Is Your PC Asleep?

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Toward a Standardized User Interface for Power Management

Simply put ...

Our **goal**:
To save energy, increase enabling rates of existing power management capability in office equipment.

Our **method**:
Make power management more consistent and intuitive to users across all office equipment (via a voluntary standard).

What's At Stake?

The ENERGY STAR program already saves consumers over $2 billion per year in the U.S. through the use of power management. However, an additional $1.3 billion could be saved—with global savings several times larger.

We Have Failed To Exploit Over A Third Of Potential Power Management Savings

Office Equipment energy use (TWh/year)

No Power Management	92.6
Today	65.5
Potential (100% Enabling)	48.8
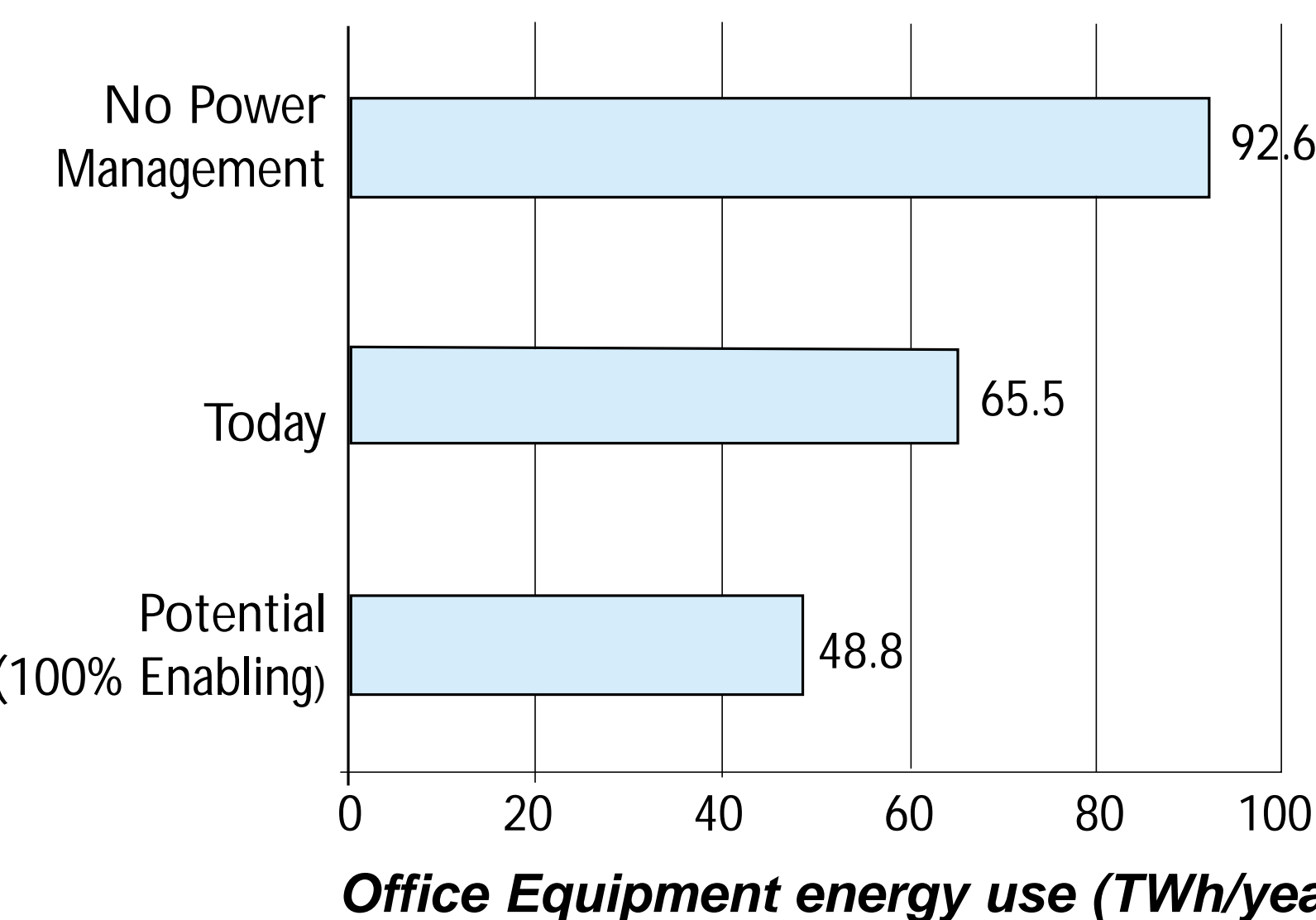
The potential savings from functioning power management is increasing in tandem with the:
• Stock of office equipment, especially PCs and monitors,
• Range of devices with power management capability,
• Number of hours per year each device is on, and
• Difference between active power and low-power levels.

Our goal is to capture a large portion of these savings.

What Is Enabled Now?

Savings depend on today's enabling rates. Our estimates show that rates for all types could improve, but PC enabling rates are particularly low.

PCs Have The Lowest Enabling Rate

| Printers	Copiers	Monitors	PCs
80%	70%	60%	25%
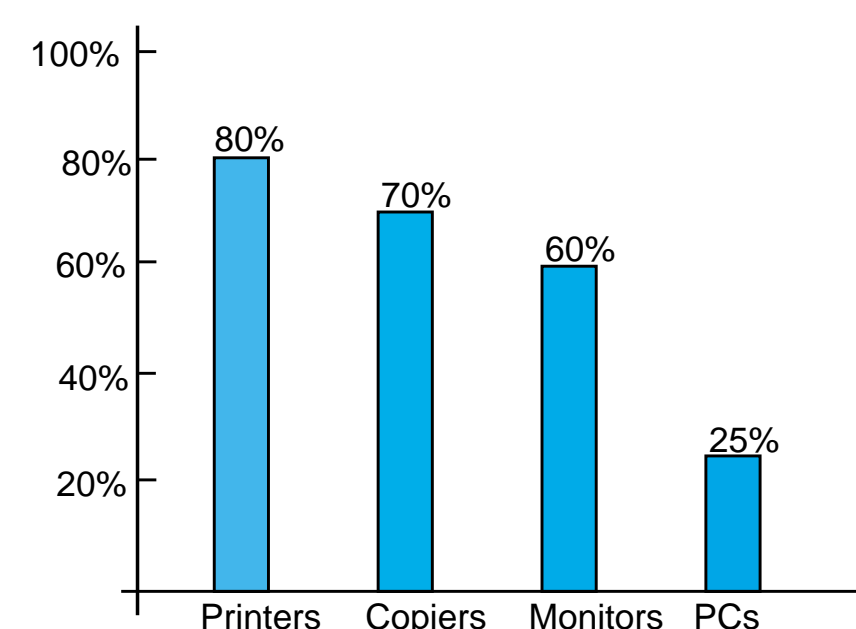
Why So Much Disabling?

On most office equipment, the power management controls are simply Hidden, Absent, or Confusing.

Hidden

On many devices, the controls are difficult or impossible for the average user to find.

Absent

Most PCs don't indicate to the user when in a low-power mode, so many users are unaware that the PC can sleep, can't tell if it is working or not, and don't realize that PC power management is distinct from that for the monitor.

On

Low-Power
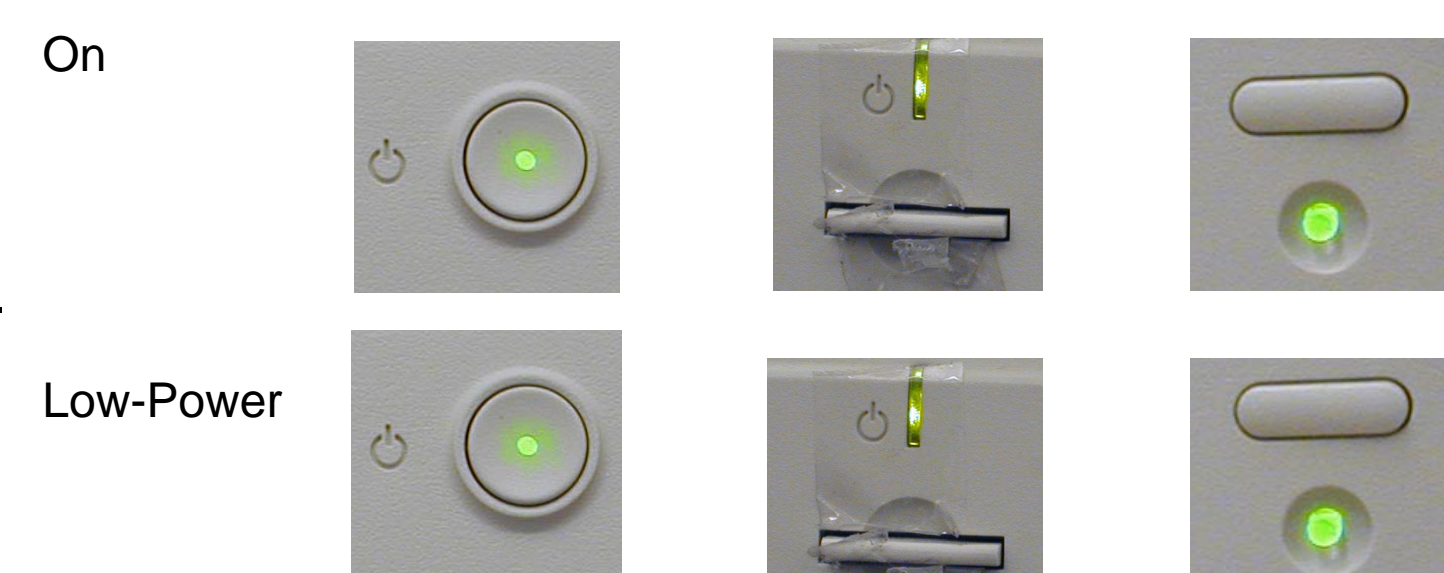
Confusing

The power management controls on many PCs are complex, mystifying, and interact in unclear ways.

From device to device, many terms, symbols, and indicators change their meaning or are not clear to begin with.

POWERSAVE MODE
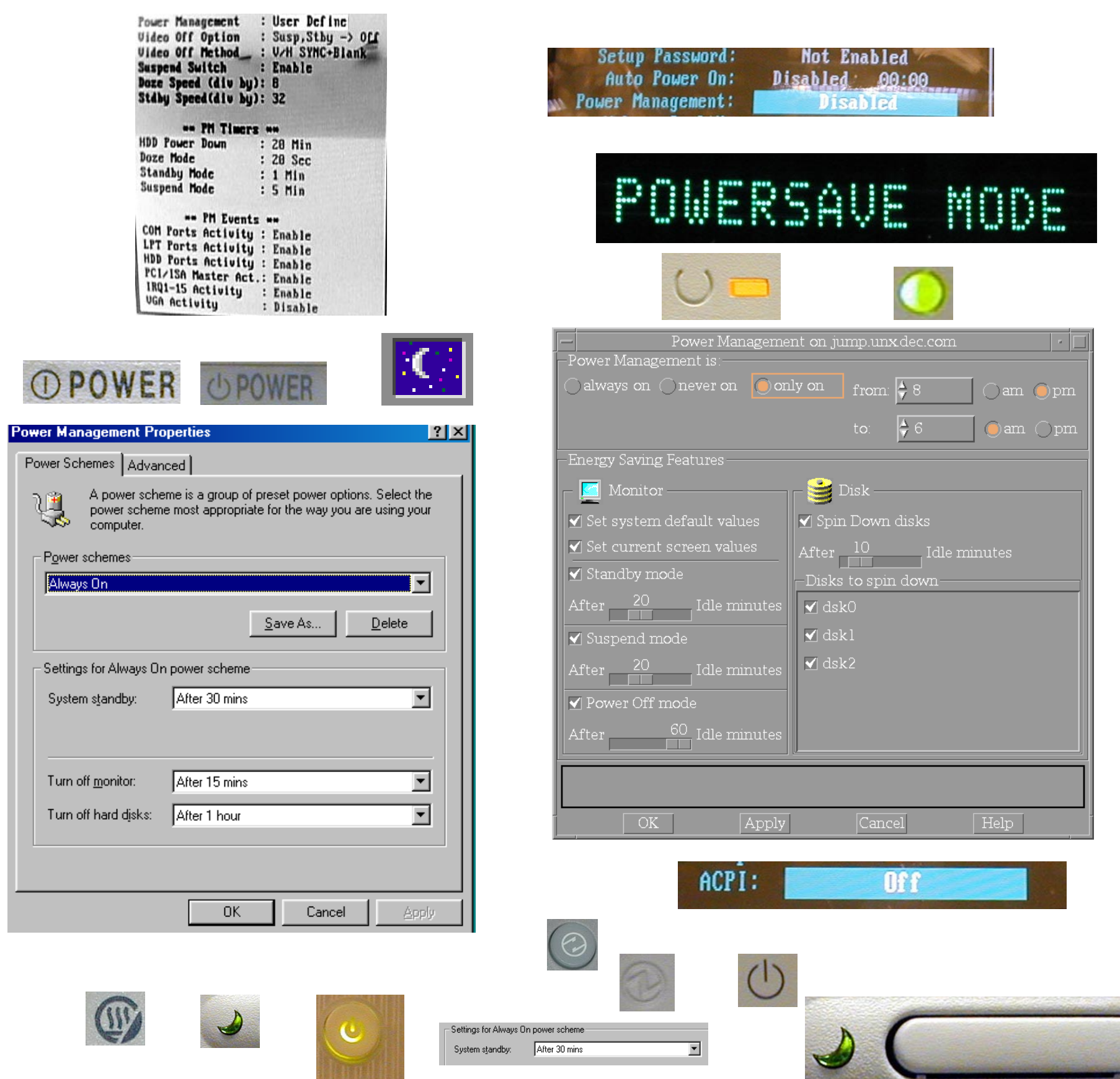
"Infectious" Disabling

Power management can be disabled in many ways—through equipment shipped that way, software or hardware upgrades, debugging, incompatible hardware or software, and temporary disabling for presentations. Once disabled, it usually stays that way. A machine with disabled power management will perform its functions no less effectively. No problem is apparent — just wasted electricity.

What About Those Terms?

Office workers encounter a dizzying number of power management terms.

On, Ready, Active, Idle, Standby, Doze, Suspend, Sleep, Deep Sleep, Low-Power, Energy-Saver, Power-Saver, Hibernate, Energy Star Mode, Energy Star Cool-down Mode, Preheat Mode, Conservation Mode, Energy Save Time, Weekly Timer, Delay Timer, Idle Timer, Power Save Interval, Energy Star Timeout, Period of Non-use, Activity, Inactivity, Automatic Power Down, Auto-off, Soft-off, Off, ...

How does 'doze' compare to 'idle'?
Is 'suspend' a higher or lower power level than 'sleep'?

Some of these are synonyms and some have different meanings from device to device. More people would be able to correctly and confidently use power management if terms used in interfaces were fewer, clearer, and more consistent.
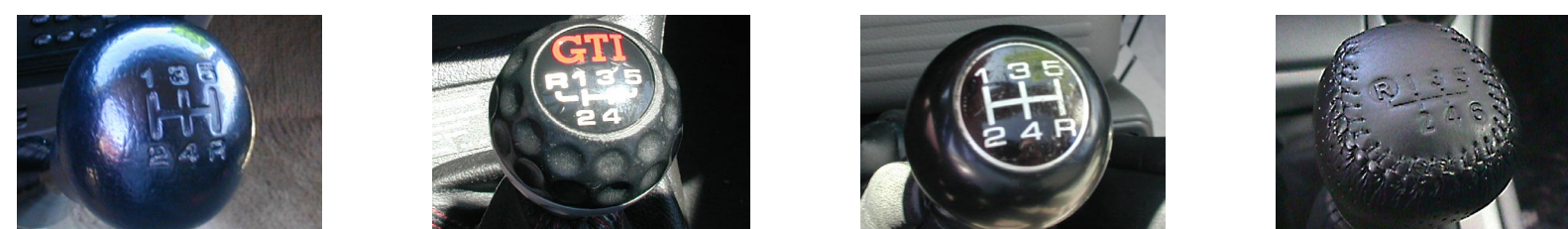
Society Benefits From Standard Controls

When they work well, we pay them little attention — they are simply part of the fabric of our lives. Consider:

Telephone Number Pads

Gear Shifts

These interfaces are not identical, but simply similar. There are many variations—for aesthetics or function—but the basis of standard elements provides ready understanding and easy use.

Nearly Standardized?

The power indicator on computer monitors has both widespread use and clear meaning. Most monitor power LEDs are **green** when the monitor is switched on, **amber** (orange) when in a low-power mode, and *off* when switched off. This doesn't differentiate among low-power modes, but provides a clear, first-order indication of power status.
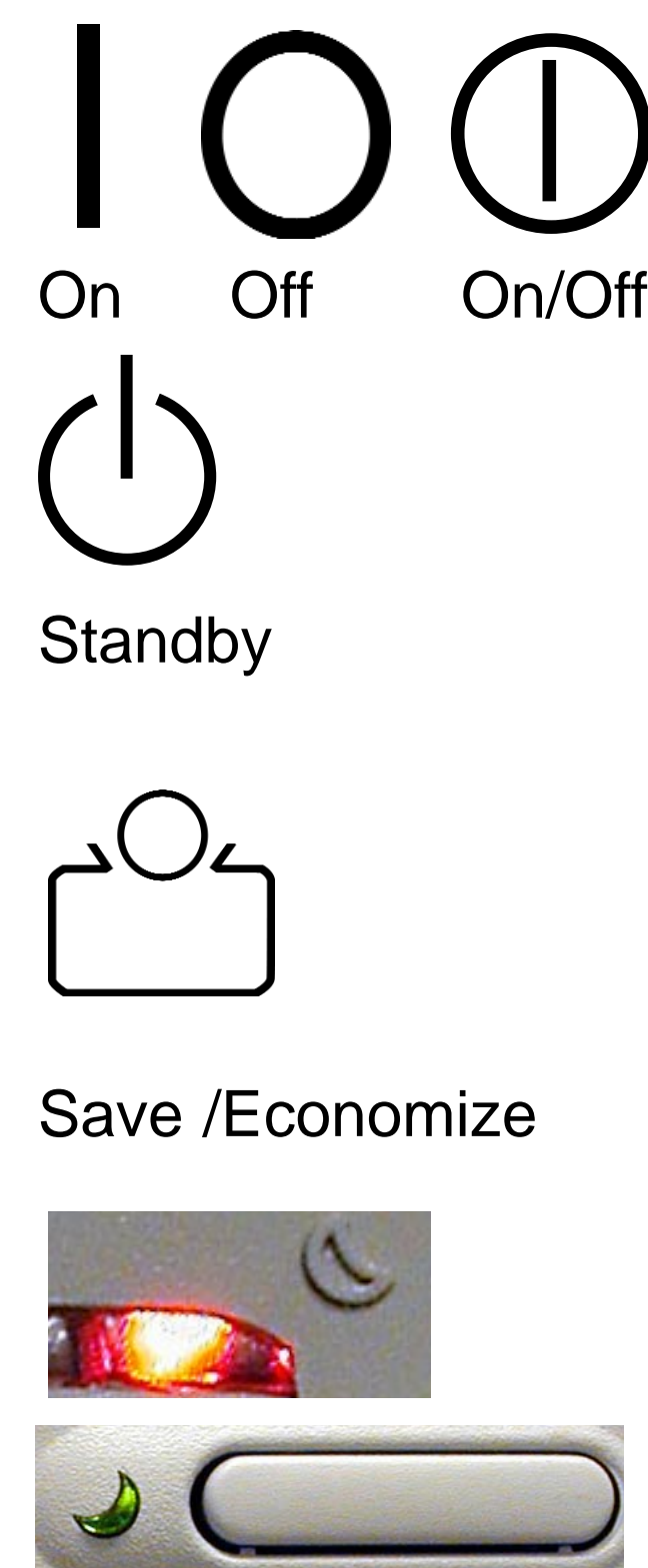
On

Low-power

Off

Standard Symbols For Power Management — Not There Yet

International standards bodies have defined 'On' and 'Off', plus their combination (for 'On/Off' switches)

On   Off   On/Off

A 'Standby' symbol also combines On and Off. Unfortunately, the On/Of, Off, and Standby symbols are often used interchangeably, so their meaning is not distinct in practice.

Standby

There is even a symbol for 'save / economize'", but it is rarely used. Besides, what does it mean?.

Save /Economize

Some PCs use a 'moon' symbol to indicate sleep, which merits consideration as a standard.

Our 2-Year Plan

We want to help manufacturers agree on standard user interface elements. We're doing the research and coordination work to allow this to happen, with comments and advice from a Professional Advisory Committee. For this project to succeed, we need the active participation of manufacturers, standards organizations, and others.

Our project includes detailed data gathering, focusing on review of the interface elements present in existing office equipment. We will also draw on the user interface literature, and the experience of interface designers and typical users.

Project conclusions will be revised until they gain a broad consensus. Finally, the proposed standards will be brought to implementing organizations.

How Can I Participate?

Contact us. We will send you periodic project updates via email, and welcome your insight and comments.
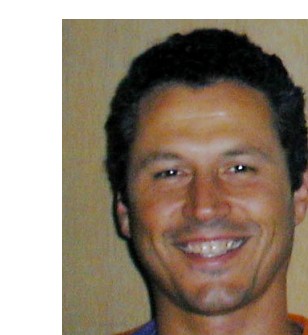
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