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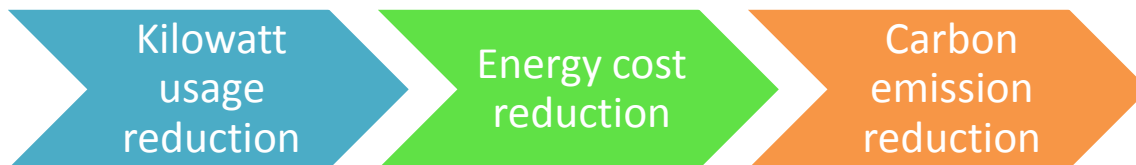
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m-Objects specializes in developing innovative products and services to reduce energy and resource footprint thereby reducing cost, creating value and mitigating risk for a low carbon economy.

Convert your energy savings into carbon credits.



Green IT Solutions



Use Green IT tools and software solutions to:

- Measure kilowatt usage
- Change to energy efficiency processes
- Energy cost reduction
- Carbon emission reduction

Some of the techniques to reduce power consumption and cost include:

- Intelligent idling of hardware to conserve power
- Customizable power plans to refine power settings
- Centralized management of power settings

The assessment is performed using Assessment & Configuration and Planning Toolkit. The organization can realize energy and carbon footprint savings within client and server operating system environment in a very short time.

Opportunities	Annual energy used (kW)	Amount of energy saved for Annum (kW)	Project Cost (A\$)	Energy Savings (A\$) per Annum	Other Business Savings (A\$) e.g. Waste	Payback (in years)
1 IT equipment (e.g. PC)	535	356	\$25	\$50	\$5	6 months
1000 IT equipment	535,000	356,000	\$25,000	\$50,000	\$5000	6 months

Comparison of Energy and Environmental Factors for Client Machines

Energy and Environment Factors	Not Power Managed	Power Managed
Energy draw per year during non-use (kWh)	412.72	24.64
Cost per year of non-use hours (USD)	42.63	2.55
CO2 emissions (tons)	0.29	0.02

Power management of Client Machines

Windows XP Power Management

- Control the power management features of display and hard drive
- Features to lower energy use such as Stand By and Hibernate
- Windows XP with SP2 – deploy Group policy preference client side extensions for windows XP
- Power management tool EZ GPO

Windows Vista and Windows 7 Power Management

Centralized manageability for IT pros:

- Power settings that are per-computer
- Powerful command-line configuration tool (powercfg.exe)
- Group Policy support for all inbox power settings

Default settings optimized for best user experience and energy savings:

- A default time out that automatically blanks the display
- A system idle timer for entering Sleep
- Dynamic processor power management for capable desktop and laptop hardware
- Default Off that is actually Sleep (Start menu, sleep power button, button, and lid switch)

Performance:

- Immediate responsiveness to Sleep or Resume

- Consistent Sleep resume performance by using Microsoft Superfetch™ advanced memory management technology
- Enhanced Plug and Play performance

Reliability:

- Applications, services, and drivers that cannot block Sleep transitions
- Improved idle detection that helps ensure that a computer awakened from the network or for scheduled activity returns to Sleep after 2 minutes of idleness

Built-in diagnostics for Sleep and Resume that:

- Return reliability data to Microsoft if a user joins the Customer Experience Improvement Program
- Enable Microsoft to proactively address Sleep reliability issues if they arise (that is, post-release driver updates that impact Sleep and Resume)

Hybrid Sleep (on desktops):

- A system that resumes from disk if power is lost in Sleep (nonvolatile, like Hibernate)
- Notebooks do not require hybrid sleep because they have a battery for reliability
- A normal Resume from memory (fast, like Standby)
- A combination of Standby (Suspend to RAM) and Hibernate (Suspend to Disk)

Simple "Off" metaphor:

- No requirement for users to distinguish between Standby and Hibernate—they merely choose "Sleep" and it just works

Energy Star Guidelines for Windows XP and Windows Vista

The Energy Star program specifies guidelines for computer software configuration for Windows client operating systems. These guidelines cover two main categories of operation: display low power mode and system hibernation. The following table outlines these settings.

Category	Setting
System Standby or Hibernate	After 30 to 60 minutes of inactivity
Display Sleep Mode	After 5 to 20 minutes of inactivity
Screen Savers	Disabled
Screen Saver Time Out	If enabled, the wait timeout period should be less than the display sleep mode

You can run the Assessment Configuration and Pack for Energy STAR Power Management to assess display and hibernation settings on Windows XP and Windows Vista OS.

Power management of Server Machines

Windows Server 2003 Power Management

Microsoft Windows Server 2003 supports processor power-saving technologies, which can be enabled with a simple change to the Windows active power policy. You can get your server configured like a laptop to save power.

Windows Server 2008 Power Management

The following features simplify power management in Windows Server 2008 on a server by server basis or can be managed centrally across servers and clients using Group Policy settings.

- ➔ Advanced Configuration and Power Interface (ACPI)
- ➔ Processor power management (PPM) features
- ➔ Support for processor performance states (P-states)
- ➔ Processor idle sleep states on multiprocessor systems.

Virtualization - In windows server 2008, the hypervisor-based virtualization technology, Hyper-V makes it possible to consolidate servers onto much smaller number of physical machines, while significantly reducing power consumption.

Opportunities	As Is - Physical Servers	To Be - Physical Servers with Hyper - V	Savings
Virtualization	20	5 servers with 4 virtual machines	USD 6,713.32 ⁱ

Contact m-Objects

Contact us today for more information on the range of services and solutions provided by m-Objects. We provide a free on-the-spot consultation.

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ⁱ Study by Microsoft projected saving around USD 6,713.32 if 20 physical servers were move to 5 physical servers with Hyper-V with 4 virtual machines each.