ENERGY STAR and Network Connectivity
IEA Network Standby Workshop

March 7-8, 2013

US Environmental Protection Agency
ENERGY STAR Program

Learn more at energystar.gov
What is ENERGY STAR?

• **ENERGY STAR** is a voluntary, government-backed energy efficiency labeling program dedicated to helping individuals protect the environment through superior energy efficiency.

• **ENERGY STAR** is the national symbol of energy efficiency, making it easy for consumers and businesses to identify high-quality, energy-efficient products.

• **ENERGY STAR** distinguishes what is efficient/better for the environment without sacrificing features or performance.

• Products that earn the **ENERGY STAR** meet strict energy performance criteria set by EPA.
ENERGY STAR Builds on Intersection of Interests

- Cost-effective
- No Sacrifice in Performance

Consumer is Key
ENERGY STAR Portfolio

• Define and educate on energy performance through a single designation: ENERGY STAR
  – Product Efficiency
  – New/Existing Home Efficiency
  – Commercial Building Efficiency
  – Industrial Plant Efficiency
ENERGY STAR Achievements

- Last year ENERGY STAR turned 20!
- Collectively, we have saved over $230 billion on utility bills and prevented more than 1.8 billion metric tons of greenhouse gas emissions.
- 18,000 partners.

ENERGY STAR Program Benefits Have Nearly Tripled Over Its Last Decade
ENERGY STAR Products

65+ product categories, including:
- Displays
- TVs
- Imaging Equipment
- Computers
- Refrigerators
- Clothes Washers
- Light Bulbs and Fixtures
- Ceiling Fans

• Over 1,700 Manufacturing Partners with more than 40,000 ENERGY STAR qualified products.
How Many of ENERGY STAR Products are Network Connected?

- CE and IT products: computers, game consoles, imaging equipment, audio/video, set top boxes, displays, TVs, and large and small network equipment.

- Network connected/demand response ready appliances (Refrigerators, clothes washers, etc).

- Climate controls.
Consumers value connection—it offers convenience and access to many new and attractive features. EPA’s interest is to deliver connection in ENERGY STAR products with the lowest power budget possible.

- What is the function of network connectivity in a product in a low power state (Sleep, Standby modes)?
  - If it enables wake, this makes sleep more user friendly.
- What is the impact on overall power consumption when connectivity is enabled?
  - Requires balancing increases in Sleep power with decreases in On time.
- How can network connectivity serve its function with the lowest energy budget?
- How can ENERGY STAR program incentivize most energy efficient implementations?
- What similarities exist across product categories? What are the opportunities for technology transfer? Where do differences lie?
How Have Different ENERGY STAR Specifications Addressed Network Connectivity?

Example: Displays

- Displays increasingly sold with network connectivity. Data connections have much in common with network connections and need to be addressed by the same policy.
- Version 6.0 (takes effect June 1, 2013) Test method establishes testing hierarchy in Sleep Mode.
- Approach: Power allowances for network connectivity in Sleep Mode.
  - Base allowance 0.5 watts: +0.2 watts for fast ethernet; +1.0 watt for Gigabit Ethernet; +2.0 watts for Wi-Fi.
  - Power allowances determined from experiences with similar products.
How Have Different ENERGY STAR Specifications Addressed Network Connectivity?

Example: TVs

- Most new TVs today ship with network connectivity feature and TV OEMs shipping smart phone based remote control apps (though many still require IR remotes to turn on).

- Version 6.0 (takes effect June 1, 2013) Test method establishes testing hierarchy in Standby Active Low.

- EPA will assess data as new specification takes effect; interest in determining impact on power consumption.
How Have Different ENERGY STAR Specifications Addressed Network Connectivity?

Example: Computers

In the Computer specification, EPA has rewarded those devices which maintain network connectivity in low power state.

- Small amounts of additional Sleep power have the potential for large energy savings over time.

- Allowances for Wake-on-LAN for ethernet connectivity.

- Incentive for Proxzzzzying (ECMA 393) which has potential for energy savings by encouraging products to enter Sleep Mode for longer periods.
Lessons from ENERGY STAR Specification Development

- Additional power in low power modes translates into overall energy savings.
  - Energy = Power * Time
- General framework applied, yet different classes of devices will need different treatment. Technology transfer valuable.
  - Menu of allowances, where merited, is limited and values strict.
- Harmonize across specifications, where possible.
- Functionality in product categories evolve rapidly.
- Continue to promote technology development through criteria that further efficiency: energy efficient ethernet (EEE), proxzzzying, energy reporting.
- Identify and invest in standard development in areas that promise big savings (e.g., proxzzzing, EEE).
Contact Information

Verena Radulovic
Product Manager, Consumer Electronics
EPA ENERGY STAR
Tel: +1 202 343 9845
Email: Radulovic.Verena@epa.gov