

# ENERGY STAR and Network Connectivity

IEA Network Standby Workshop

March 7-8, 2013

US Environmental Protection Agency  
ENERGY STAR Program



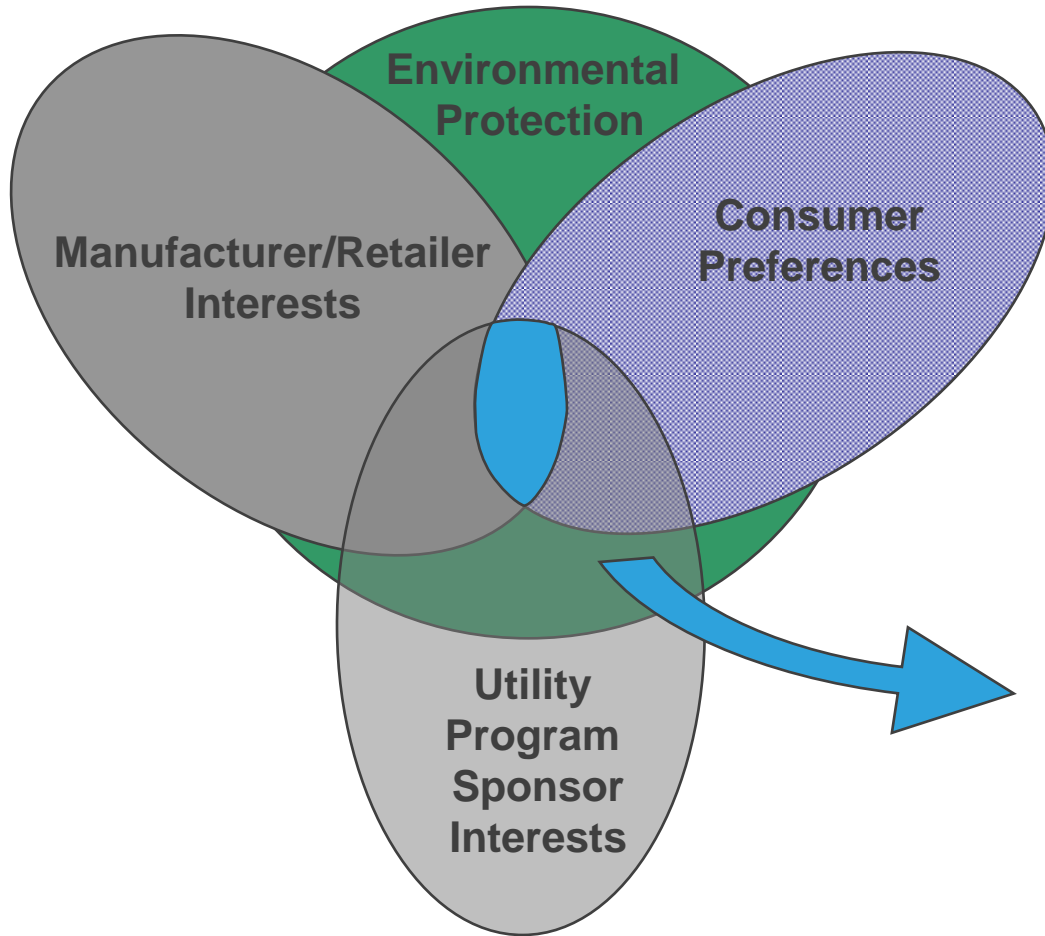
Learn more at [energystar.gov](http://energystar.gov)

# 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



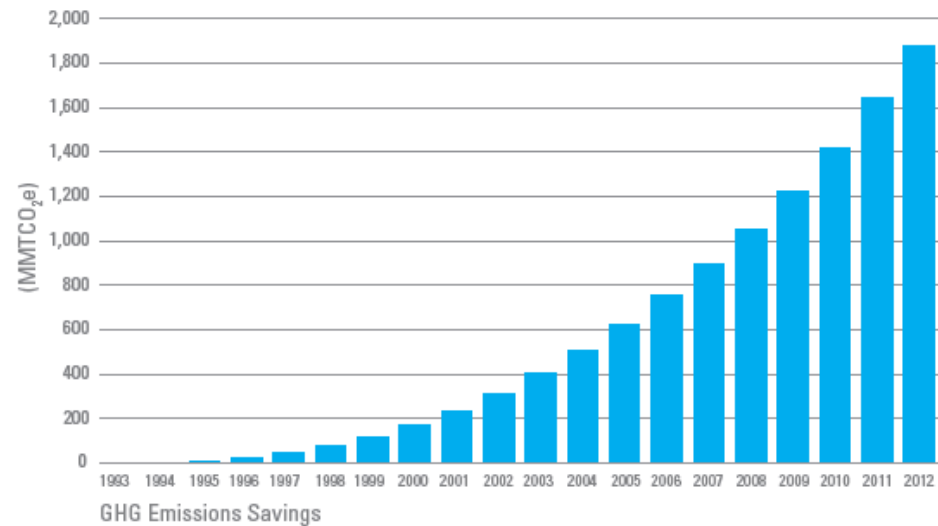
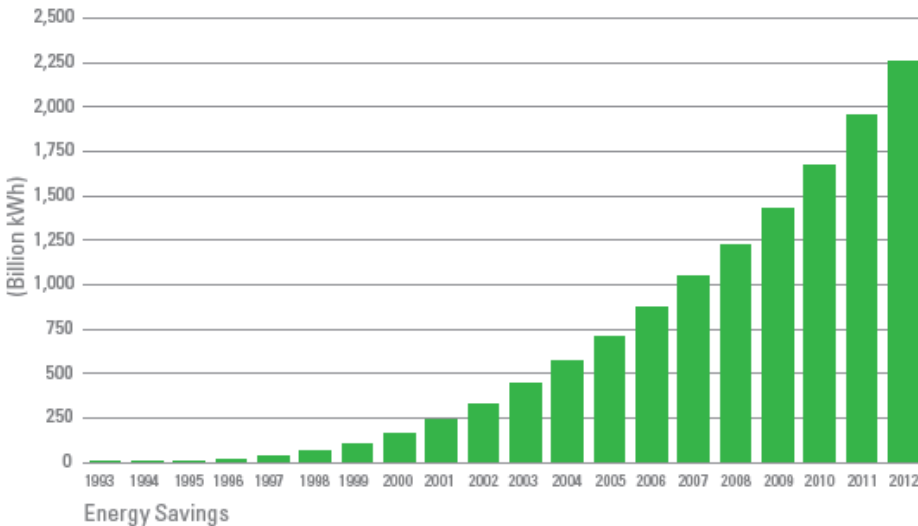
# ENERGY STAR Achievements



- 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
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- **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.

# ENERGY STAR Approach to Network Connectivity



*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 Proxzzzying (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.
  - $\text{Energy} = \text{Power} * \text{Time}$
- 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), proxzzzing, energy reporting.
- Identify and invest in standard development in areas that promise big savings (e.g., proxzzzing, EEE).

# Contact Information

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