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
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 procedures
  - Ongoing spec revision process
## Spec Plans: Current Revisions

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

*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
Approach to Key Products

Top Five Products Use More Electricity than an Average State!

- TV - analog
- PC, Desktop
- TV - digital
- STB - Cable
- STB - Satellite
- Rechargeable Electronics
- Monitor
- Compact Audio
- Component Audio
- VCR
- DVD & DVD/VCR
- PC, Notebook
- Modern Broadband
- Inkjet and MFD
- Clock Radio
- Home Theater In a Box
- Home Security Systems
- Portable Audio
- Stand-alone PVR

Total Consumption = 12% of U.S. Residential Electricity Consumption

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
## Home Office Products

ENERGY STAR products deliver large savings:

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

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