

The background of the slide is a photograph of a server room. It shows multiple rows of server racks filled with various electronic components. A dense network of black and white cables is visible, some bundled together and others hanging loosely. The lighting is bright, highlighting the metallic surfaces of the racks and the complexity of the wiring.

2009 Energy Efficient IT Report

The Power of Prioritization

August 31, 2009

Table of Contents

▶ Introduction	3
▶ Key Findings	4
▶ Impact of the Recession	6
▶ ENERGY STAR® in the Data Center	9
▶ Value Gap	11
▶ 2009 Savings Opportunity	12
▶ Recurring Challenges	13
▶ Proven Tactics	15
▶ Recommendations	16
▶ Methodology and Demographics	18
▶ Appendix: Industry Snapshots	19



Introduction

- ▶ CDW initiated this annual survey in 2008 to study IT marketplace attitudes toward energy efficient IT, barriers to its adoption and what differentiates successful implementations. The subject is important because energy efficiency is a cross-departmental issue in most organizations, with most energy users having little visibility or direct stake in its adoption
- ▶ The environment has changed significantly since a year ago. IT budgets are under pressure in the recessionary economy, and the U.S. Environmental Protection Agency has issued the first ENERGY STAR® standards for servers
- ▶ Against this backdrop, CDW surveyed 752 IT professionals in U.S. organizations* to determine how energy efficient IT has fared. In 2008, these organizations expressed that while they cared about reducing energy consumption, few were fully committed to the energy-efficiency initiatives necessary for savings. The 2009 Energy Efficient IT Report explores:
 - The impact of the recession on energy efficient IT initiatives and priorities
 - Improvements in IT energy efficiency
 - Challenges that still hinder efficiency goals
 - Available savings opportunities
 - Proven success tactics

*Mid-size and large businesses; Federal, state and local government agencies; and K-12 and higher education institutions

Key Findings

- ▶ Even in today's challenging economy, more organizations are taking steps to improve IT energy efficiency in desktop computing *and* in the data center*
 - 59% are training employees to shut down equipment when they leave their offices for extended periods, vs. 43% in 2008
 - 46% have implemented or are implementing server virtualization, vs. 35% in 2008
- ▶ Energy reduction efforts are yielding significant results. 52% of organizations actively working to reduce energy consumption** have reduced IT energy costs by 1% or more. Still, most are spending millions more on energy than necessary
 - If the average organization surveyed were to take full advantage of energy-saving measures, IT professionals estimate they could save \$1.5M annually***

*According to those with desktop computing and server procurement responsibility **Those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations ***Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR®-qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.). Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures

Key Findings (Continued)

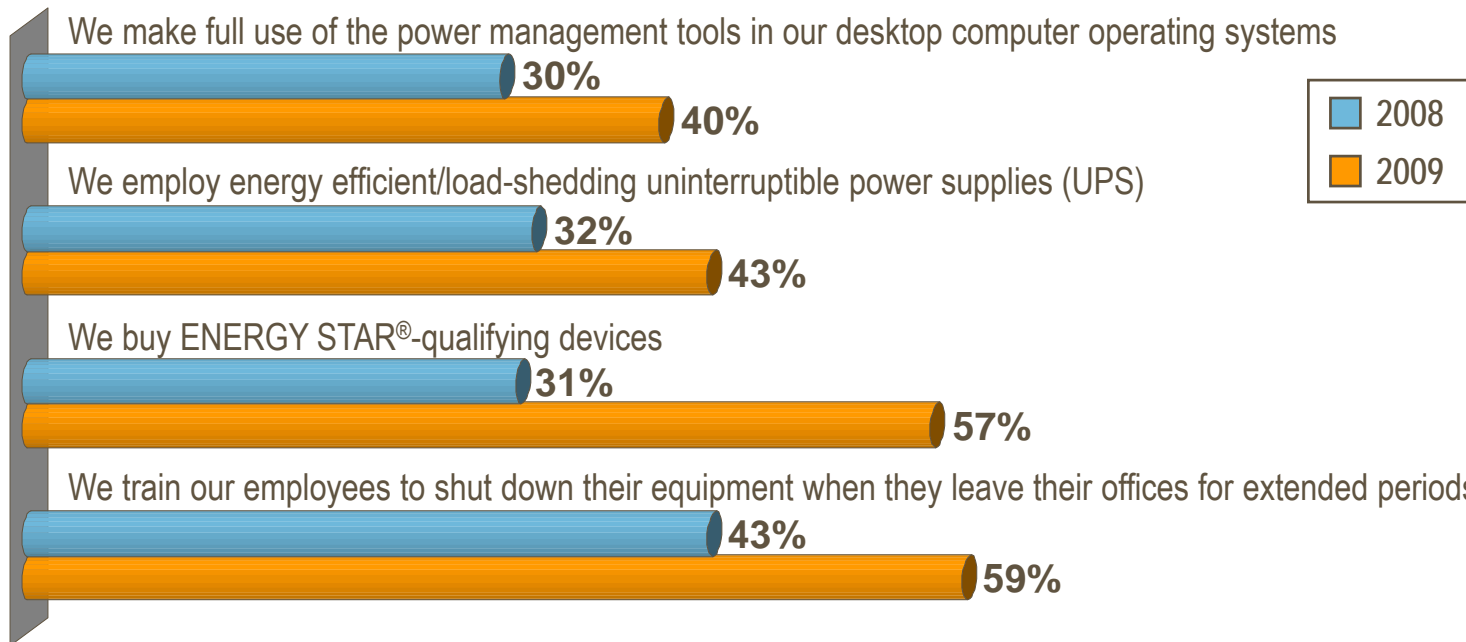
- ▶ At successful organizations, management and IT make energy efficiency a shared priority via a three-pronged approach – they ask, assign and incent
 - 57% of organizations that **ask** IT to reduce energy costs have experienced a reduction in IT energy costs by 1% or more*, vs. 39% of organizations that do not ask
 - 60% of organizations that **assign** an IT advocate for energy efficiency have defined programs to manage and reduce energy use, vs. 24% of those that do not assign responsibility
 - 58% of organizations that **incent** the IT department to improve IT energy efficiency give priority** to energy reduction projects, vs. 30% of organizations that do not incent

*Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations **Respondents selected 7-10 on a 1-10 scale, where 10 was “extremely important”

Impact of the Recession: Desktop Computing

- ▶ In today's challenging economy, more organizations are taking steps to improve IT energy efficiency in desktop computing

Routine measures used to reduce the energy consumption and cost of desktop/client operations*:

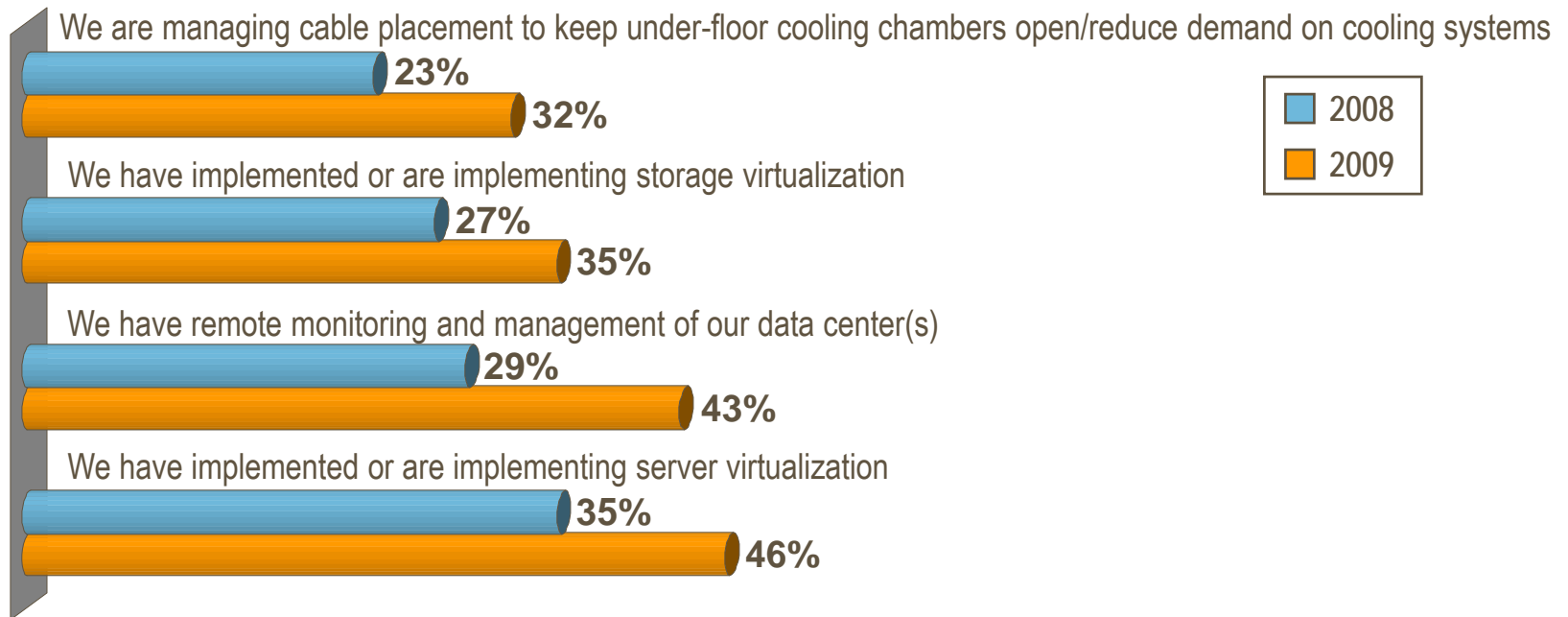


*According to those with desktop computing procurement responsibility

Impact of the Recession: Data Center

- ▶ Organizations are also doing more to improve IT energy efficiency in their data centers

Routine measures used to reduce the energy consumption and cost of data center operations*:



*According to those with server procurement responsibility

Result: Reduced Energy Consumption

- ▶ Organizations actively working to reduce energy consumption* are realizing tangible results

52%

of these organizations have reduced their IT energy costs by 1% or more –

up from 39% in 2008



*Those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

ENERGY STAR® Standards Come to the Data Center

- ▶ In CDW's 2008 Energy Efficient IT Report, 55% of respondents said they wanted clear industry standards for "energy efficient equipment" in the data center

In May 2009, EPA announced the first ENERGY STAR® requirements for servers. Servers that earn the ENERGY STAR® label will include:

- Efficient power supplies that generate less waste heat, reducing the need for excess air conditioning in the facilities where they are housed
- Capabilities to measure real-time power use, processor utilization and air temperature, which improves manageability and lowers total cost of ownership
- Advanced power management features to save energy across various operating states
- A power and performance data sheet for purchasers that standardizes key information on energy performance, features and other capabilities



Courtesy of the U.S. Environmental Protection Agency's ENERGY STAR Program

Standards and Incentives Help Move the Market

- ▶ ENERGY STAR® qualifications and utility incentives are encouraging organizations to employ more energy efficient IT equipment

83%

of IT professionals believe that energy efficient products are becoming easier to identify



Most say ENERGY STAR® labels are key to product identification



66% of IT professionals with server procurement responsibility are familiar with the new ENERGY STAR® qualifications

and

94% of those say their organization's next server purchase is likely to be ENERGY STAR® qualified

Utility incentives also help:

63% of IT professionals with access to utility rebates or incentives* believe the available incentives are applicable to the specific IT investments their organizations are planning

and

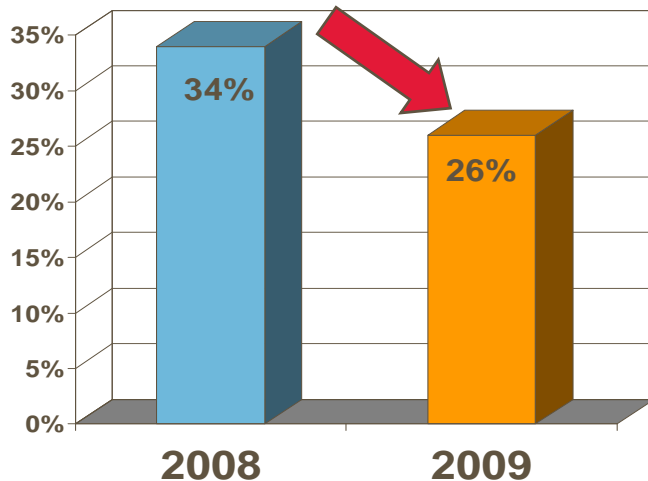
92% of those believe the utility rebates or incentives are a significant factor in their organization's IT purchase decision

*Those whose electric utility offers rebates or other financial incentives to encourage investment in energy efficient IT equipment

Value Gap: Losing Ground

- ▶ Despite real success in reducing IT energy costs over the past year, short-term cost-reduction requirements have de-emphasized energy efficiency in the purchase decision

Percent of IT professionals who say energy efficiency is a very important consideration when purchasing new equipment*



IT professionals continue to rank other factors above energy efficiency in purchase decisions

When purchasing new IT equipment, what factors are more important than the equipment's energy efficiency?*

- #1 Cost
- #2 Reliability
- #3 Compatibility with existing equipment

In 2008, cost, reliability and ease of use were the top three factors more important than energy efficiency

*Desktop computing and server procurement professionals selected 8-10 on a 1-10 scale, where 10 was "extremely important" **Respondents selected all that apply

2009 Savings Opportunity

- ▶ Yet, by focusing on immediate product costs over energy efficiency, IT departments may forgo larger, longer-term savings through their energy bills

17%

Estimated annual IT energy savings using energy-efficiency initiatives*



\$1.5M

Estimated annual IT energy savings, considering an average annual IT budget of \$74.6M and average IT energy costs of \$8.9M**

For an in-depth look at estimated savings by industry, please see the appendix

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures

Recurring Challenges: Lack of Information

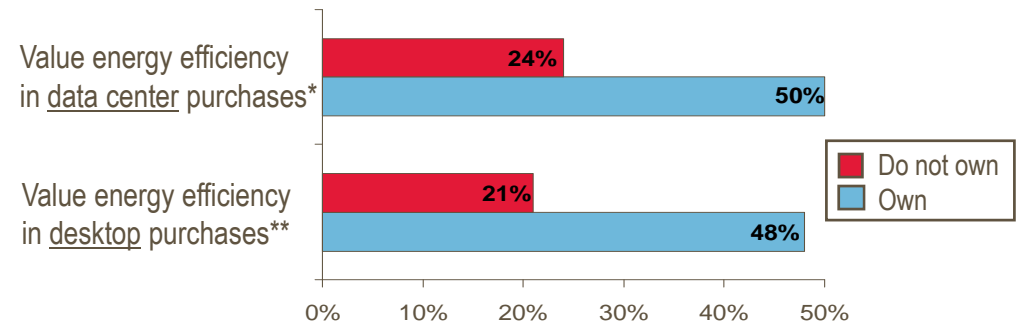
- ▶ Many organizations continue to exclude IT departments from energy management discussions. How can IT manage its energy bill if it doesn't know what it is?

Just **47%**

of organizations have someone in their IT department who receives reports, authorizes payment or otherwise has responsibility for the amount and cost of energy used in their IT operations

Why is this important? Organizations that assign IT responsibility to energy costs are significantly more likely to have implemented strategies to manage energy consumption – 60% to 24% respectively

IT professionals are also much more likely to value energy efficiency in the purchase process when they 'own' the IT energy bill



*According to those with server procurement responsibility **According to those with desktop computing procurement responsibility

Recurring Challenges: Lack of Organizational Support

- ▶ IT can deliver significant energy efficiencies, but needs top-level organizational support

Has your organization asked your IT department to reduce its energy costs?

52% Yes	41% No	7% Unsure
---------	--------	-----------

Are you or your department incented to improve IT energy efficiency?

44% Yes	56% No
---------	--------



Top incentives:

- Incorporation into performance appraisals
- Organizational award or certificate
- Staff member award
- Utility rebate
- Federal tax credit

“[Energy efficiency] has not been deemed a priority at this point” – *IT Professional*

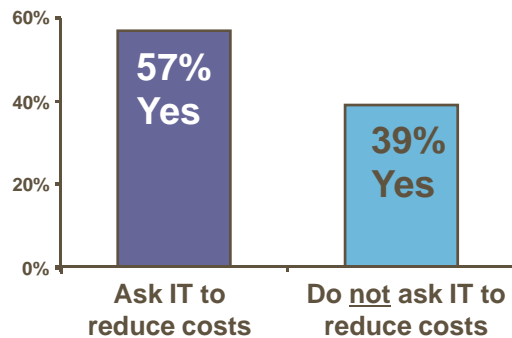
Proven Tactics

- ▶ Successful organizations ask the IT department to make energy efficiency a priority among other tasks – and also support IT by affirming success

Ask IT to Reduce Energy Costs

Organizations that *ask* IT to reduce energy costs are significantly more likely to experience energy cost reductions – 57% to 39% respectively

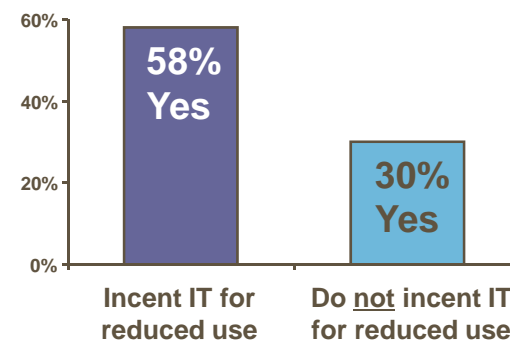
Have you reduced your energy costs by 1% or more?*



Incent IT to Reduce Energy Use

Organizations that *incent* IT to reduce energy use are significantly more likely to have an IT department that values energy reduction – 58% to 30% respectively

Is reducing IT power consumption a priority for you?*



*Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations **Respondents selected 7-10 on a 1-10 scale, where 10 was “extremely important”

Recommendations

- ▶ Ask IT to Manage, and Provide Support
 - Declare energy efficiency a priority across the organization
 - Implement organization-wide IT energy guidelines
 - Absent other standards, employ guidelines such as from climatesaverscomputing.org, The Uptime Institute or Green Grid

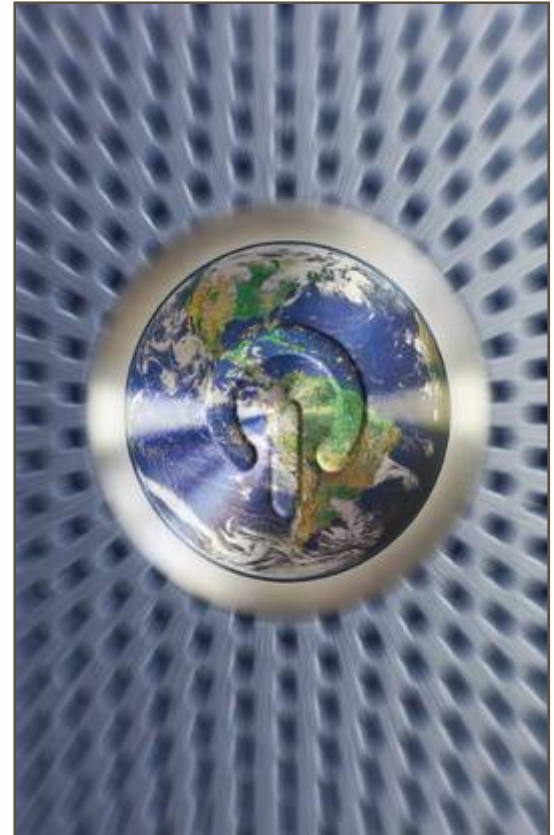
- ▶ Inform All of IT Operations
 - Have a professional energy assessment to quantify all of your opportunities to reduce IT energy use, and prioritize them by cost/benefit
 - Use all available tools to monitor and improve IT energy efficiency, including the energy bill itself
 - Provide regular updates on energy reductions



Recommendations

- ▶ Assign IT Advocacy
 - Designate at least one professional from your IT department to track IT energy consumption and advocate improvements
 - Include energy management goals in IT leadership performance metrics

- ▶ Incent IT Success
 - Recognize and reward IT professionals and departments for successful reductions in energy use and costs

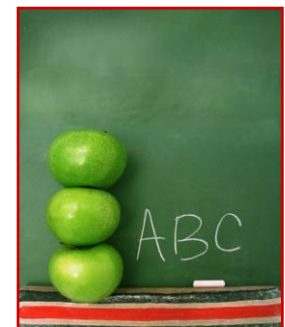


Methodology and Demographics

- ▶ CDW hired O’Keeffe & Company to survey IT professionals across five industries in July 2009. The total sample size equates to a margin of error of $\pm 3.6\%$ at a 95% confidence level; individual industry samples equate to margin of error of $\pm 8.0\%$ at a 95% confidence level
- ▶ Data collection methodology: National online survey
- ▶ Total sample size: 752
 - Business: 150
 - Federal government: 150
 - State/Local government: 150
 - Higher education: 152
 - K-12: 150
- ▶ Respondent demographics:
 - Organization size: 4%: 0-99 employees; 24%: 100-499 employees; 47%: 500-10,000 employees; 25%: More than 10,000 employees
 - Title: 11%: IT executive level/C-Level (e.g., CIO, CTO, VP of IT); 23%: IT director/systems director; 12%: IT supervisor; 26%: IT manager (e.g., IT manager, help desk manager, telecommunications manager); 12%: network administrator; 3%: data center manager; 13%: other IT management

Appendix

- ▶ Business Snapshot 20
- ▶ Federal Snapshot 23
- ▶ State and Local Snapshot 27
- ▶ Higher Education Snapshot 31
- ▶ K-12 Snapshot 34



Business Snapshot

Making the Commitment: Have an energy management strategy in place

2008
48%

2009
42%

Taking Steps: Top three energy savings measures*

2008

1. Migrate to LCD monitors
2. Buy computers that employ newer, low-power/low-wattage processors
3. Coach employees to shut down equipment

2009

1. Migrate to LCD monitors
2. Buy ENERGY STAR®-qualified devices
3. Coach employees to shut down equipment

Getting Results: Have reduced IT energy costs**

2008
46%

2009
51%



Where does saving energy rank?***

Say reducing energy is “very important” vs. other IT projects:

25%

Organizational support?

54% of businesses have asked IT to reduce energy costs

60% of IT departments are responsible for their energy bill

40% of businesses incent their IT department to save energy

*According to those with desktop computing and server procurement responsibilities

**Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

***Respondents selected 8-10 on a 1-10 scale, where 10 was “extremely important”

Business Savings Opportunity

- ▶ By taking full advantage of energy-saving opportunities, medium, large and enterprise business organizations estimate they could save 17% of their IT energy costs, or \$901,000 annually*

\$40.6M

Average Business IT Budget**

\$5.3M

Estimated Business IT
Budget Spent on Energy**
(13%)

51% of business organizations have reduced IT energy costs by 1% or more.*** What is the value of a 1% IT energy reduction?



\$53,000 in Savings

By implementing all energy-saving measures mentioned in this report, business IT professionals believe they could reduce IT energy costs by 17%. What is the value of a 17% IT energy reduction?



\$901,000 in Savings

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures ***Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

Business Success

- ▶ In 2008, The Brookings Institution converted its 40-year-old mainframe computer room into a modern data center, from floor to ceiling, to accommodate contemporary computing needs. In line with Brookings' sustainability values, the new data center design reduces energy use by:
 - Using blade servers, which enable granular control of power distribution, and increasing use of low-wattage processors
 - Removing the old subfloor cooling system, which was obstructed by modern cabling, and using an in-row cooling system with sensors to monitor and spot-control cooling efficiently, based upon equipment input air temperatures
 - Integrating new data center cooling systems with the central chilled water cooling plant, increasing efficiency over the entire facility, and removing the old cooling system that served the data center only
 - Taking advantage of tools such as their utility's energy audit, the EPA's free "EZ GPO," which enables central control of power management on desktop PCs and monitors, and a similar tool to control printer power management
- ▶ The data center measures alone reduce energy use by an estimated 450,000 kWh, cutting associated carbon emissions by 447 tons and saving an estimated \$58,000 per year

BROOKINGS



"Our budget doesn't always allow us to buy every technology we wish for, but energy efficiency is a core value at Brookings, in the way we operate and how we institute our policies. The measures we've taken with the data center have all been affordable up front and are more than justified by the positive environmental impacts."

– Jake Marshak, director, service management and infrastructure, The Brookings Institution

Federal Snapshot



Making the Commitment: Have an energy management strategy in place

<u>2008</u>	<u>2009</u>
49%	51%

Taking Steps: Top three energy savings measures*

<u>2008</u>	<u>2009</u>
<ol style="list-style-type: none"> 1. Migrate to LCD monitors 2. Buy computers that employ newer, low-power/low-wattage processors 3. Buy servers and other equipment that employ newer, low-power/low-wattage processors 	<ol style="list-style-type: none"> 1. Migrate to LCD monitors 2. Buy ENERGY STAR®-qualified devices 3. Employ server virtualization

Getting Results: Have reduced IT energy costs**

<u>2008</u>	<u>2009</u>
34%	47%

Where does saving energy rank?***

Say reducing energy is “very important” vs. other IT projects:

21%

Organizational support?

54% of agencies have asked IT to reduce energy costs

47% of IT departments are responsible for their energy bill

48% of agencies incent their IT department to save energy

*According to those with desktop computing and server procurement responsibilities

**Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

***Respondents selected 8-10 on a 1-10 scale, where 10 was “extremely important”

Federal Savings Opportunity

- ▶ By taking full advantage of energy-saving opportunities, Federal agencies estimate they could save 18% of their IT energy costs, or \$9,144,000 annually*

\$390.8M

Average Federal IT Budget**

\$50.8M

Estimated Federal IT Budget
Spent on Energy**
(13%)

47% of Federal agencies have reduced IT energy costs by 1% or more.*** What is the value of a 1% IT energy reduction?

 **\$508,000** in Savings

By implementing all energy-saving measures mentioned in this report, Federal IT professionals believe they could reduce IT energy costs by 18%. What is the value of an 18% IT energy reduction?

 **\$9,144,000** in Savings

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures ***Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

Federal Success

- ▶ Zion National Park in Utah, with a largely seasonal staff, faced an energy efficiency dilemma: How to reduce energy consumption while maintaining PCs used only six months each year

- ▶ The solution started with thin clients. Since 2008, Zion has:
 - Replaced 40 desktops with thin clients, reducing power consumption by up to 80%
 - Powered down thin clients during the off season, reducing the lean IT staff's administrative load *and* power consumption
 - Planned continued replacement of desktops with thin clients during routine refresh cycles, moderating increased power consumption



“Durability and ease of use are major considerations in our purchase decision – but so is energy efficiency. We want to reduce our carbon footprint and be as green as a Federal agency can be.” – Mike Ball, IT specialist, Zion National Park

Federal Success

- ▶ Three years ago, Los Alamos National Laboratory (LANL) realized that increased demand for computing capacity threatened to eclipse its ability to power operations. To meet current and future demand, the lab embarked on a project to virtualize its servers, increasing capacity without increasing its carbon footprint

- ▶ Since June 2006, LANL has:
 - Reduced the number of physical servers by 105
 - Retired three data centers
 - Virtualized 250 servers, which have the power of 450 physical servers
 - Saved 873,000 kWh per year and about \$639,000 in energy costs
 - Avoided \$1.4 million in costs



State and Local Snapshot



Making the Commitment: Have an energy management strategy in place

<u>2008</u>	<u>2009</u>
39%	35%

Taking Steps: Top three energy savings measures*

<u>2008</u>	<u>2009</u>
<ol style="list-style-type: none"> 1. Migrate to LCD monitors 2. Buy computers that employ newer, low-power/low-wattage processors 3. Buy servers and other equipment that employ newer, low-power/low-wattage processors 	<ol style="list-style-type: none"> 1. Migrate to LCD monitors 2. Buy ENERGY STAR®-qualified devices 3. Coach employees to shut down equipment

Getting Results: Have reduced IT energy costs**

<u>2008</u>	<u>2009</u>
41%	56%

Where does saving energy rank?***

Say reducing energy is “very important” vs. other IT projects:

25%

Organizational support?

45% of agencies have asked IT to reduce energy costs

39% of IT departments are responsible for their energy bill

42% of agencies incent their IT department to save energy

*According to those with desktop computing and server procurement responsibilities

**Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

***Respondents selected 8-10 on a 1-10 scale, where 10 was “extremely important”

State and Local Savings Opportunity

- ▶ By taking full advantage of energy-saving opportunities, state and local agencies estimate they could save 16% of their IT energy costs, or \$368,000 annually*

\$21.3M

Average State and Local
IT Budget**

\$2.3M

Estimated State and Local IT
Budget Spent on Energy**
(11%)

56% of state and local agencies have reduced IT energy costs by 1% or more.*** What is the value of a 1% IT energy reduction?

 **\$23,000** in Savings

By implementing all energy-saving measures mentioned in this report, state and local IT professionals believe they could reduce IT energy costs by 16%. What is the value of a 16% IT energy reduction?

 **\$368,000** in Savings

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures ***Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

State and Local Success

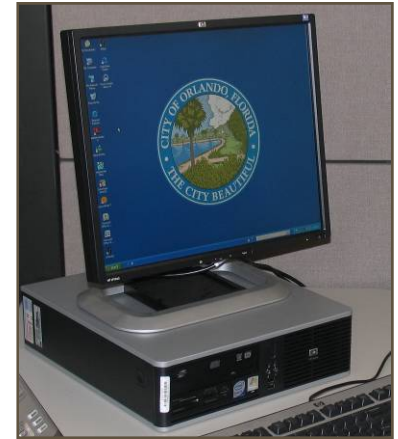
- ▶ The City of Hutto is one of the fastest growing in Texas. In fact, its population has exploded from only 1,200 in 2000 to more than 17,000 today. Such tremendous growth in less than a decade put the pressure on the IT department to upgrade the city's technology infrastructure to meet demand for city services, without dramatically increasing energy consumption and costs
- ▶ City officials met – and exceeded – their goals by employing the following strategies:
 - Virtualizing three of the city's 15 servers
 - Replacing 85% of desktops with thin clients, reducing desktop power consumption by up to 250%
 - Purchasing ENERGY STAR®-qualified devices
- ▶ The officials plan to continue their energy-saving efforts by virtualizing additional servers and creating a green committee to make recommendations and establish guidelines for future energy efficiency initiatives



“Utilizing energy-saving technologies such as virtualization and thin clients allowed us to upgrade our IT system without dramatically increasing our power usage, which is impressive considering the tremendous population growth of the city and the extensive upgrades we made.” – Tim Howell, IT analyst for Hutto, Texas

State and Local Success

- ▶ City of Orlando Mayor Buddy Dyer's Green Works Orlando initiative aims to protect natural resources and encourage environmentally friendly lifestyles and business practices. Conrad Cross, CIO for the City of Orlando, brought the initiative to the city's IT department
- ▶ By the end of 2009, the City of Orlando will:
 - Replace 3,000 aging desktops and laptops with new, energy efficient HP models
 - Audit retired computers to determine actual wattage saved
 - Generate an expected \$7,400 in energy savings each year



“We spent more per unit on the front end of the implementation compared to non-energy efficient equipment, which created some hesitancy among stakeholders about this project. But with due diligence and an open, active dialogue with key community decision makers, the mayor, city council and other stakeholders, it was understood that the savings from more energy efficient computing operations will be far greater on the back end.”

– Conrad Cross, CIO, City of Orlando

Higher Education Snapshot

Making the Commitment: Have an energy management strategy in place

2008
31%

2009
36%

Taking Steps: Top three energy savings measures*

2008

1. Migrate to LCD monitors
2. Buy computers that employ newer, low-power/low-wattage processors
3. Buy servers and other equipment that employ newer, low-power/low-wattage processors

2009

1. Migrate to LCD monitors
2. Coach employees to shut down equipment
3. Buy ENERGY STAR®-qualified devices

Getting Results: Have reduced IT energy costs**

2008
38%

2009
54%



Where does saving energy rank?***

Say reducing energy is “very important” vs. other IT projects:

21%

Organizational support?

53% of institutions have asked IT to reduce energy costs

43% of IT departments are responsible for their energy bill

53% of institutions incent their IT department to save energy

*According to those with desktop computing and server procurement responsibilities

**Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

***Respondents selected 8-10 on a 1-10 scale, where 10 was “extremely important”

Higher Education Savings Opportunity

- ▶ By taking full advantage of energy-saving opportunities, higher education institutions estimate they could save 16% of their IT energy costs, or \$352,000 annually*

\$17.3M

Average Higher Education
IT Budget**

\$2.2M

Estimated Higher Education
Budget Spent on Energy**
(13%)

54% of higher education institutions have reduced IT energy costs by 1% or more.*** What is the value of a 1% IT energy reduction?

 **\$22,000** in Savings

By implementing all energy-saving measures mentioned in this report, higher education IT professionals believe they could reduce IT energy costs by 16%. What is the value of a 16% IT energy reduction?

 **\$352,000** in Savings

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures ***Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

Higher Education Success

- ▶ In 2007, Loyola University's IT department began virtualizing its first servers; today, the university has virtualized 135 of its 303 servers (45%), and expects to virtualize 65% of its existing servers by the end of 2010. With its server virtualization program showing no signs of slowing down – a new data center just came online – Loyola is now focused on reducing power consumption in IT
- ▶ Until recently, IT had little insight into its power usage, as the bill went directly to facilities management. Loyola's IT department is working with facilities management to identify where the power – and money – is going by:
 - Creating a baseline measurement for power draw
 - Installing meters to monitor and capture information on power consumption in the data center, including all hardware and environmental systems
 - Purchasing ENERGY STAR®-qualified equipment whenever possible



**LOYOLA
UNIVERSITY
CHICAGO**

Preparing people to lead extraordinary lives



“We initially took a shotgun approach to energy efficiency, looking at a wide variety of technologies that could potentially reduce our power consumption. We were all over the map, but have since rethought this approach. We have begun a detailed assessment of our data center power usage, which will help us determine the next steps to take. We are focused on developing a baseline to raise awareness of our power consumption on campus and better use the power available to us.”

– Dan Vonder Heide, director for infrastructure services, Loyola University

K-12 Snapshot

Making the Commitment: Have an energy management strategy in place

2008
38%

2009
42%

Taking Steps: Top three energy savings measures*

2008

1. Migrate to LCD monitors
2. Buy computers that employ newer, low-power/low-wattage processors
3. Coach employees to shut down equipment

2009

1. Migrate to LCD monitors
2. Buy ENERGY STAR®-qualified devices
3. Buy servers and other equipment that employ newer, low-power/low-wattage processors

Getting Results: Have reduced IT energy costs**

2008
35%

2009
54%



Where does saving energy rank?***

Say reducing energy is “very important” vs. other IT projects:

27%

Organizational support?

51% of districts have asked IT to reduce energy costs

48% of IT departments are responsible for their energy bill

37% of districts incent their IT department to save energy

*According to those with desktop computing and server procurement responsibilities

**Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

***Respondents selected 8-10 on a 1-10 scale, where 10 was “extremely important”

K-12 Opportunity

- ▶ By taking full advantage of energy-saving opportunities, K-12 districts estimate they could save 18% of their IT energy costs, or \$67,000 annually*

\$3.1M

Average K-12 IT Budget**

\$372K

Estimated K-12 IT Budget
Spent on Energy**
(12%)

54% of K-12 districts have reduced IT energy costs by 1% or more.*** What is the value of a 1% IT energy reduction?

 **\$3,700 in Savings**

By implementing all energy-savings measures mentioned in this report, K-12 IT professionals believe they could reduce IT energy costs by 18%. What is the value of an 18% IT energy reduction?

 **\$67,000 in Savings**

*Respondents estimated the percentage of their IT energy budget saved if their organization implemented all energy-saving measures mentioned in this report (purchasing ENERGY STAR® qualifying devices, making full use of power management tools, virtualizing servers and storage, etc.) **Annual IT budget, IT energy costs and potential savings statistics are rounded and provided only by those respondents familiar with these figures ***Of those with defined and enforced programs or strategies to manage power demand and/or energy consumption in their IT operations

K-12 Success

Northwest Regional Education Service District
Serving the 20 school districts in the Northwest corner of Oregon

- ▶ Northwest Regional Education Service District (NWRES D) provides IT services to 20 school districts in Oregon. Faced with data center upgrade costs of more than \$250,000, NWRES D realized it needed an alternative solution: virtualization
- ▶ First, NWRES D had to convince its senior-level management and management at its school districts that virtualization would not only preclude the need for the overhaul, but also that it would reduce energy costs, increase energy efficiency and, most importantly, improve the agency's ability to deliver quality educational services to teachers and students
- ▶ After piloting a small virtualization program on several non-critical systems and consulting with other successful school districts, NWRES D had the data it needed to convince management that virtualization would work
- ▶ Today, NWRES D's virtualization program includes 150 virtualized servers and:
 - Reduced the agency's power consumption by 17%
 - Increased uninterruptible power supply (UPS) battery life from five to 25 minutes
 - Enabled the agency to reallocate most of the money dedicated to the data center upgrade to educational programs, rather than IT

“As we began to analyze our existing infrastructure, we realized that upgrading the data center was beyond our means. By implementing a virtual solution, we spent a fraction of that money. For us, the key was to help management understand how practical virtualization is, and then we quickly realized our cost and power savings.”
– Bob Clabaugh, director of network and systems engineering, NWRES D

Thank you.

For all media questions and inquiries, please contact:

Kelly Caraher

CDW Public Relations

847-968-0729

kellyc@cdw.com

Martin Nott

O'Keeffe & Company

585-271-1141

mnott@okco.com