



# Reduce ICT Power Costs

Who pays for IT and communications power? How much power is used? Can anyone do something about conserving IT and Communications Power? The cost of power and cooling the data center and communications closets is escalating. The Gartner Group predicts that in 2009, power and cooling costs will be second to salaries in the IT budget.

This 2-day workshop is focused directly on the energy conservation solutions now available, and their impact on the enterprise bottom line.

## Who Should Attend

IT and communications managers, project managers, facilities planning staff, network architects, procurement specialists, resellers and system integrators, enterprise financial specialists.

## Workshop Objectives:

- < Why is energy consumption a big issue for IT?
- < The trends in power production and charges.
- < How to analyze where power is consumed.
- < How IT equipment affects the cooling systems.
- < Through exercises, how to calculate power and cooling requirements.
- < How much power is consumed by desktop and network devices?
- < The issues of data center power planning.
- < How the communication closet is becoming a significant power consumer.
- < Power over Ethernet (PoE) will continue to expand and force IT to be a power utility.
- < How to plan for backup power.
- < What are vendors doing to mitigate the power consumption problem?

# Reduce ICT Power Costs

## I. The Rising Cost of Power

- (a) Overall Energy Consumption
- (b) Inflationary Trends
- (c) Where Does IT Fit?

## II. Power Trends

- (a) Government Reports
- (b) IT Analyst's Predictions
- (c) Consumption Predictions

## III. 'Where You Are' Is What You Pay

- (a) What's in a Watt?
- (b) Demand vs. Consumption Rates
- (c) How Location Affects the Energy Bill
- (d) Locating Rate Information
- (e) Determining Your Power Rates

## IV. Where Is the Power Going in IT?

- (a) The Data Center
- (b) Networks
- (c) LAN Closets
- (d) Desktop PCs and IP Phones
- (e) Cooling
- (f) UPS

## V. How Microchips Affect Your Energy Bill

- (a) Trends in Microchip Technology
- (b) Speed Makes a Big Difference
- (c) Smaller Systems — Bigger Problems

## VI. Power Consumption at the Desktop

- (a) Looking at the PC and Peripherals
- (b) The Thin Client
- (c) IP Phones

**Exercise:** Estimating the desktop and office power requirements.

## VII. LAN/Edge Switches and the Closet

- (a) Chassis Power Consumption Range
- (b) LAN Port Consumption Range

- (c) Power over Ethernet (PoE) Today, IEEE 802.3af
- (d) Class 2 and 3 Devices
- (e) PoE Tomorrow, IEEE 802.3at
- (f) What New Devices Connect to PoE?

## VIII. Edge and Core Routers

- (a) Chassis Power Consumption Range
- (b) WIC and NIC Cards

## IX. Security Devices

- (a) Firewalls
- (b) Intrusion Detection Systems
- (c) Intrusion Prevention Systems
- (d) Security Auditing Devices

**Exercise:** Estimating network equipment power consumption.

## X. The Data Center

- (a) Servers
- (b) Server Density
- (c) Virtualization
- (d) Storage

## XI. UPS and Backup Power

- (a) Determining the Backup Requirements
- (b) UPS Battery Systems
- (c) What Capacity?
- (d) DC Powered Network Devices
- (e) Issues in the Closet
- (f) Diesel vs. Gas Generators

## XII. Cooling the Technology

- (a) How Air Conditioning Works
- (b) Air Flow vs. Temperature
- (c) What Is a Hot Spot?
- (d) Cooling Affects Reliability

**Exercise:** Calculating the cooling requirements.

### **XIII. Measuring Your Consumption**

- (a) What to Measure
- (b) Where to Measure
- (c) Reading Your Meter and Power Bill
- (d) Measurement Tools

### **XIV. Comparing IT Vendor's Products**

- (a) IP Phones
- (b) PCs and Peripherals
- (c) Network Devices
- (d) Data Center Technologies

**Exercise:** Working with an energy efficiency calculator.

### **XV. Working out the ROI and TCO**

- (a) Buy Poorly Now and Pay Later
- (b) What Goes into the ROI
- (c) Using the ROI to Make Decisions
- (d) What Goes into the TCO
- (e) Calculating the TCO

### **XVI. What Does the Future Hold?**

- (a) The next Three Years of Energy Bills
- (b) What Are the Chips Designers Doing to Help?
- (c) How Are the System Vendors Delivering Energy Efficient Products