

# ELIMINATING ENERGY WASTE IN COMPUTER NETWORKS

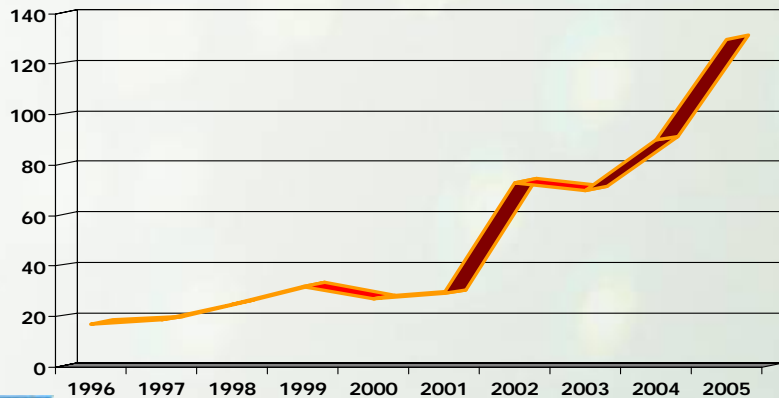


**VERDIEM**  
Power Management for PC Networks

# The Problem and the Opportunity

- **Personal Computers and their monitors consume between 5% to 13% of all electricity consumed in an office environment** - US Department of Energy and Energy Information Administration
- **PCs and Monitors consumed over 36 terawatt-hours (TWh) in 2000 - 66% of that electricity is wasted** - Arthur D. Little
- **Only about 6% of users enable power management functions on their PCs** - US Department of Energy

## CPU Energy Consumption



Tom's Hardware Guide, 2005



## Power Draw (watts)

Device	Active	Suspended /Standby	Off
Desktop PC	70.0	6.0	1.5
CRT Monitor (17 in.)	90.0	9.0	4.0
LCD Monitor (17 in.)	35.0	4.8	0.8

# The IT Energy Gap

## Pay

### Energy/Operations

- Heating & Ventilation
- Windows & Insulation
- Lighting
- Overall Plug-load
- No line item for IT energy consumption

*Operational responsibility  
for energy and energy  
efficiency*

## Consume

### IT

- System Management
- Security
- Asset Management
- S/W Distribution
- May or may not be responsible PC plug load
- No line item for IT energy consumption

*Consumer of 5% - 13% of  
energy. Can I do  
anything about it?*



# The IT Energy Gap : IT Can Contribute to Energy Efficiency

**Pay**

**Consume**

## Energy/Operations

- Heating & Ventilation
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- Lighting
- Overall Plug-load
- No line item for IT energy consumption

*Operational responsibility for energy and energy efficiency*

## IT Energy Management

- PC Power management
- Servers and server farm power consumption
- Peripheral power consumption
- Energy efficient power supplies

## IT

System Management  
 Priority  
 Management  
 Distribution  
 may not be responsible PC load  
 item for IT energy consumption  
 consumer of 5% - 13% of energy. Can I do anything about it?



# PC Power Management Solution : Key Functional Requirements

- Transition PCs to lower power states based on time of day and/or user activity
- Enhanced & centralized IT control of power management
- Functionality to balance efficiency with user productivity
- Ability for IT to seamlessly roll-out patches, bug fixes at any time
- Ensured policy persistence -- automated communication
- On-going visibility - centralized interface & management tools
- Measurement and Verification (M&V)
- Easy, support & install
- Multi-version operating system support



## Energy & Cost Savings

### Consistent and Repeatable Savings:

- 200 kWh per PC per year in electricity savings on average
- \$20 / PC every year in cost savings on average
- **Case Study: California State University (10,000 PCs):**
  - Annual total PC energy cost: **\$780,000**
  - Annual cost savings: **\$240,000 (\$24 per PC)**
  - Annual energy savings: **2 million kWh**
  - Annual CO2 reduction: **3.2 million lbs**
- **Case Study: Morgan Stanley Corp.**
  - Energy Reduction: **58.9 %**
  - Average Annual Energy Cost Per PC: **\$ 73.96**
  - Average Annual Energy Cost with Surveyor: **\$ 30.36**
  - Cost savings: **\$ 43.60**
  - Cost SAVINGS: **58.9 %**



\* Based on \$0.12 per kWh rate

\*\* Before any utility rebates

## Federal Mechanisms In Alignment

- **Directive for 99% Energy Star Enabled PCs**
- **Environmental Stewardship Standards**
- **OMB Scorecard**
- **Measurement & Verification is critical**

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

## Verdiem Can Help

- **One option for PC power management**
- **Over 300,000 end users saving energy today**
- **Adding 10,000 users every month**
- **Energy Star Partner and a DOE Energy “Rebuild America” Premier Partner**
- **Partner with all national ESCOs**



**VERDIEM**  
Power Management for PC Networks

**“Network software that enables power management for networked office equipment has the greatest energy savings potential of all measures selected for study.”**

*Energy Consumption by Office and Telecommunications Equipment in Commercial Buildings, Volume II: Energy Savings Potential -- Arthur D. Little, US Dept. of Energy 12/04*

THANK YOU

**Kevin Klustner**  
**CEO and President**  
**p: 206.838.2800**  
**e: [kevink@verdiem.com](mailto:kevink@verdiem.com)**



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