ENERGY STAR®
Electronics Strategy, Tools & Resources

Workshop on ENERGY STAR
Electronics Program Design

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Session Summary

- ENERGY STAR & Electronics
  - Overview
  - Specification Plans
  - Approach to Key Products
- Consortium for Energy Efficiency
- Other ENERGY STAR Resources

Overview: A Complicated Market

- The fastest growing household electricity end-use
- Complex market dynamics
  - Products proliferate: more choices every year
  - Product convergence: categories change rapidly
  - Features and services change rapidly
- Challenging technical issues
  - Energy management often not factored into design
  - Networking/connectivity needs can increase energy use
- Barriers to smart purchasing
  - Purchase price dwarfs operating costs in most cases
  - Consumers' information "search costs" are not worth it for small energy savings per item

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Overview: EPA & Electronics

- Electronics among first ENERGY STAR products (1992)
- Then
  - Specs addressed standby usage, power management
  - Little connection with standards
- Now
  - Specs also addressing active mode consumption
  - Offering increased energy savings
  - International harmonization on test prodedures
  - Ongoing spec revision process

Spec Plans: Current Revisions

Product Category	Current Specs	Planned Revisions
TVs*	11/1/08: New Active Power Spec Effective	9/1/10: Tier 2 Effective
EPS	11/1/08: New Version 2.0 Spec Effective	NA
Telephony	11/1/08: Reflects Version 2.0 EPS	NA
STBs*	1/1/09: New Spec Effective**	1/1/11: Tier 2 Effective
Imaging Equipment*	4/1/07: New Active Power Spec Effective	7/1/09: Tier 2 Effective
Computers & Notebooks (Incl. Game Consoles)*	7/20/07: New Active Power Spec Effective	7/1/09: V5.0 Effective
Displays*(Monitors)	1/1/06: Tier 2 active power spec effective	10/21/09: V5.0 (Proposed)
Battery Charging Systems	1/1/06: Spec Effective	Revisions anticipated 09
Audio/DVD	1/1/03: Tier 2 Spec Effective	Revisions planned late 08
DTAs*	1/31/07: New active power spec effective	NA

*Indicates EPA's high-priority products.

**Manufacturer specification will take effect January 1, 2009; service provider requirements effective immediately.

Red = New specs/requirements effective within next 2 months.
Blue = Anticipated spec revisions
Green = New specs scheduled to take effect in 2009.
Gray = No revisions currently planned.

Spec Plans for 2008-2009

2008

- Revisions (Completed)
  - Set-Top Boxes
  - TVs
  - External Power Supplies
- Revisions (Ongoing)
  - Imaging
  - Computers
  - Displays (Monitors)
- Sunset
  - VCRs (Nov. 1, 2008)

2009

- Revisions (Planned for 2009)
  - Audio/DVD
  - TVs (Tier 2 development)
  - Battery chargers (possible)

Under Consideration for 2009

- Possible New
  - Home network equipment
  - Uninterruptible power supplies
  - Home storage
  - Data center storage
  - Smart meters
- Additional Products (Scoping)
  - Data center network equipment
  - Microwaves
  - Point of sale devices
  - Hand dryers
  - Power strips
  - Toaster ovens
  - Coffee makers
  - Vacuums
  - Battery chargers for electric vehicles
  - Security systems

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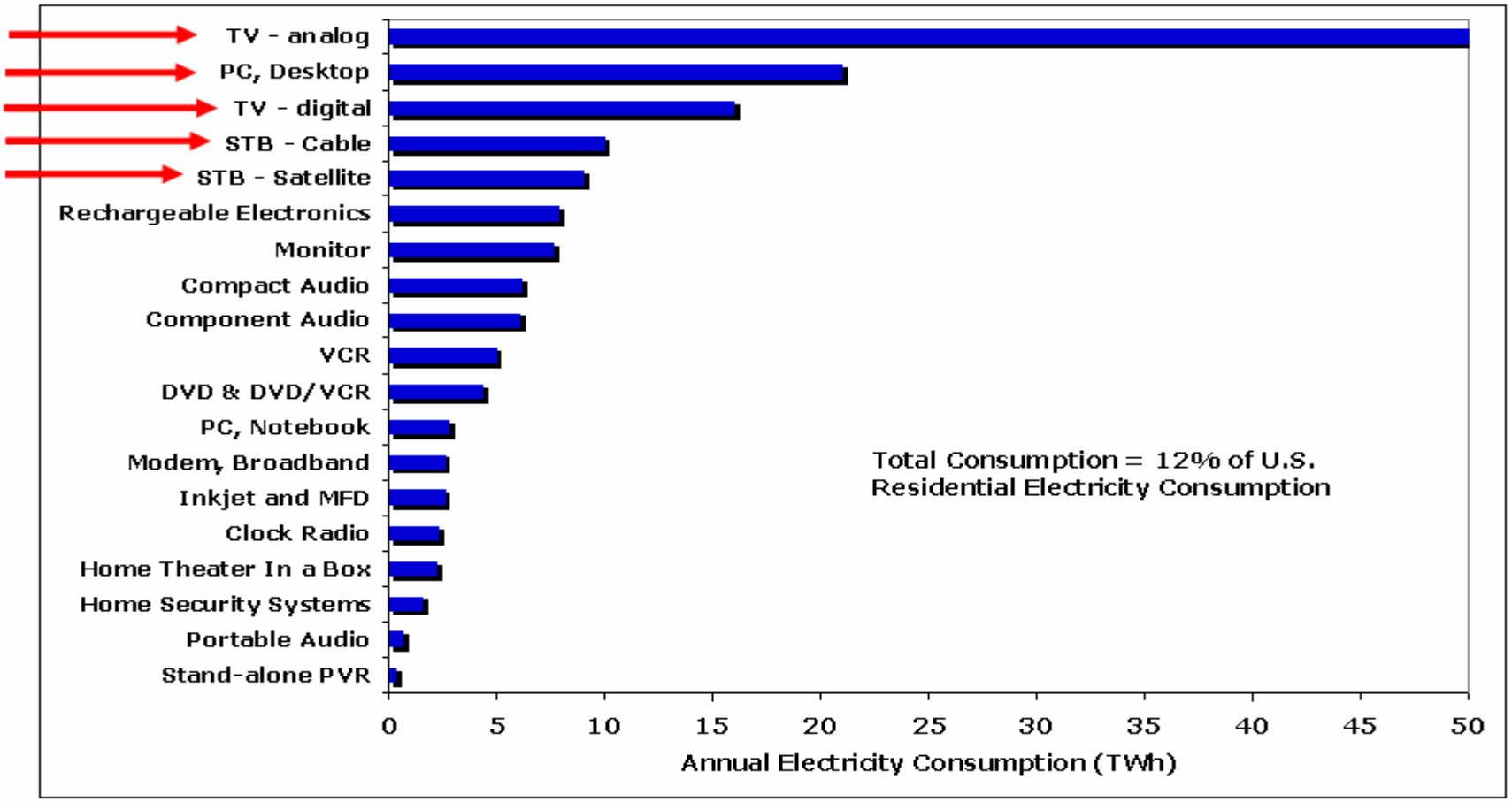
Approach to Key Products

Top Five Products Use More Electricity than an Average State!



Sources: Residential Miscellaneous Electrical Loads, Tiax, July 2007; and EIA State Electricity Profiles

TVs/Home Entertainment

- TVs growing in size and electricity usage
  - Largest units can use more energy than a refrigerator
- TVS and entertainment centers more feature-rich, multi-purpose
- Savings potential lies with market volume, not per unit savings
- ENERGY STAR Market share
  - 64% before new spec introduction
  - Approx 27% after 11/08 new spec*
  - Approx 30% by 2009*
  - Approx 50% by 2010 (before Tier 2 spec)*

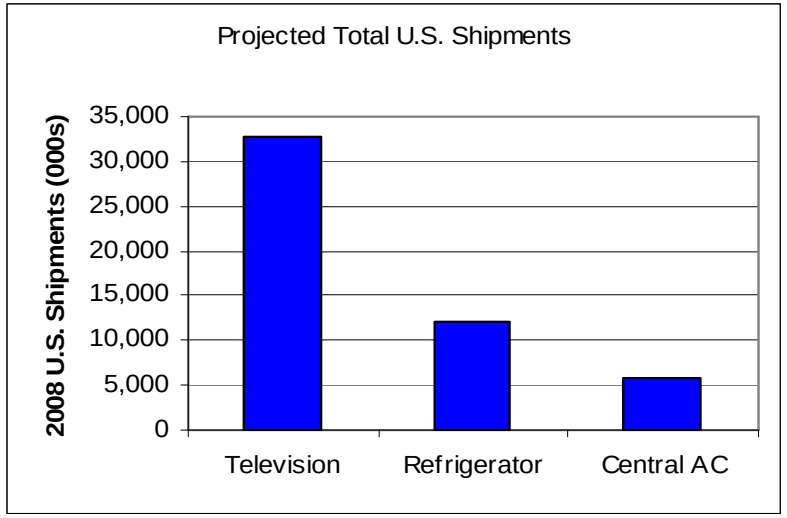
*Based on approximate percentage of models that meet Tier 1 levels from EPA's dataset used to develop V3.0 spec; the percentage is not sales-weighted. 2009 and 2010 percentages are extrapolated from the same dataset.

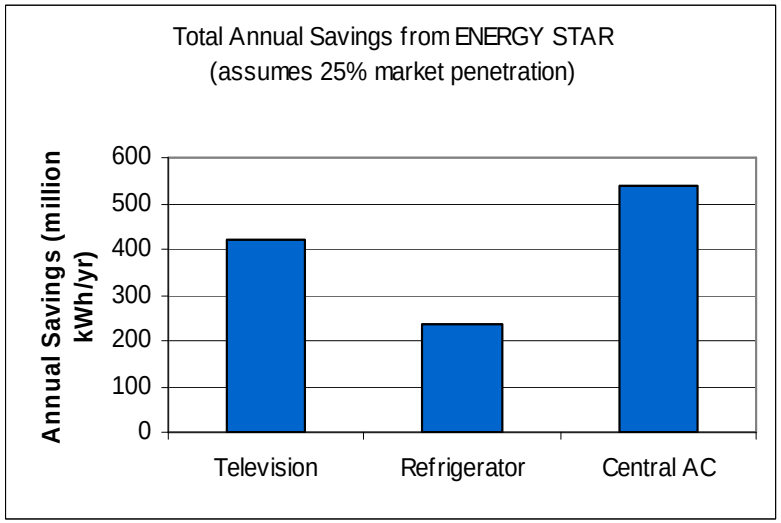
TVs/Home Entertainment

Savings Can Be Substantial

- TV
  - Estimated Lifetime: 6 Years
  - Incremental Cost: None
  - Potential Savings: 52 kWh/year
  - Potential Peak Savings: 0.006 kW/unit
- Home Theater
  - TV + Home Theater in a Box* = 68 kWh/year savings
  - TV + DVD = 69 kWh/year savings
  - TV + Minisystem = 84 kWh/year savings
- Huge savings potential on a market basis
  - Estimated over 400 million kWh/year at 25% market share based on 2008 shipments

*Home Theater in a Box is a prepackaged system that includes a receiver, subwoofer, and a DVD player





Office Equipment

- ENERGY STAR market share
  - Computers: 22%, Monitors: 35%, Imaging: 50%
- Historically, federal purchasing requirements have transformed market quickly
- This trend may be slowed by
  - More stringent ENERGY STAR requirements
    - Active power
    - Power management
  - Accelerated spec revision process
- Market trends create
  - Opportunities energy efficiency program intervention
  - Incentive to manufacturers for product differentiation with ENERGY STAR

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Home Office Products

ENERGY STAR products deliver large savings:

Product	Est. Life	Savings with ENERGY STAR (kWh/yr)	Lifetime Savings with ENERGY STAR (kWh/yr)
PCs	4 Yrs	**76**	**304**
LCD Monitors	5 Yrs	**35**	**173**
Laptops	4 Yrs	**11**	**45**
Inkjet MFD	6 Yrs	**32**	**192**
Home Office	5 Yrs	**197**	**985**

For Comparison:

- ENERGY STAR CFL saves approx 51 kWh/yr
- ENERGY STAR Refrigerator saves approx 77 kWh/yr

ENERGY STAR Set Top Boxes

- Manufacturer Partnership Agreement
- Service Provider Partnership Agreement (New)
  - Option 1: 50% of all new purchases must be ENERGY STAR qualified
  - Option 2: Fleet requirements for new and/or refurbished boxes
    - 10% in 2009; 25% in 2010
  - Labeling requirements (electronic and on equipment)
  - Consumer education & sales training requirements
- Influencing the market
  - ENERGY STAR – seeking commitments from national service providers
  - Program sponsors
    - Influence municipalities to include ENERGY STAR requirements in video services procurements
    - Offer incentives for service providers to promote ENERGY STAR locally

Digital TV Adapters (DTAs)

- Driven by digital signal transition 2/17/09
  - NTIA offering 2 $40 coupons per household for qualified DTAs
  - NTIA program
    - NTIA DTA specifications include energy efficiency
    - ENERGY STAR spec offers limited additional savings
    - Market transformation underway through retailers
      - Several major retailers stocking ENERGY STAR DTAs
- An Education-Only Opportunity
  - ENERGY STAR providing consumer education material for websites, bill stuffers, and outreach events
  - Material available at www.energystar.gov/products

Summing Up the ENERGY STAR Electronics Story

- Electronics are the fastest-growing element of electricity demand
  - Meeting energy and climate challenges requires addressing electronics markets
- Electronics markets won't transform fast enough by themselves
- ENERGY STAR can help
  - Several established specs and new specs
  - Long standing relationships with industry
  - National campaign to tie into retailer platforms
  - Sharing information on program approaches models that work

ENERGY STAR Suggests…

- Leverage ENERGY STAR
  - ENERGY STAR National Campaigns
  - ENERGY STAR Platform to align with retailers
  - ENERGY STAR marketing tools and templates
  - Identify program partners
  - Savings calculators and other tools
  - Participate in ongoing specification revision process

- Electronics program design suggestions
  - Start simple: TVs, computers, monitors, laptops, DTAs, STBs
  - Consider upstream/midstream incentives before downstream
  - Build in flexibility for different retailer models
  - Avoid customer-level or unit-based reporting
  - Look for opportunities to adopt best practices from peers
  - Join CEE's Consumer Electronics Initiative Working Group