

Electronics Stewardship and Federal Data Centers

Using Your FEC Experience to Take the Next Step

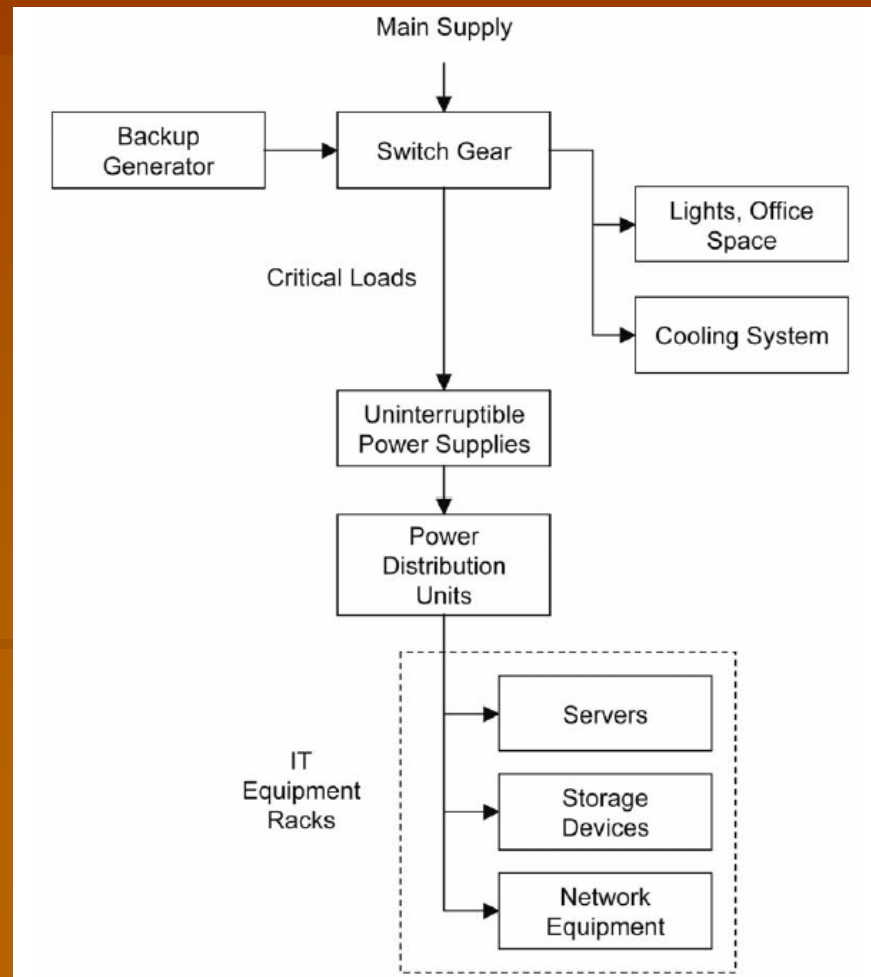
FEC Partner Teleconference
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Data Center Definition

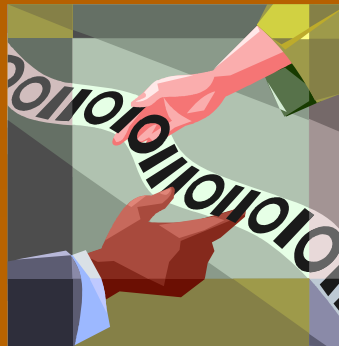
- A facility housing electronic equipment used for data processing, data storage, and communications networking
 - Houses server, network, and computer equipment
 - May have environmental controls
 - May contain or link to an uninterruptible, redundant and/or backup power supply
 - May be protected by physical security and protection devices or systems (e.g., closed circuit monitoring, fire suppression)
 - May be built for redundancy

Data Center Elements



Data Center Uses

- Electronic file storage, including databases
- Electronic communications, including routing and storage (e.g., email)
- Electronic networking, including internet and intranet connections and hosting (e.g., web sites)
- Processing power for high-end applications
- Back end for thin clients or other terminals



Data Center Location

Relative to your facility

- On site

- Single desk, rack or closet containing one server and some infrastructure
- Room(s) containing multiple servers, infrastructure and perhaps some environmental and security controls

- Off site

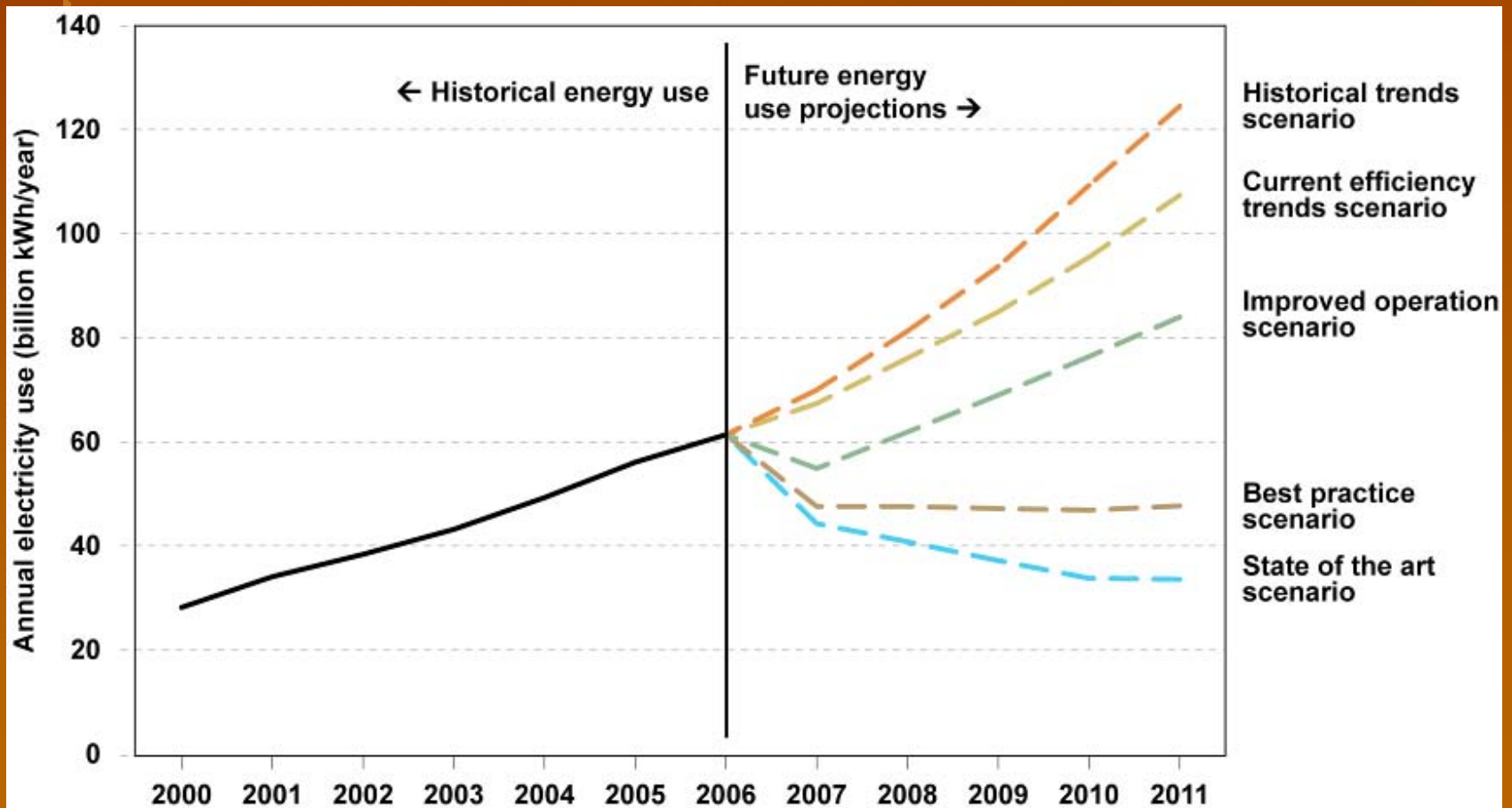
- Buildings containing multiple servers, infrastructure and environmental and security controls

Data Center Concerns



- Data centers used 61 billion kWh of electricity in 2006
 - 1.5% of all U.S. electricity consumption
 - Cost of \$4.5 billion
 - Double the amount consumed in 2000
- Federal data centers account for 10%
- Energy consumed by data centers is projected to grow by 12% per year

Data Center Concerns



Data Centers Impact Your Sustainability Goals!

- All data centers use energy
 - Impacts greenhouse emissions
- Some data centers use
 - Water for cooling
 - Fuel for back up energy supply
 - Batteries for back up energy supply
- Executive Order 13423 includes goals to reduce use of energy, water, fuel, and hazardous materials

Engaging IT Staff

- Capitalize on existing relationships from FEC efforts
- Invite IT staff to FEC, EMS or other “green” team meeting
 - Focus the agenda on electronics or data centers specifically



Engaging IT Staff



- Request a tour of your data center
- Swap training
 - Provide sustainability training
 - Request training on data center basics

Transferring Lessons Learned

- Baselines set a sound foundation for improvement
 - Goal setting sets priorities for each year
 - Annual measurement demonstrates progress and highlights weaknesses
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- Resources and technical assistance are available

Transferring Lessons Learned from the FEC



- Teamwork is critical
 - Bring data center staff permanently into your FEC, EMS or green team

- Recognition can spur participation and improvements
 - Consider data center staff and initiatives for internal awards

Acquisition and Procurement

- Acquire EPEAT registered electronic products
 - Supporting computers and monitors
 - Server standard available in next 3-4 years
- Acquire ENERGY STAR qualified products
 - Servers
 - Supporting equipment
- Watch ENERGY STAR building specification for data centers



Use

- Extend the life of equipment
 - Maintain equipment and space
 - Plan acquisition and disposition
 - Trickle-down supporting computers and monitors
- Strive for energy efficiency
 - Electronic equipment
 - Environmental control equipment

Electronic Equipment Improvements



- Consolidate servers and data storage
- Consider virtualization
- Acquire energy efficient equipment
 - Servers and power supplies
- Consider monitor power management
- Utilize data center power management

Disposition

- Federally owned electronics follow the same disposition path, regardless of their location (data center or desktop)
 - GSA personal property disposition process
- Reuse
 - Used data center equipment may be valuable
- Recycle
 - Obsolete and broken equipment should be recycled following environmentally sound practices

Federal Initiatives

- National Data Center Energy Efficiency Information Program
 - EPA's ENERGY STAR®
 - DOE's Save Energy Now
 - DOE's Federal Energy Management Program (FEMP)



Resources

- ENERGY STAR, Enterprise Server and Data Center Energy Efficiency
<http://www.energystar.gov/datacenters>
- Save Energy Now, Partnering with Computer Data Centers
http://www1.eere.energy.gov/industry/saveenergynow/partnering_data_centers.html
- Lawrence Berkeley National Laboratory, Data Center Best Practices Checklist
<http://hightech.lbl.gov/DCTraining/Best-Practices.html>
- The Green Grid
<http://www.thegreengrid.org/>

Contact Information

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