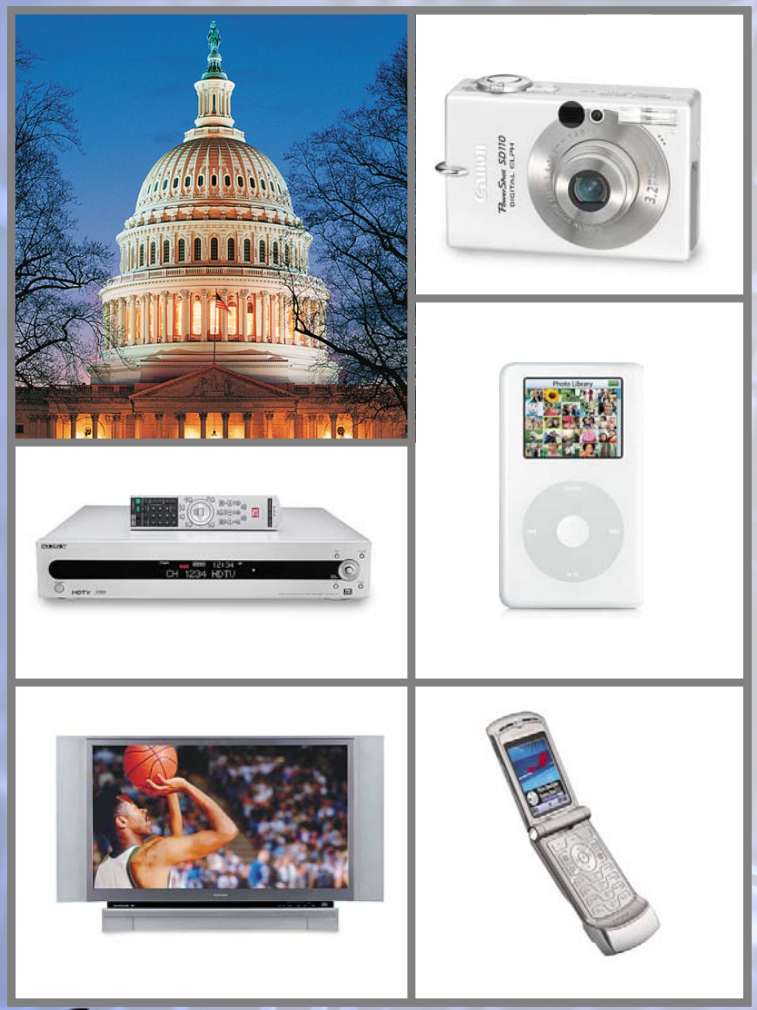

CEA®
Consumer Electronics Association
PRODUCER OF
International
CES®
www.CE.org

About CEA



- CEA represents more than 2,200 companies in the $161 billion U.S. consumer electronics industry
- Membership includes component suppliers, device manufacturers, retailers and distributors, service providers
- Most of CEA's members are small and medium-sized businesses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Life's Good
Gibson
DesignTech
INTERNATIONAL, INC.
iBIQUITY
RUNCO
The World's Finest
THIEL
TIME WARNER CABLE
THE POWER OF YOU
COMPUSA
CISCO
ALTEC LANSING
TERK
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SONY
hp
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Control 4
Kodak
JOHNSON CONTROLS
Microsoft
TEXAS INSTRUMENTS
Panasonic
circuit city
Sprint
Mitek Corporation
HAI
DELL
GREEN CLEAN
CIRRUS LOGIC
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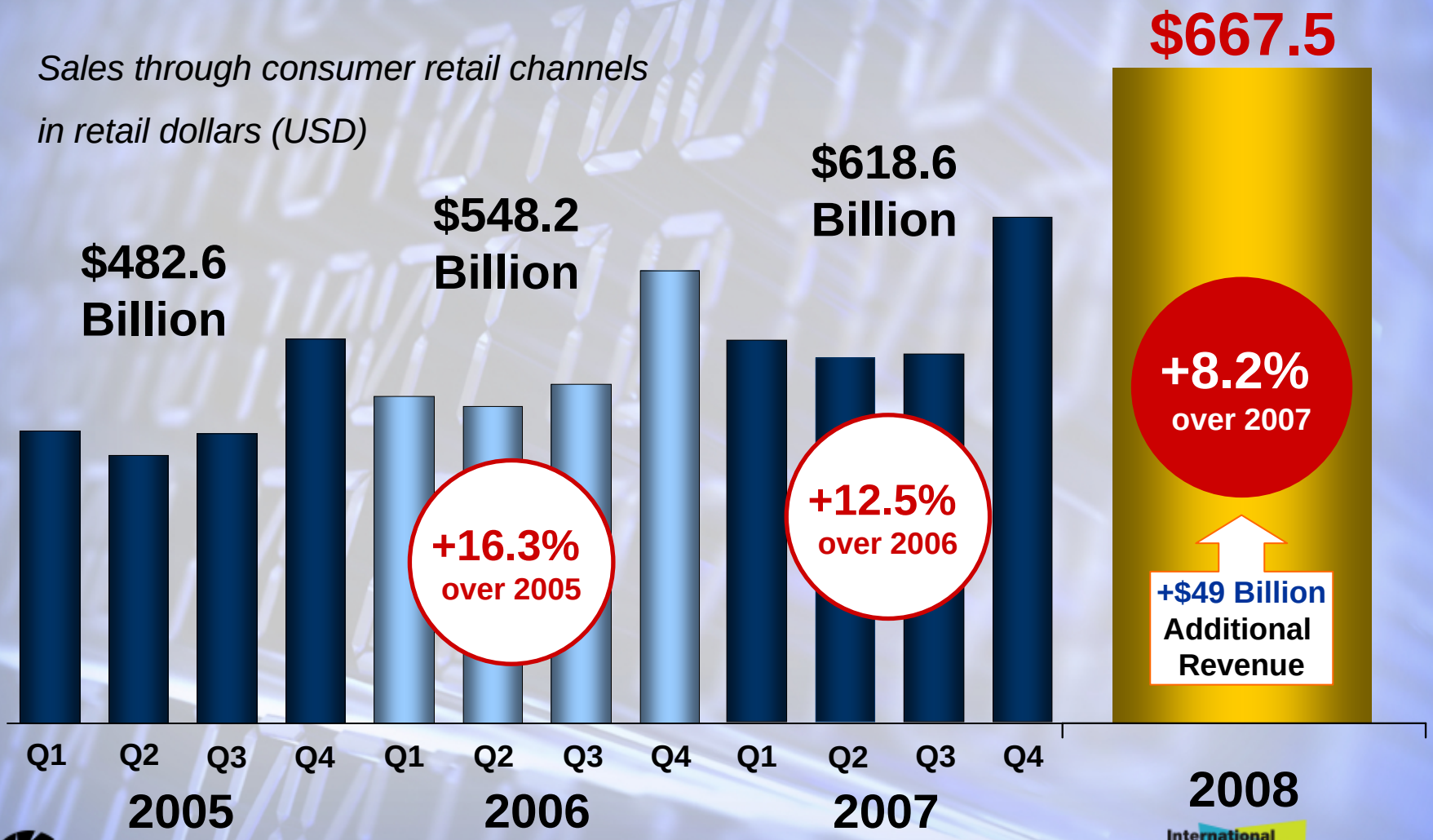
AudioVideo
SANYO
Cobra
ELECTRONICS CORPORATION
Atlantic Technology
INNOVATIVE HOME THEATER
AUDIO/VIDEO
ENTERTAINMENT Inc.
YAMAHA
SanDisk

Global CE Expenditures

Sales through consumer retail channels

in retail dollars (USD)



CEA

www.CE.org

International CES

Consumer Electronics

- Televisions and set-top boxes
- Video recorders and players
- Home audio and home theater products
- Portable audio and video products
- Desktop and notebook computers and computer accessories
- Video games
- Mobile phones and accessories
- PDAs and handhelds
- In-car information, communication and entertainment products
- Cameras and camcorders
- Cordless telephones and accessories
- Home networking and home office products

Consumer Electronics Market

- Rapid innovation
- Dynamic marketplace
- Highly competitive industry
- Significant time-to-market pressures
- Significant cost pressures
- Rapid rates of market penetration
- Rapid transition from one technology to another

Key Question

- What is the best way to encourage and support energy efficiency and reduction of standby power consumption in the consumer electronics sector while protecting innovation, competition and consumer choice?

Drivers for Market Transformation

Key drivers of energy efficiency and the reduction of standby power in consumer electronics:

1. *Innovation, technological advances*
2. *Voluntary, market-oriented programs and initiatives*

Trends

Major industry trends which naturally drive, support and sustain the energy efficiency of electronics:

- *Convergence*
- *Miniaturization*
- *Transition from analog to digital technology*
- *Innovation*

Consumer Electronics Industry Approaches & Initiatives

- Voluntary, market-oriented programs
- Research and analysis
- Standards developed by industry
- Consumer education
- Promotion of energy-efficient products
- Outreach and coordination

Energy Star: Advantages

- Voluntary, market-driven and international
- Government-industry partnership
- Captures broad range of consumer electronics product categories
- Strong participation by manufacturers
- Well-recognized by consumers
- Competitive incentive for energy savings
- Consideration of active mode power in addition to standby mode power

Energy Star: Achievements

- *Electronics are an Energy Star success story*

	ENERGY SAVED 2006 (BILLION KWH)	EMISSIONS AVOIDED 2006 (MILLION METRIC TONS OF CARBON EQUIVALENT)
Consumer Electronics	**12.3**	**2.4**
Residential Appliances	0.6	0.1
Residential Office Equipment	**6.3**	**1.2**
Lighting	11.3	2.2
Heating and Cooling	7.6	2.4
Commercial Appliances	1.3	0.3
Office Equipment	**28.5**	**5.6**
Commercial Lighting	1.7	0.3
Other	5.5	1.0

Source: U.S. Environmental Protection Agency's latest ENERGY STAR Annual Report

Energy Star

- Specifications recently completed or in development: TVs, set-top boxes, computers, monitors, imaging equipment, external power supplies

Energy Star: Set-top boxes

- New Energy Star specification in development for complex STBs
- Energy Star program in place for simple STBs (digital-to-analog converter boxes)
- Challenges: Service (cable, satellite, telecom) and product distribution
- Auto power down
- Additional market-oriented approaches?

  - Electric utility rebates

Energy Star

- The Energy Star program for consumer electronics has proven to be the best and most effective approach for saving energy and reducing greenhouse gas emissions.
- The Energy Star program effectively drives energy use down to the lowest levels possible without harming innovation, sacrificing consumer choice, or impeding product convergence.

Pitfalls of Regulation and MEPS

- Never keeps pace with technology
- Product definitions change
- Products converge, new product categories emerge
- Technical complexities with consumer electronics
- Operating modes and functions change

Recent California Regulations

- External power supplies – *Amended*
- Digital-to-analog TV converter boxes (DTAs) – *Removed*
- Compact audio, DVD players and DVD recorders, TVs – *Current focus*

Recent California Regulations

- The California regulations do not achieve energy savings as predicted
- States have overwhelmingly rejected appliance efficiency standards (MEPS) for consumer electronics

Recent Federal Action in U.S.

"Energy Independence and Security Act of 2007" - Provisions supported by CEA:

- *New national energy efficiency standard for external power supplies*
- *Stronger federal consideration and treatment of standby power ("1 Watt" rejected)*
- *Energy use disclosures for CE products*

Government Regulation (MEPS)

- Establish mandatory requirements
- Limit energy use in one or more operating modes
- Present regulatory burdens and costs (for industry *and* government)
- *Not appropriate for consumer electronics*
- *Better alternatives exist which are already working to save energy (Energy Star)*

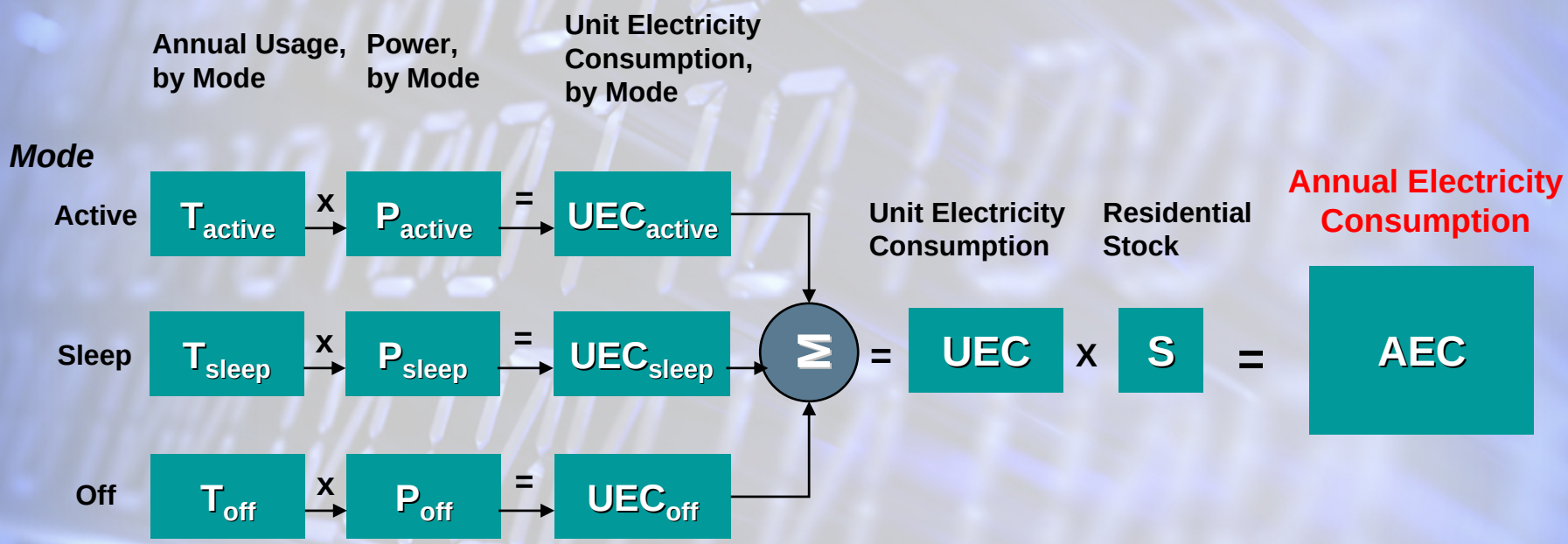
Data Concerns

- In the U.S., many estimates of consumer electronics electricity consumption have relied upon data developed in the late 1990s.
- Many CE products have changed dramatically over the last decade, as have their energy consumption characteristics (due to technological change and the success of the Energy Star program).

CEA-Commissioned Study

- Peer-reviewed publicly-available final report from TIAX LLC issued in 2007
- Focus on key equipment types (16 products that account for approximately 90% of residential CE energy consumption)
- Goal: Current analysis (2006) and good data for all variables

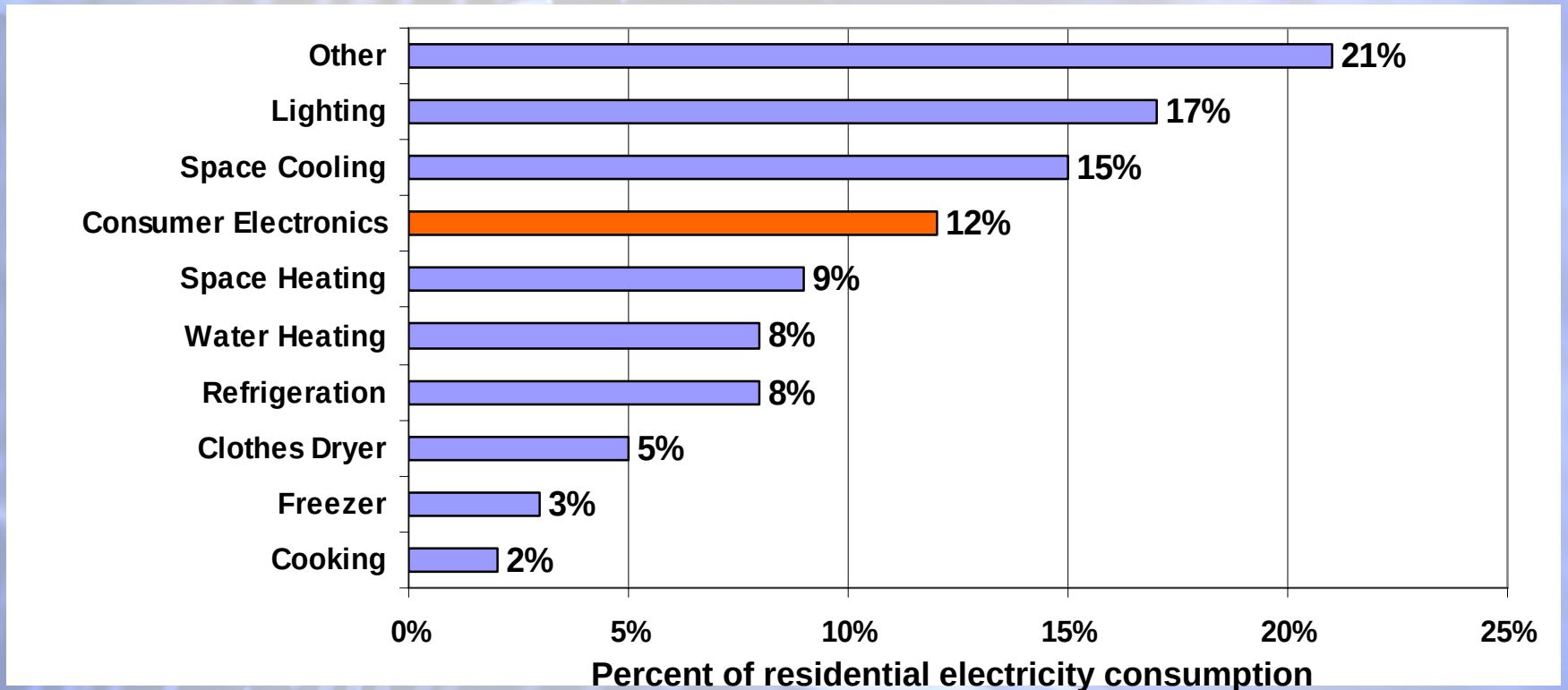
Bottom-up Approach



Note: Operating modes are illustrative; actual modes vary by device.

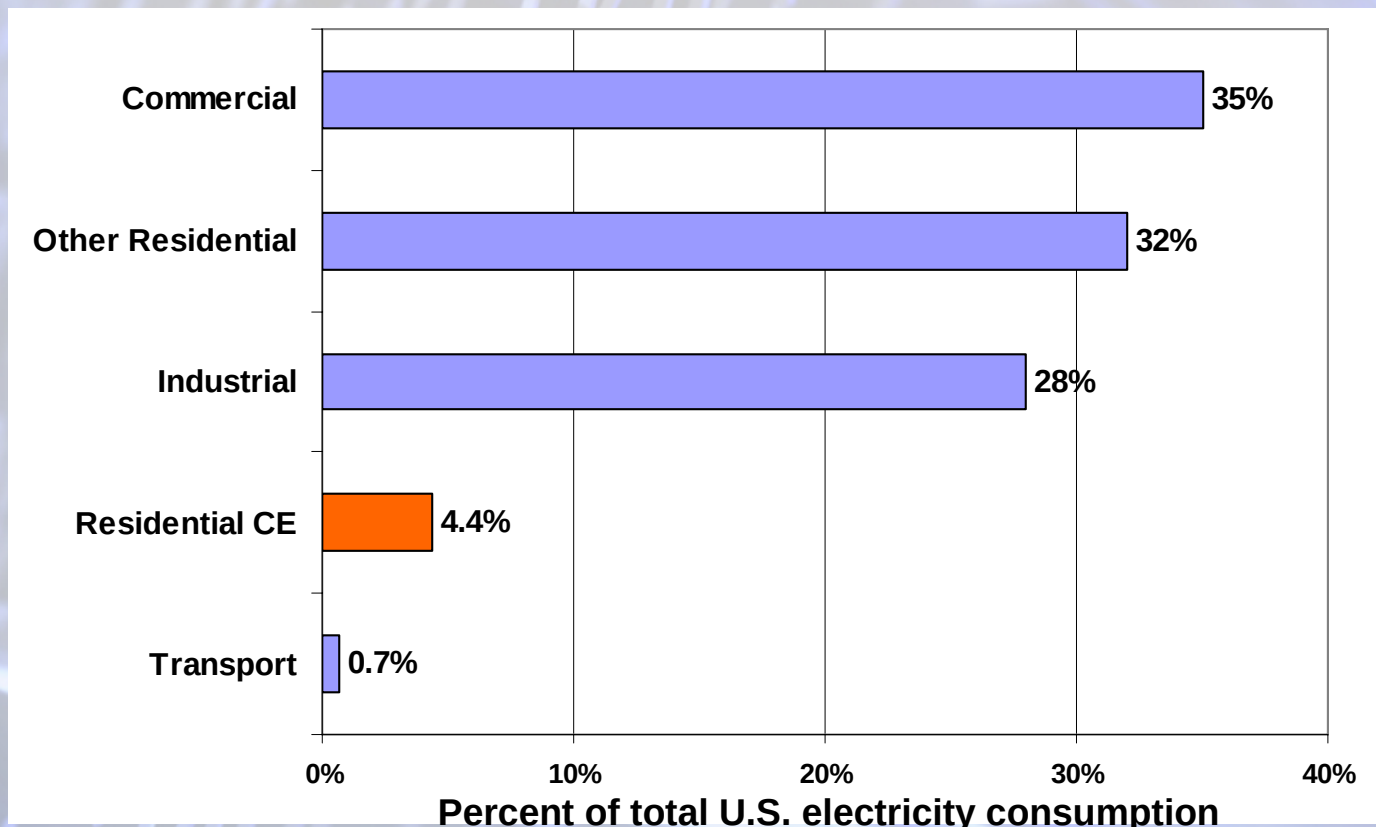
Study Findings: Energy Use

Residential consumer electronics consumes 12% of U.S. residential electricity…



Study Findings: Energy Use

…and 4.4% of total U.S. electricity.



Standby Power for CE Products

- TIAX analysis indicates that standby power accounts for about one-quarter of CE electricity consumption or about three percent of residential electricity consumption.

Study Findings: Trends

- Higher installed base for many devices, and many new devices (installed base of key equipment types is about twice that of circa 1997)
- Apparent greater usage of TVs and PCs (increased accuracy from usage surveys)
- Increase in active mode power draw for several devices (analog TVs, PCs)
- Decrease in active mode power draw for monitors
- ***Decrease in standby mode power draw for many devices (Large portion have met Energy Star criteria); Exception: complex set-top boxes.***

Conclusions from Study

- Consumer electronics energy use is not as high as many reports we read in the U.S.
- Energy use has gone up but so has efficiency
- More products are in use
- TVs and PCs are on more hours per day
- ***This study demonstrates the effectiveness of voluntary energy efficiency programs***

Next Steps with Energy Use Study

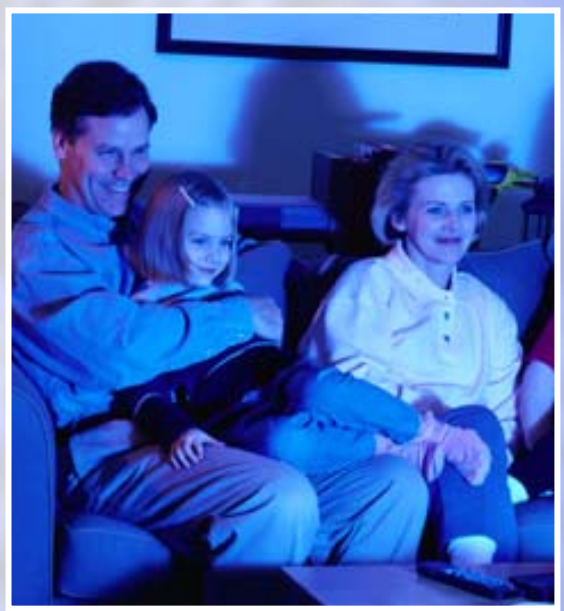
- Revise entire study every three years
- Study and methodology could/should be duplicated in other countries
- Full report at www.ce.org/energy

New Study Commissioned by CEA

- Electronics significantly reduce energy use and CO_2 emissions.
- Using electronics to telecommute saves the equivalent of 9 to 14 billion kilowatt-hours of electricity per year — the same amount of energy used by roughly 1 million U.S. households every year.
- The estimated 3.9 million telecommuters in the United States reduced gasoline consumption by about 840 million gallons, while curbing CO_2 emissions by nearly 14 million metric tons (equal to removing 2 million vehicles from the road every year).

New Study Commissioned by CEA

- If half of all current video/DVD rentals transitioned to video-on-demand, this would save the equivalent of 2.4 billion kWh of electricity – the same amount of energy used by roughly 200,000 U.S. households every year.



Industry Standards: CEA

- American National Standards Institute (ANSI) accreditation
- More than 70 committees, subcommittees and working groups
- www.ce.org/standards

Industry Standards

- Advantages of industry-led standards:
  - Market-oriented
  - Strong industry participation
  - Credible and flexible
  - Open to all stakeholders
  - Performance neutral
  - International

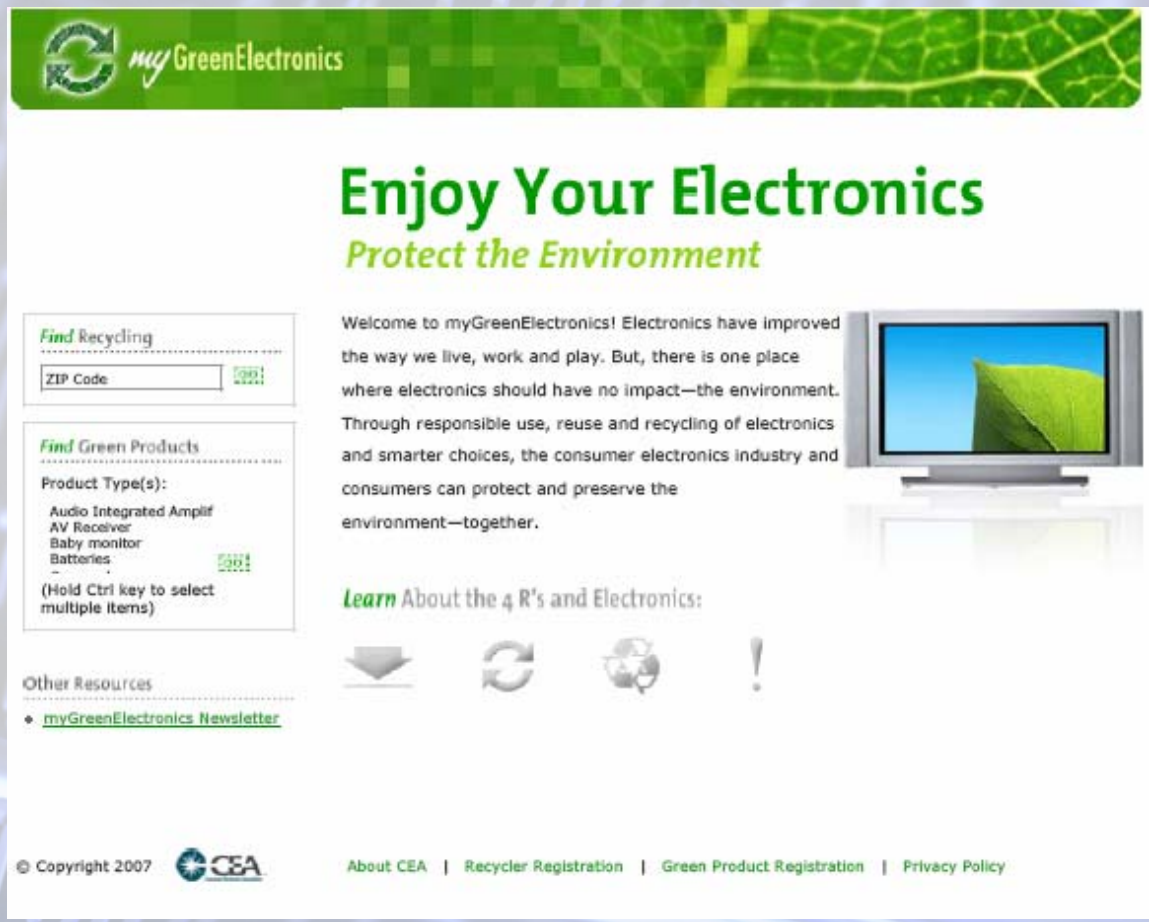
Industry Standards

- Opportunity for regulators and policy makers to influence industry standards to save energy while protecting innovation and consumer choice.

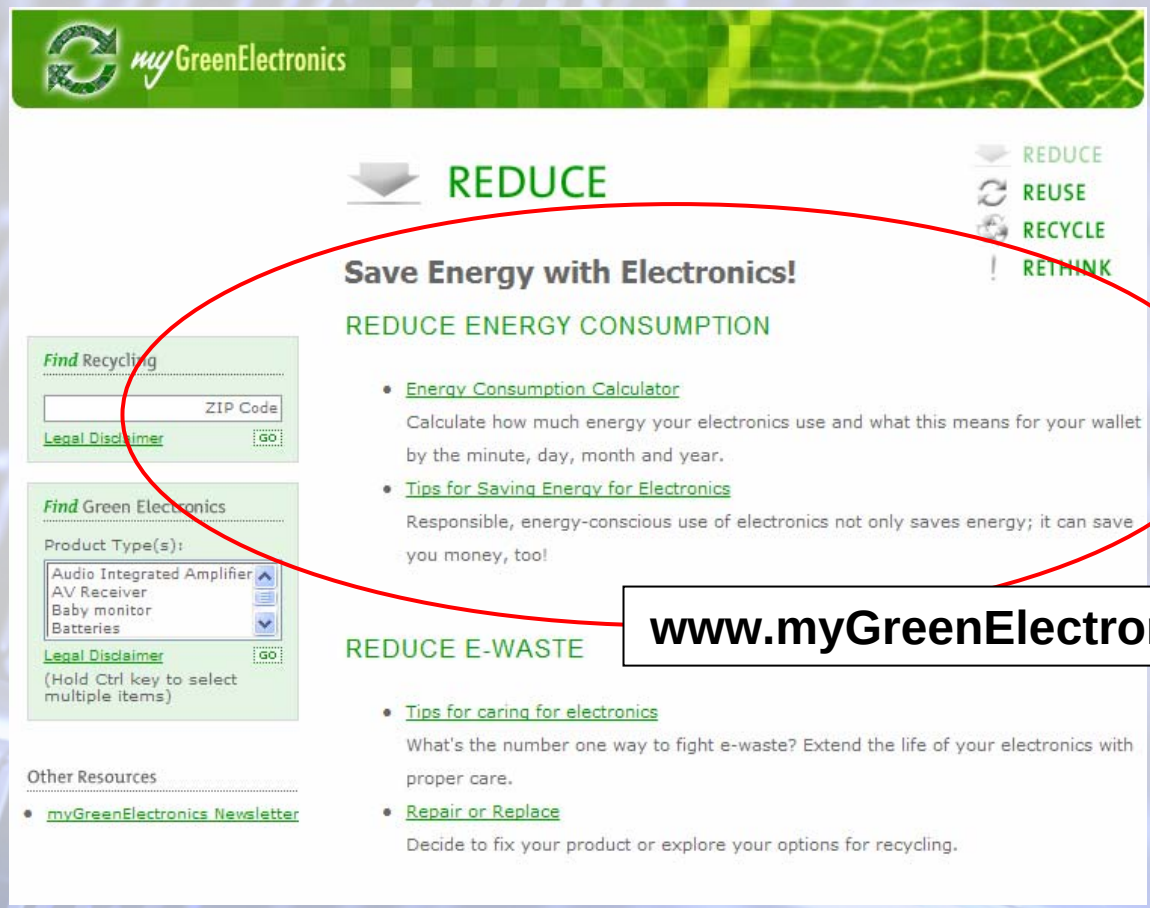
Industry Standards

- Recent industry-led standards projects supporting energy efficiency:
  - Standards developed by CEA Video Systems Committee “R4” for set-top boxes (STBs): CEA-2013-A (Digital STB Background Power Consumption); and CEA-2022 (Digital STB Active Power Consumption Measurement)
  - International industry standard for measuring TV power consumption (IEC TC 100 and TC 110 working groups)

Consumer Education



Energy Saving Tips & Energy Use Calculator for Consumers



www.myGreenElectronics.org

Promotion of Energy Efficiency

- 2008 International CES:
  - Energy efficient products and technology on display
  - Conference session on energy efficiency
  - International CES Innovations award for eco-design

Standby Power

- Best to take a holistic approach (consider all product operational modes)
- “1 Watt” not a realistic policy
- Usefulness: remote control, memory, clock and networking

Harmonization

- Test procedures
- Specifications underlying voluntary programs
- External power supplies
- Energy use disclosures

Opportunities for Collaboration

- Support and enhancement of voluntary approaches and programs
- Industry-led standards (e.g. measurement)
- Product-specific initiatives: STBs
- Energy use disclosures
- Consumer education
- Research and analysis

European Union and EuP Directive

- Key opportunities and outcomes under EU Energy-using Product (EuP) Directive:
  - *Energy Star for consumer electronics*
  - *Energy use disclosures*
  - *Harmonized approach for external power supplies*

Global Industry Position

- Support voluntary, market-oriented programs and initiatives
- Continue to work cooperatively with governments
- Oppose mandates on technology and products

Global Industry Position

Current CEA Initiatives

- Energy consumption measurement standards for major CE products
- Common approach for conveying product energy usage information to consumers
- CE industry goal for future energy consumption, and energy efficiency design principles

Best Practices for Electronics

- Voluntary, market-oriented programs such as Energy Star (Public-private partnerships)
- Standards developed by industry
- Consumer education

International Conference on Standby Power

Session IV: Consumer electronics industry approaches and initiatives for standby power and energy efficiency

New Delhi | 2-3 April 2008

Contacts:

Consumer Electronics Association (CEA)

United States of America

Mr. Peter ROBERTSON
peter.robertson@pillsburylaw.com

Mr. Douglas JOHNSON
djohnson@ce.org