



# ENERGY STAR

## Program for Set-top Boxes

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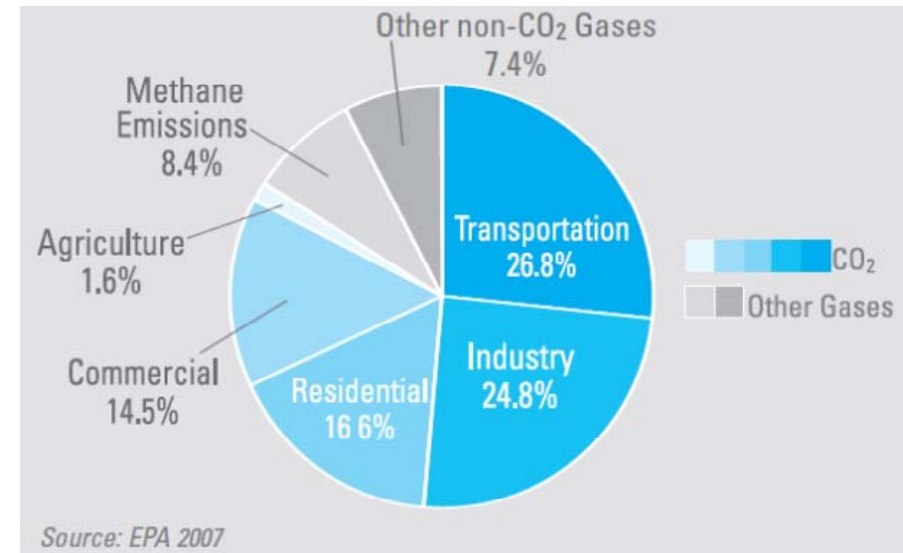


Learn more at [energystar.gov](http://energystar.gov)

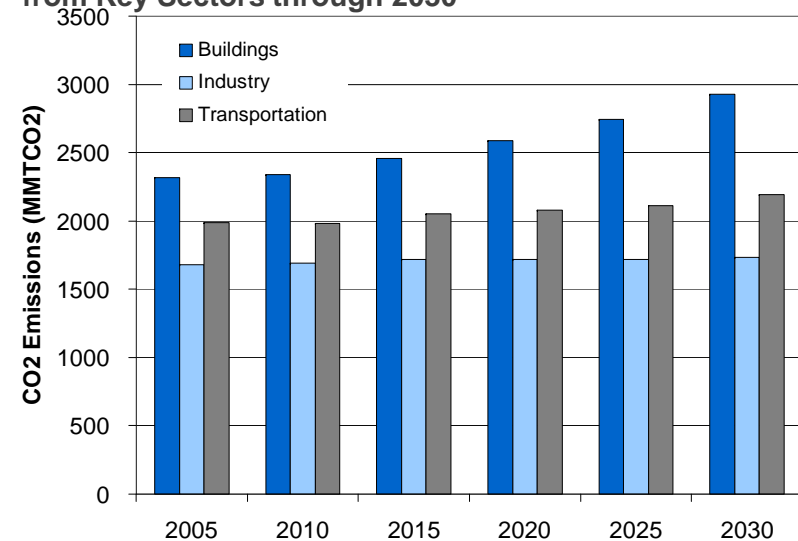
# ENERGY STAR



- Voluntary program started in 1992
- GOAL: Reduce greenhouse gas (GHG) emissions through large win-win-win opportunities with today's energy efficient technologies and practices
- Achieve 30% savings in many buildings, homes, and facilities
- Provide credible information to buyers
- Work with the marketplace to capitalize on motivations of individual actors



Projected GHG Emissions from Key Sectors through 2030



Source: AEO 2008

# Origins of ENERGY STAR Set-top Box Program

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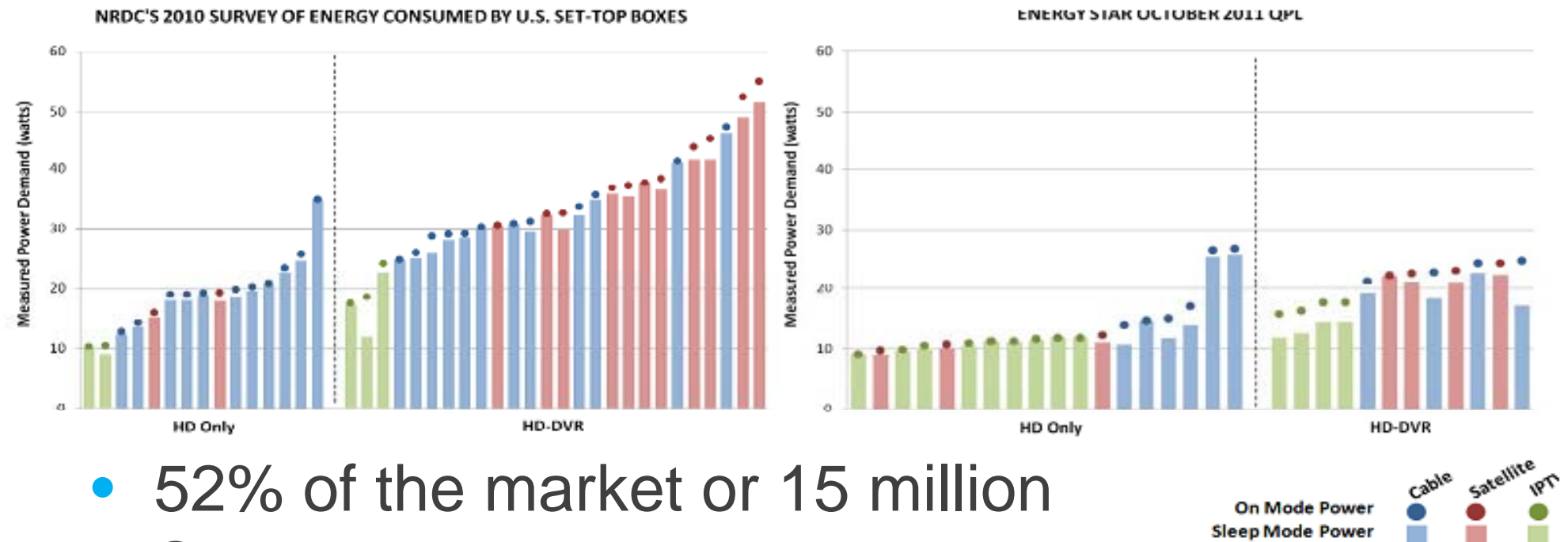


- Program started in 1999
- Intended to address:
  - Split incentives
  - Low efficiency
  - 24/7 operation

# Program Relaunch in 2008



- New Approach
  - Partnership Agreement for Service Providers
  - Annual Typical Energy Consumption (TEC)



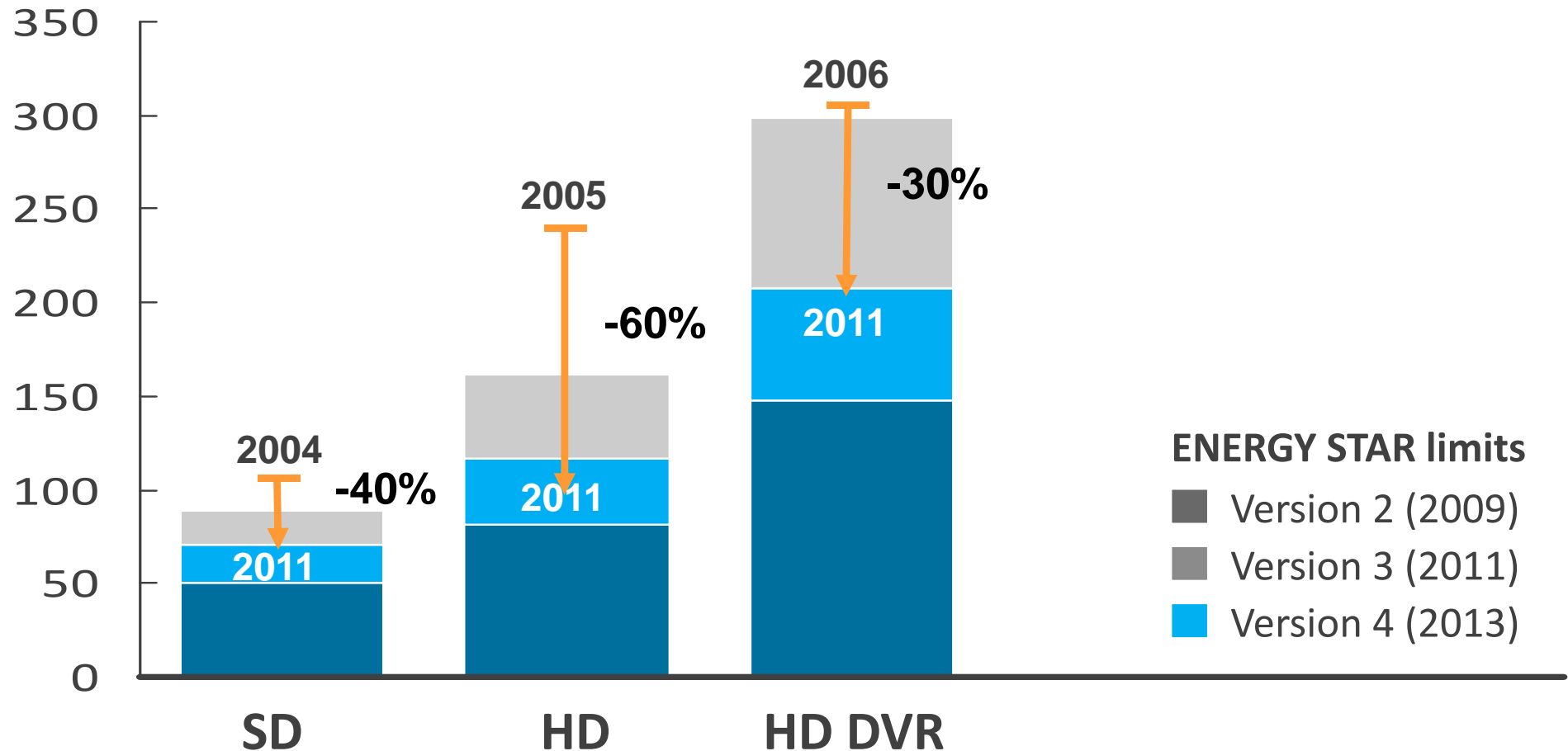
- 52% of the market or 15 million STBs in 2010

# Lower Energy Consumption/More Features and Processing Power



## Typical Energy Consumption (TEC) kWH/year

Change in energy consumption from  
1<sup>st</sup> generation to current



# ENERGY STAR Test Method



- Source signals: SD network TV, HD sports, SD news
- Accredited labs must be able to access or simulate the service provider's head-end and environment, including periodic downloads
- Test Method Includes Multiple STB Modes:
  - Live TV Viewing
  - DVR Recording and Playback
  - Removable Media Recording and Playback
  - Sleep, Auto Power Down, and Deep Sleep
- Test Method Includes Multi-room STBs

# Current Specification: Version 3.0



Table 3: Base Type TEC Allowance ( $TEC_{BASE\_MAX}$ )

Base Functionality	Version 3.0 Allowance (kWh/year)
Cable	60
Satellite	70
Cable DTA	35
Internet Protocol (IP)	50
Terrestrial	22
Thin-client / Remote	35

Table 4: Additional Functionality TEC Allowance ( $TEC_{ADDD\_I}$ )

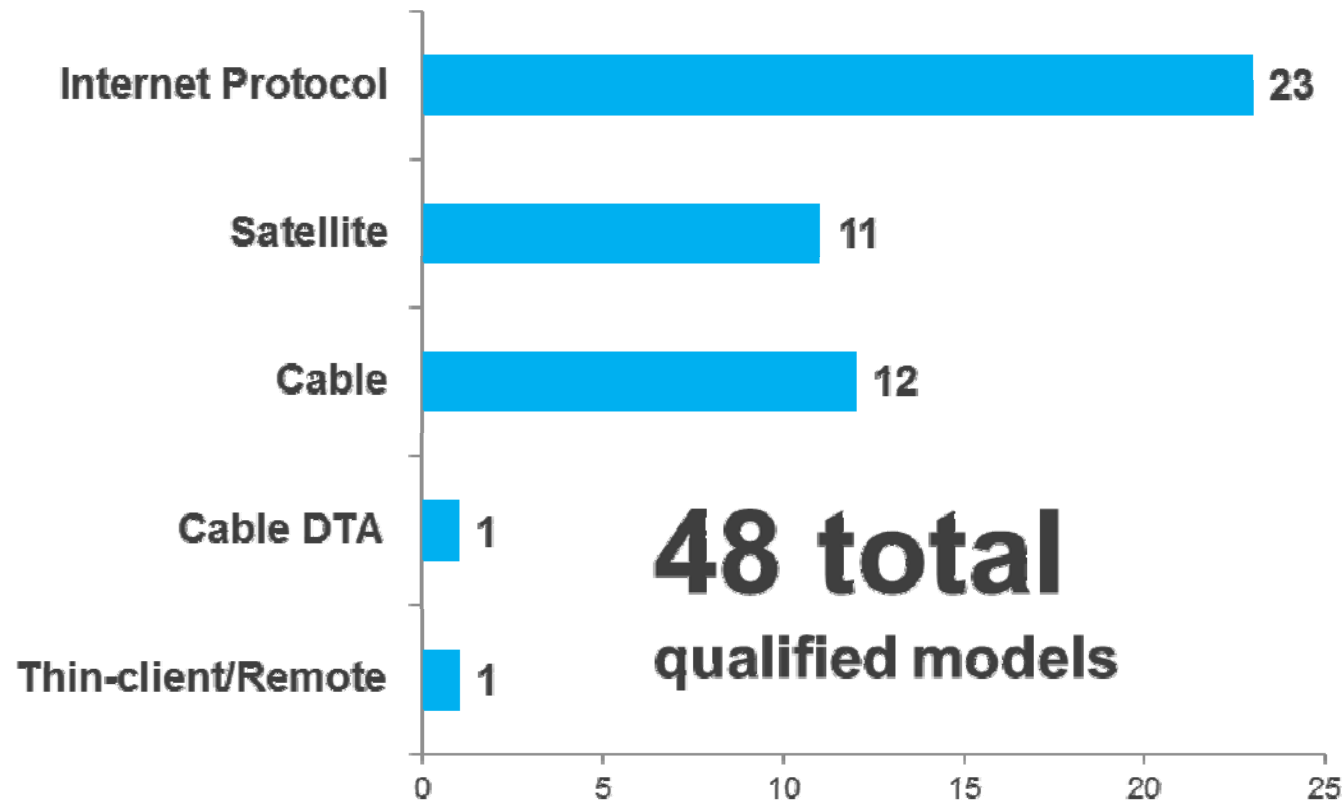
Additional Functionality	Version 3.0 Allowance (kWh/year)
Advanced Video Processing	12
CableCARD	15
Digital Video Recorder (DVR)	45
DOCSIS®	20
High Definition (HD)	25
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- Additionally:
- Requirements for auto power down (APD)
  - Limits on wakeups and speculative recording
  - Incentives for Deep Sleep

# Version 3.0 Qualified Products



ENERGY STAR Qualified STBs - 2/1/2012



- 10 STBs qualified for multi-room operation
- 17 STBs with DVR
- 9 STBs with APD
- 2 STBs with Deep Sleep

from **10** ENERGY STAR manufacturer partners



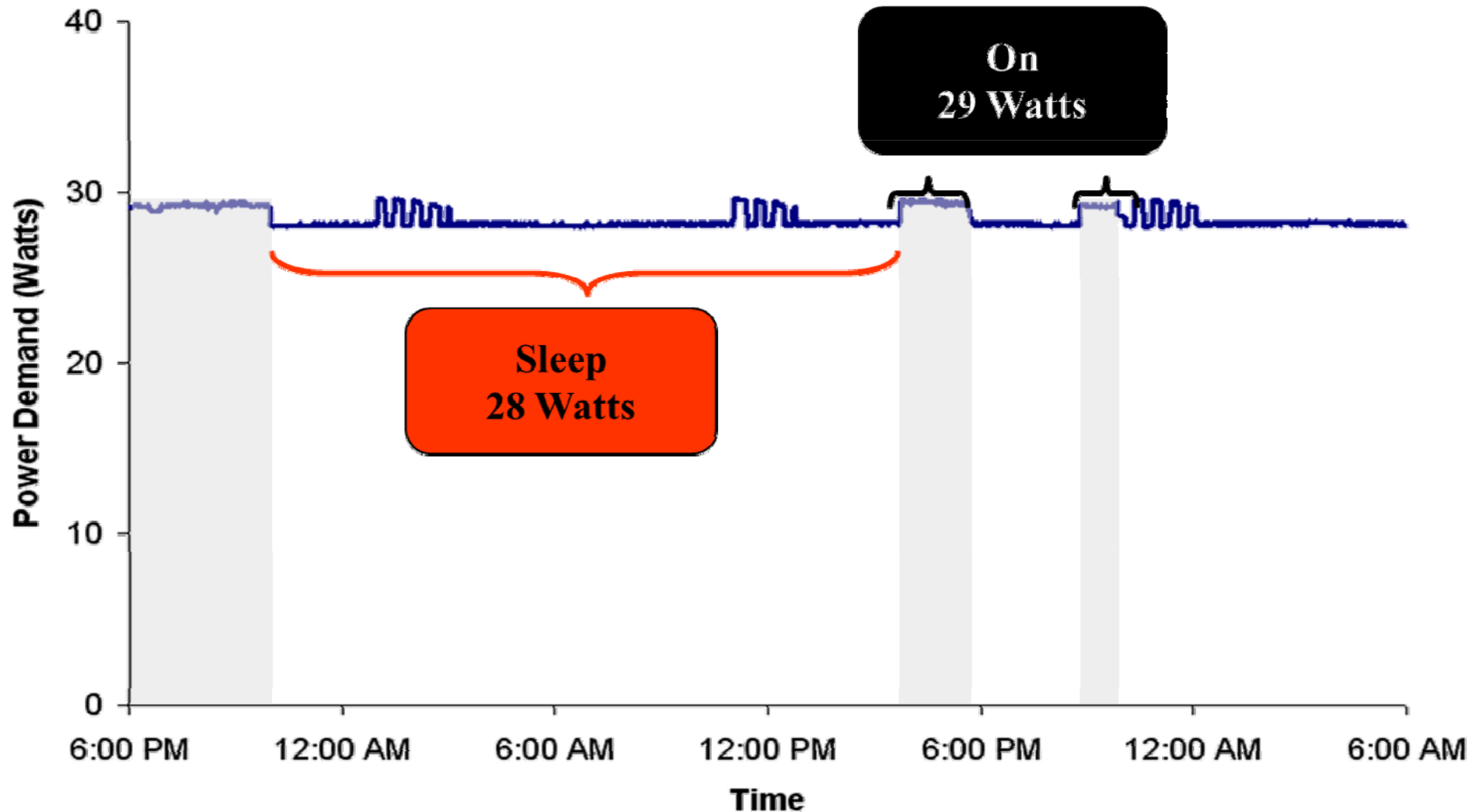
# Version 4.0 Specification

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- Finalized in April 2010 → Effective July 2013
- 32% Average Decrease in Base Allowances
  - 50% Decrease for IP Boxes
- 21% Average Decrease in Adder Allowances

# Real Sleep Mode



Source: Ecos/NRDC 2010

# Continuing Progress of Technology



- Spread of Thin Clients and Zero Clients



- Multiple Tuners



- Set-top Box Functions in Other Products

# Thank You for Your Time!

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