



# Department of State

## Green IT Strategies

*GreenGov Symposium*  
*October 5, 2010*

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# Green IT Strategies

# Department of State Initiatives

*IT departments are the largest single users of power in most organizations. At the Harry S Truman Building alone, IT uses 50% of the power load – a whopping 31,632,632 kilowatt hours per year – the equivalent of powering 3,555 US households each year.*

## ***How Are We Reducing Our Environmental Footprint?***

- Green Information Technology Acquisitions
- Data Center Consolidation and Server Virtualization
- Thin Client Deployments
- Enterprise Power Management
- New Printing Strategies

# Green IT Purchasing



- ENERGY STAR® 5.0
  - Establishes efficiency requirements for all modes of operation, which insure energy savings when a computer is active and running basic applications, and when it is in standby mode
- EPEAT (Electronic Product Environmental Assessment Tool)
  - A system to help purchasers in the public and private sectors evaluate, compare, and select desktop computers, notebooks, and monitors based on their environmental attributes

The EPEAT BRONZE logo, featuring a brown circle with "EPEAT." above it and "BRONZE" below it.	Product meets all 23 required criteria.
The EPEAT SILVER logo, featuring a grey circle with "EPEAT." above it and "SILVER" below it.	Product meets all 23 required criteria plus at least <b>50%</b> of the 28 optional criteria that apply to the product type being registered.
The EPEAT GOLD logo, featuring a yellow circle with "EPEAT." above it and "GOLD" below it.	Product meets all 23 required criteria plus at least <b>75%</b> of the 28 optional criteria that apply to the product type being registered.

# Data Center Virtualization



*ESOC West – Planned LEED Gold Certified Facility*

- This year, the Department expects to save 4.76 million kilowatt hours, or 3,195 tons of CO<sub>2</sub> through its data center virtualization initiative.
- Server consolidation through virtualization can yield more than 25% in energy savings.
- The Department's goal is for 75% of all systems in the new data center to be deployed on a virtual or blade platform.

# Virtualization Savings

## GREEN CALCULATOR

Reduce Energy Cost & Environmental Impact with Virtualization



How many servers\* do you plan to virtualize? 720 servers 

\*Calculations are based on the power consumption of a standard 2 CPU server

	Physical	Virtualized	Savings
<b>Energy Savings:</b>			
Annual Server & Cooling Energy Usage (kWh)	5,810,508	1,044,835	4,765,673
<b>Cost Reduction:</b>			
Physical Hardware <sup>1</sup>	\$ 4,680,000.00	\$ 900,000.00	\$ 3,780,000.00
Annual Energy Cost <sup>2</sup>	\$ 581,050.80	\$ 104,483.50	\$ 476,567.30
<b>Environmental Impact:</b>	Planting Trees	Cars off the highway <sup>3</sup>	Annual CO2 Emission(lbs) <sup>4</sup>
These savings are equivalent to	14,400	1,080	6,390,768

<sup>1</sup> Assumes \$6,500 per 2 CPU server

<sup>2</sup> Assumes \$0.10/kWh, and 550 Watts per 2 CPU server

<sup>3</sup> Assumes 12,000 miles per year and 20 mpg.

<sup>4</sup> Assumes 1.341 lbs CO2 emission per kWh.



# Benefits of Thin Clients

- Thin clients consume only a small percentage of the power used by a traditional PC, and have the potential to yield significant energy savings
- By the end of FY2010, **8,187** thin clients will have been deployed, providing:

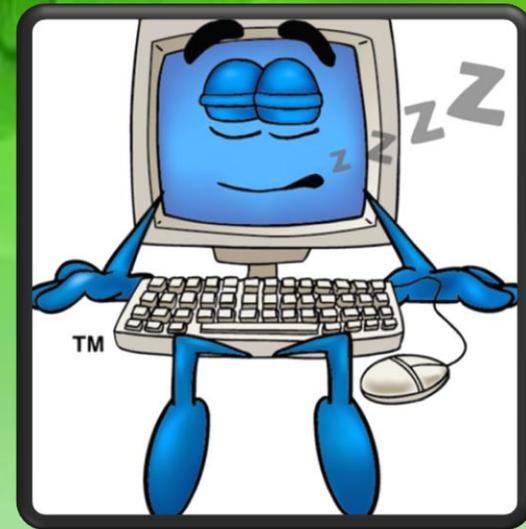


- Thin clients offer the potential for a longer life cycle, produce less electronic waste at end of life, and offer increased security

# Enterprise Power Management

The Department of State purchased the 1E Power Management Suite as its enterprise solution.

- License covers all unclassified workstations (80,000+).
- Power costs and carbon emissions are reduced through the scheduled shutdown of workstations.
- IT security posture is enhanced with Wake-On-LAN capabilities, allowing workstations to be powered on for security scanning, scheduled maintenance, and security patching.
- Provides a robust reporting environment to accurately document power and carbon consumption and savings.



# Security Updates and Patches Scheduled

## Round the Clock Power & Patch Management

Unused PCs are switched off according to schedule

19:00



17:00

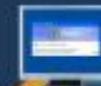


Checks if users have left & switch off PCs

PCs not being used are switched off



03:00



Switch on PCs to apply security update

04:00



PCs switched off

07:00



Switch on PCs ready for users to start work

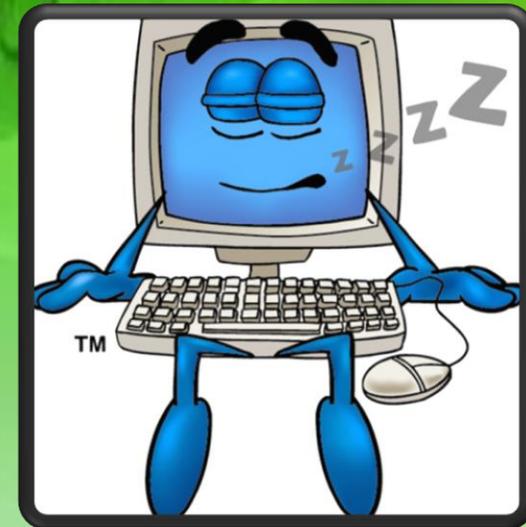
# Power Management Savings

## Estimated Cost Savings by implementing a Power Management Solution at the Department

Always On Costs	\$6,023,962
Costs After Implementation	<u>-\$4,158,919</u>
<b>Savings Total</b>	<b>\$1,865,043</b>

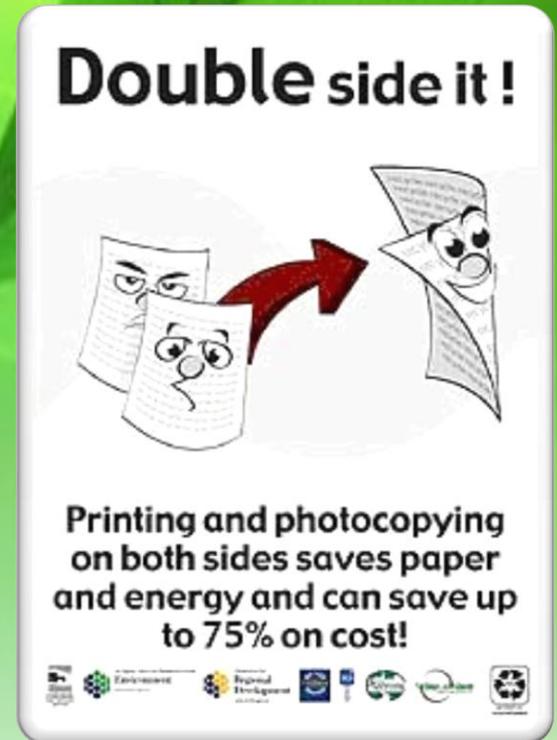
The above figures are based on these numbers:

- Cost per kWh: 10.5 cents
- Number of Workstations: 77,970
- Cost per Workstation: \$53.34



# Green Printing

- E.O. 13514, section 2(h) advocates duplex and network printing
- By duplex printing, a 60,000-person organization could expect to save at least 85 tons of paper per year
- Organizational Culture Change Requires Top Management Support
- Briefing documents prepared for the Secretary's Office now submitted double-sided
- Most printers in the IT department are now network printers. No more personal printers. Even top IT management walks to the printer.



# Questions?

