quite happy with

¹ *Localcooling.com*, Jan 23, 2009

² *ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™); Green Computing: Using IT Automation to Achieve Energy Efficiency*, March 2008

them. According to the manufacturer’s specs, you can expect the desktop PC alone to use an average of 0.25 Kilowatts per hour, so we will use that as our bench mark.

At first blush, this might not seem like an overwhelming power draw, but it is comparable to leaving two 125w light bulbs burning all night, or having a 47 “ flat screen TV and watching it a little more than 5 hours a day³. Higher-end PCs can rival electric hedge trimmers and washing machines for energy efficiency.

If Acme were to implement a power management policy that shut down all their computers for 12 hour nightly, and for all 48 hours on weekends, they could save about 3 kWh per PC, per night. Again, nothing earth shattering on an individual basis, but with the national average cost of electricity at just under a dime per kWh, the resultant savings add up to \$11.29 per month, per PC (Figure 1)⁴, or well over \$100 per PC per year.

Figure 1. Potential Cost Savings Achieved per PC with Automated PC Power Management Solution
Example Model - Dell Mid-Range Tower with 250 watt power supply

	Weekday Analysis		Weekend Analysis
1	Number of PCs	1	Number of PCs
0.25	kWh(Dell GX270 Tower)	0.25	kWh (Dell GX270 Tower)
12	Weekday hrs Power Off	24	Weekend hrs Power Off
3	KWh saved daily	6	KWh saved daily
22	days/month	8	days/month
264	Weekday hours off per month	192	Weekend hours off per month
66	KWh saved per month	48	KWh saved per month
\$0.099	KWh cost	\$0.099	KWh cost
\$6.53	Monthly Cost Savings	\$4.75	Monthly Cost Savings

\$11.29	Total Monthly Cost Savings	
----------------	-----------------------------------	--

That’s a cost savings of over \$2,200 per month or \$27,000 annually for Acme Widgets’ 200 desktop PCs (Figure 2.)

Figure 2. Potential Annualized Cost Savings Achieved with Automated PC Power Management Solution in 200 Desktop Implementation
Example Model - Dell GX270 Tower @ 250 watts/hour

Weekday Savings	Weekend Savings	Total Monthly Savings per PC	Potential Annual Total Savings
\$1,306.80	\$950.40	\$2,257.20	\$27,086.40

³ Cnet Energy Efficiency Guide: “The chart: 150 HDTVs’ power consumption compared” Philips 47PFL9732D based on an annual average of 5.2 hours a day and off for 18.8

⁴ Electric Power Monthly with data for January 2009 - Report Released: April 22, 2009
 Average Retail Price of Electricity to Ultimate Customers: Total by End-Use Sector
http://www.eia.doe.gov/cneaf/electricity/epm/table5_3.html

In a real world application, Seminole Community College implemented a PC Power Management policy using an automated system developed by [Persysent Software](#). By automating the powering down of approximately 1,000 of the schools PCs every night, Seminole Community College in Sanford, Fla., estimated it trimmed more than \$65,000 from the school’s annual power bill, and used those savings to hire an additional instructor for their programs.

It’s Easy Being Green

While efficient use of resources is a top priority for any organization, the need for sound energy and environmental policies has never been more important. Whether it is compliance with new company guidelines, government regulations, or achieving “green” standards, or expectations, set by partners and customers, centralized PC Power Management can have a far more dramatic environmental impact than you may think.

The obvious benefits of saving energy can be seen in a lower energy bill, but improving energy efficiency can also have a significant impact on reducing your organization’s carbon footprint.

Based on the calculations above, we know that shutting down a single PC saves Acme Widgets 114 KWh per month. According to published EPA reports, the national average carbon dioxide output rate for electricity is approximately 1.33 lbs of CO2 per kilowatt-hour⁵.

Using these calculations, the CIO of Acme Widgets can reduce the amount of carbon dioxide emissions required to run their 200 PCs at nights and on weekends by more than 30,000 lbs. per month. Annualized, *that’s a reduction of nearly 364,000 lbs. of CO2*, by simply implementing an automated PC power management solution. **(Figure 3)**

Figure 3. Potential CO2 Emission Reduction Achieved with Automated PC Power Management Solution

Number of PCs	200
KWH saved per month	22800 kWh
Average carbon dioxide output rate per kW of electricity used ⁵	1.33 lbs.
Reduction in CO2 discharged monthly	30,324 lbs
Reduction in CO2 discharged annually	363,888 lbs

If you consider that running one of our example PCs for 24 hours straight means putting 8 lbs. of CO2 into the atmosphere, then you begin to get a feeling for how PC power management can have a significant ecological impact. In addition, if the federal government implements a “cap and trade” system, companies could soon be required to reduce their carbon footprints, and initiatives like this could become an important part of how to achieve those new goals.

Proper PC power management has other benefits as well. For example, proper PC power management has been shown to improve the lifecycle of the typical desktop. According to a 2009 report by Forrester

⁵ EPA Greenhouse Gas Equivalencies Calculator Calculations and References
<http://www.epa.gov/cleanenergy/energy-resources/refs.html>

Research, powering down may actually reduce the amount of dust that gets into the system, reducing the efficiency of the fan and resulting in overheating and damage to sensitive circuitry and even the hard drive⁶.

Great! What Can I Do?

1) Don't rely on your screen saver

For years, people have believed in the "great screen saver myth" thinking that somehow having a simulated fish tank on their screen when they are away equates to saving energy. Screen savers do nothing of the sort. As their name indicates, they were originally designed to extend the life of older monochrome monitors by eliminating the etching or "burn in" of images and patterns. Since modern monitors are not susceptible to this problem, running a graphic-heavy screen saver probably uses more energy than an idle PC left on⁷.

2) Install an Automated PC Power Management Solution

While shutting down a single PC, or even a work room manually, may be considered a small task, it lacks efficiency in the long run and is virtually impossible to do every night by even the most dedicated staff. Company wide shut-down policies help, but sick days, vacations and simply taking off early on a Friday or running to catch the bus can all become obstacles to proper PC power management.

The solution is to install an automated shutdown technology like [Persystem Suite](#) from Persystem Software. Inexpensive, simple to set up and easy to use, this system automates PC shutdown and helps enforce power management policies in an orderly and consistent manner. Of equal importance, it can help IT managers measure and quantify results, something that will make the CIO and CFO very happy.

3) Create, Promote and Implement a PC Power Management Policy

Like any new initiative, PC power management may face some initial opposition. However most of it will be based on mis-information and plain old bad habits. Clear communication of your plan will help smooth implementation.

Once you've installed an automated power management solution, you should establish a "shut down" policy then clearly communicate the benefits of this policy to employees. You can use the numbers in this article as an example, or do your own calculations with a simple ROI calculator provided by Persystem Software [here](#) .

With a well thought out strategy, a few simple policy and communication changes, and an automated PC power management application, you can help your company be green and save green at the same time.

⁶ Forrester Research, "How Much Money Are Your Idle PCs Wasting? PC Power Management Best Practices And Software Can Save Millions", December 5, 2008

⁷ EPA Energy Star Program, "[Power Management: Frequently Asked Questions](#)"
http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_faq

About the Author:



Dave Ascani, Chief Financial Officer, Persysent Software

Mr. Ascani has over 25 years experience in financial management, operations and technology leadership positions across a wide range of industries, public and private, international and domestic. Before coming to Persysent, he was Director of Finance and Operations at Intuit's Information Technology Solutions division and has served as a Director of Information Services for two large public companies. Mr. Ascani has a diverse CFO background, has taught undergraduate courses at the University of Maryland and served 20 years in the US Air Force before retiring as comptroller for air force operations in Southwest Asia.