

# ENERGY STAR

Federal Electronics Stewardship Conference  
February 7-8, 2006



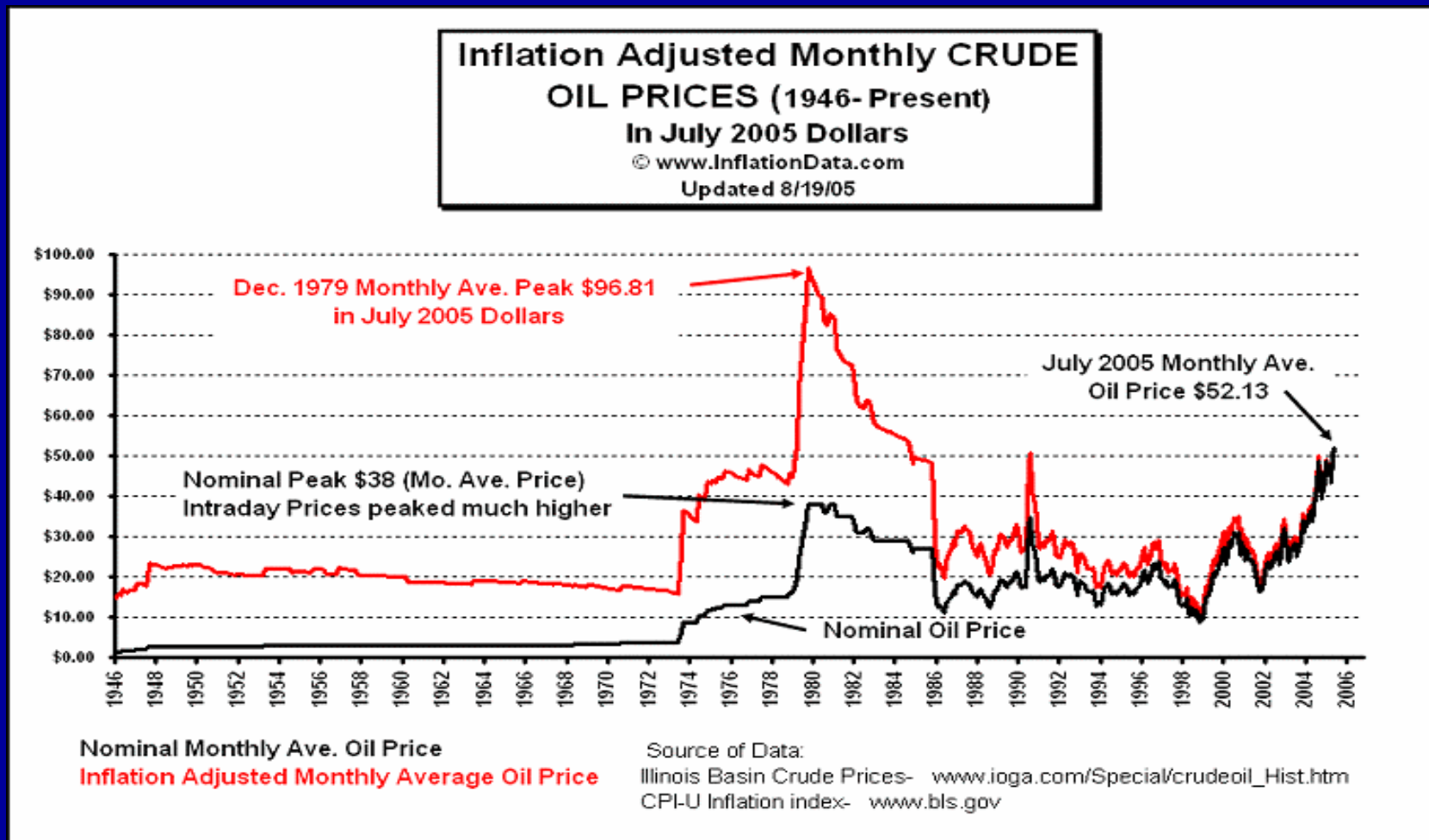
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# U.S. Energy Use and Costs

*Rising Costs and the Shift  
in Consumer Energy Use*

# Energy Costs are Rising, and Efficiency is More Important than Ever

Note: This Graph Does Not Reflect the Impacts of Katrina and Rita

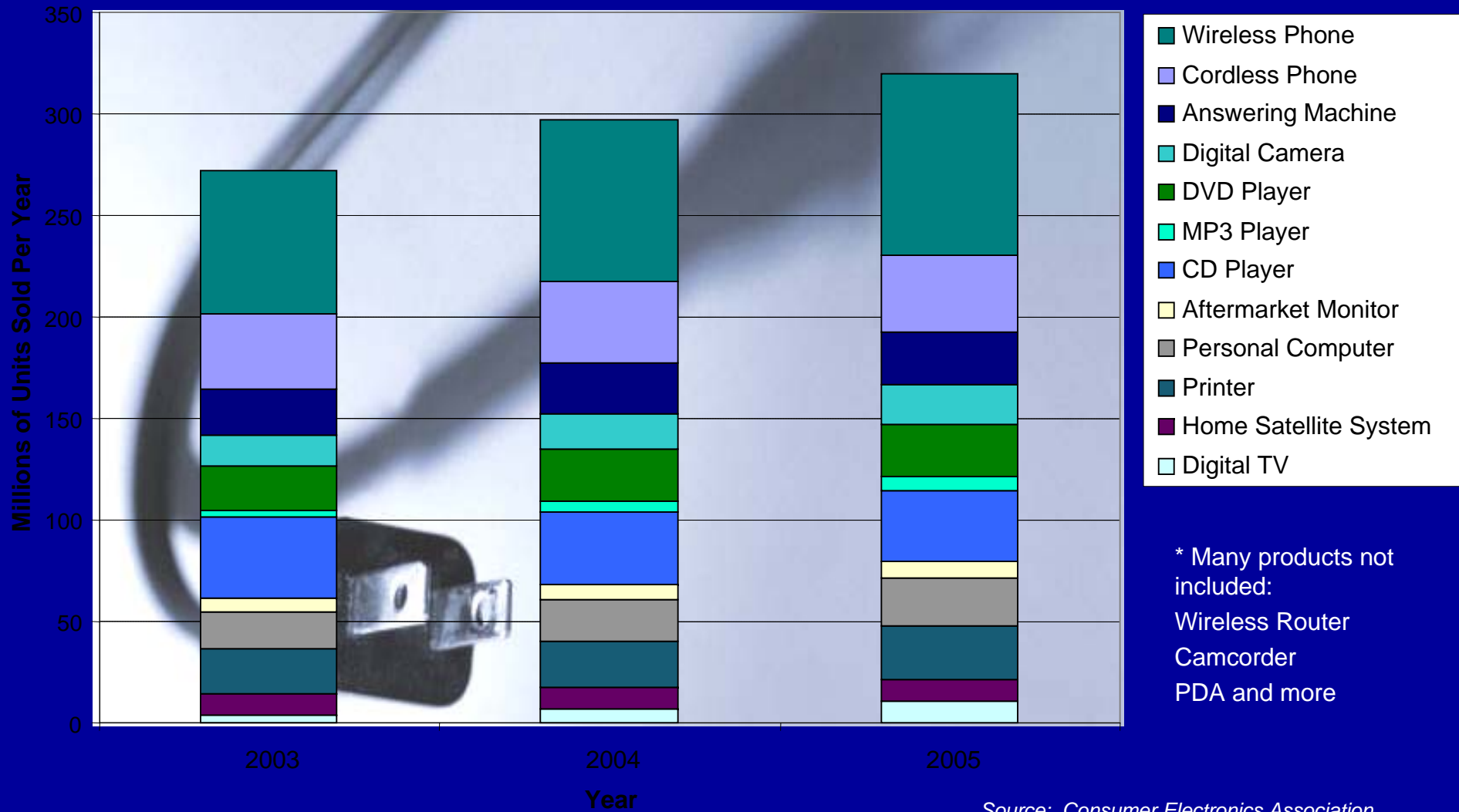


# Benefits of Reducing Electricity Consumption



- Improve air quality
  - *Less smog, acid rain*
- Help mitigate climate change
  - *Fewer greenhouse gas emissions*
- Improve reliability of electricity grid
  - *Fewer power outages*
- Lower energy bills
  - *Consumers, businesses, and governments save*
- National security
  - *Less dependence on foreign oil*
  - *Reduced price volatility*

# Climbing Sales of Consumer Electronics Products in U.S.



\* Many products not included:  
 Wireless Router  
 Camcorder  
 PDA and more

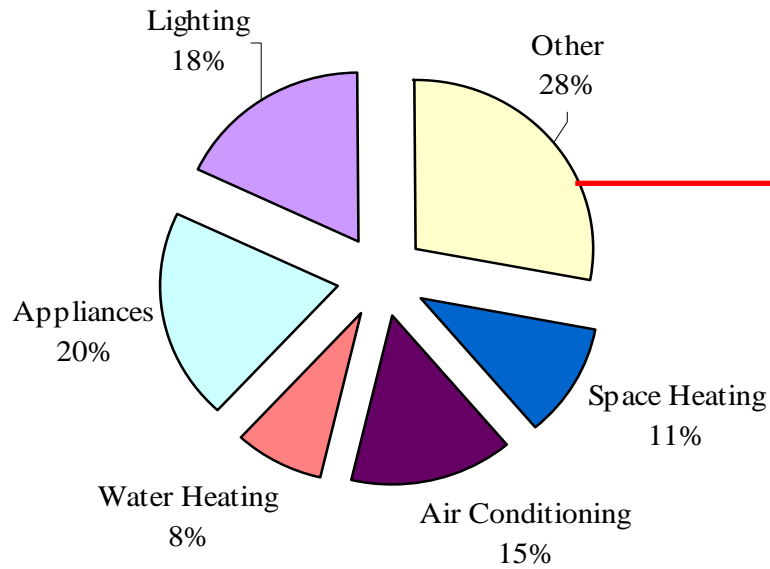
Source: Consumer Electronics Association

# Residential & Commercial Plug Loads Fueled by Proliferation of Consumer Electronics

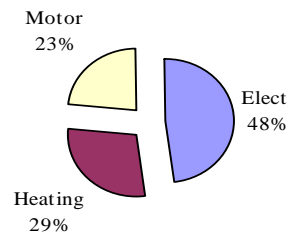
- Residential electricity demand is expected to **increase 119%** in **28 years** (*International Energy Agency/US Energy Information Administration*)
- As many as **1.5 billion** external power supplies are in use in the US – five for every person (*Ecos Consulting Analysis, September 2004*)
- With more than 260 million TVs currently in use, the number continues to grow by 3.5 million each year. Today, TVs account for about **4% of annual residential electricity** use in the US – enough to power all of the homes in New York state for an entire year (*Natural Resources Defense Council Study*)

# Digital Home in 2015

**2005 Residential Electricity 4.5 Quads**

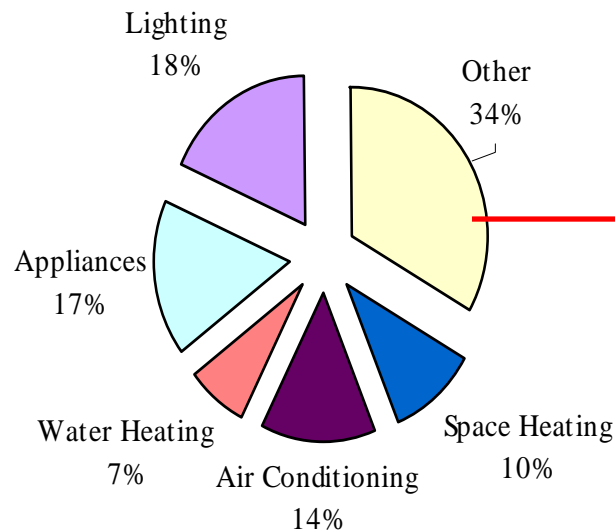


**1.3 Quads "Other" 2005**

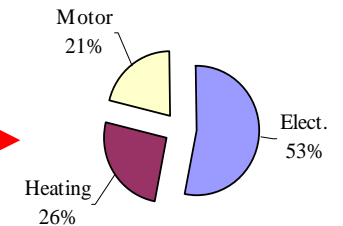


By 2015, "Misc." projected to grow to **34%** of home electric consumption

**2015 Residential Electricity 5.4 Quads**



**1.8 Quads "Other" 2015**



Source: US DOE, 2005

# Growth in CE Is Contributing to Higher Energy Bills

- The average American household spends more than **\$2,000** a year on energy bills
- By 2015, the number of CE products in each home is expected to rise by **35%**
- By 2015, CE products in the home will account for an increase in household electricity use by nearly **30 billion kWh** in just ten years



# What is ENERGY STAR?

**ENERGY STAR is a voluntary government/industry partnership that helps businesses and consumers make energy-efficient choices, making it easy to save energy, money and protect the environment.**

*ENERGY STAR helps consumers make energy-efficient choices that can save about a third on their energy bills without sacrificing features, style or comfort*

# ENERGY STAR Guiding Principles: Products and Specs

- Cost-effective efficiency
- Performance maintained or enhanced
- Significant energy savings potential
- Efficiency achievable with non-proprietary technology
- Product differentiation and testing feasible
- Labeling effective in the market

# Global Coordination Encouraging Efficient Power Supplies & Electronics



*Total Population of these Countries: >2 billion*

# ENERGY STAR Accomplishments

- Helped Americans save more than \$6.5 billion in electricity costs in 2005.
- Reduced greenhouse gas emissions equal to removing 20 million cars from the road for a year
- Qualifies products in more than 40 product categories that are produced by 1,400 manufacturers and can be found at 550 retailers (21,000+ storefronts).
- Is tied to US sales of over 1.5 billion ENERGY STAR products.
- Continues to work actively with major manufacturers to standardize and set new efficiency requirements while educating consumers about benefits of qualified products

# ENERGY STAR Goals for Electronics

- Maximize energy efficiency to reduce greenhouse gas emissions that contribute to climate change
- Make it easy for consumers to identify products with the ENERGY STAR mark that save energy, money, and help protect the environment
- Develop specifications to recognize products that use energy efficiently across all modes of operation (active/on....sleep/low-power...standby/off)

- |                     |                    |                         |
|---------------------|--------------------|-------------------------|
| ✓ Cordless Phones   | ✓ Fax Machines     | ✓ Multifunction Devices |
| ✓ Combination Units | ✓ Home Audio       | ✓ Printers              |
| ✓ Copiers           | ✓ Laptops          | ✓ Scanners              |
| ✓ Desktop Computers | ✓ Mailing Machines | ✓ TVs                   |
| ✓ DVD Products      | ✓ Monitors         | ✓ VCRs                  |

# Current ENERGY STAR Specification Revisions

- Imaging Equipment
- Computers
- Televisions

# Imaging Equipment

- Product Categories Covered: **copiers, fax machines, mailing machines, multifunction devices, printers, scanners**
- Two Approaches:
  1. Typical Electricity Consumption (TEC)
    - Looks at full duty cycle for standard-sized EP copiers, multifunction devices, and printers
    - Figure for the typical weekly electricity a product might use in all modes
  2. Operational Mode (OM)
    - Focuses on product energy consumption in various low-power modes (i.e., sleep and standby) for products such as ink jets and large format devices
- **EPS: Imaging products with EPS must use ENERGY STAR qualified models**



# Computers

- Product Categories Covered: desktops, notebooks, workstations, desktop derived servers
- Tier I Hardware & Operational Mode Requirements:
  - More aggressive sleep modes
  - New standby power requirements
  - New idle test procedure and power levels
  - New external and internal power supply requirements
- Tier II: Performance Benchmark
  - Use a software benchmark to measure the performance of the computer while simultaneously measuring the energy required to create that performance



# Televisions

- Product Categories Covered: **televisions, television monitors, component television units, television with cable card slots, combination units**
- **Test Procedure:** Will measure power consumption of televisions across all operational modes
  - Ability to test televisions of all screen types
  - Consideration of all variables that can alter power consumption (brightness, contrast, test clip used, format of test clip, etc.)
  - Ability to obtain repeatable results
- EPS/IPS: Efficient power supplies will be integral to meeting the performance specification
- EPA released draft market research report on televisions at 2006 Consumer Electronics Show



# Electronic Product Specifications - Timeline

Product Category	Status	Proposed Effective Date
Battery Charging Systems	Under development	January 1, 2006
Monitors	Finalized	January 1, 2006*
Telephony	Finalizing	July 1, 2006
Imaging Equipment	Under revision	March 1, 2007
Computers	Under revision	January 1, 2007
Televisions & TV Peripheral Devices	Under revision	January 1, 2008

\* Tier 1 has been in effect since January 1, 2005. The Tier 2 monitors specification will take effect on January 1, 2006. EPA also may revise the specification in the near future to require ENERGY STAR EPSs on monitors with EPSs.

# Servers and Data Centers

## *Conference on Enterprise Servers and Data Centers: Opportunities for Energy Savings January 31-February 1, 2006*

250 participants representing big buyers and users of servers and data centers, equipment and component manufacturers, facility managers, non-profits, academia, and government

### **Conference Objectives:**

- Highlight the growing energy demands of today's high-density enterprise servers and data center facilities
- Share best practices management and technical strategies to improve data center efficiency
- Collaboratively draft the business cases and action plans for improving data center efficiencies.

### **Next Steps:**

- Focused conversation on metrics for efficiency in this equipment
- Concentrated effort to enhance ENERGY STAR building metric for building to enhance its use in data centers

# Federal Purchasers and ENERGY STAR

- Engage in specification development process for products relevant to your organization
- Participate in upcoming discussions and work related to server and data center efficiency
- Buy ENERGY STAR products

# ENERGY STAR Resources

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Servers:

[www.energystar.gov/serverconference](http://www.energystar.gov/serverconference)

Computer, Imaging, and Television Spec  
Revision

[www.energystar.gov](http://www.energystar.gov), and go to products