ENERGY STAR® Set-top Box Program Updates

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US EPA

CEE Program Meeting
January 13, 2010

Today

- EPA Goals for ENERGY STAR STBs
- Labeling Program Update
- Program Design Support Update
- Discussion

EPA Goals for ENERGY STAR STBs: Labeling Program

- Objectives
  - Secure greatest possible energy savings.
  - Engage all key stakeholders.
  - Performance based specs recognize market leaders in energy efficiency.
  - Leverage existing test procedures.
  - Harmonize with domestic and international partners.
  - Offer longevity and fair comparison of products, consider feature richness.

EPA Goals for ENERGY STAR STBs: Program Design Support

- Objectives
  - Offer facilitation and technical expertise to assist program sponsors in understanding the STB market
  - Facilitate program sponsors' identification of effective market interventions
  - Accelerate development of strawman program design for consideration by all stakeholders

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Service Provider Purchase / Fleet Requirements

- Requirements
  - Meet or exceed either a purchase or fleet requirement for each year of partnership
  - Purchase requirement:
    - 50% of new boxes purchased in a calendar year must be ENERGY STAR qualified
    - Refurbishment does not count towards purchase requirement
  - Fleet requirement:
    - 10% of fleet must be ENERGY STAR qualified in 2009, and 25% must be qualified in 2010.
    - The following activities count toward the fleet requirement: Purchase and deploy new STBs, Deploy refurbished STBs, or upgrade STBs in the field
  - Purchase and Fleet requirements in 2011 and beyond are TBD

Technical Specification: Power Allowances

Table 1: Base Functionality Annual Energy Allowance

Base Functionality	Tier 1 Annual Energy Allowance *(kWh/year)*	Tier 2[1] Annual Energy Allowance *(kWh/year)*
Cable	70	50
Satellite	88	56
IP	45	36
Terrestrial	27	22
Thin-Client/Remote	27	22

Table 2: Additional Functionalities Annual Energy Allowance

Additional Functionalities	Tier 1 Annual Energy Allowance *(kWh/year)*	Tier 2 Annual Energy Allowance *(kWh/year)*
Additional Tuners[2]	53	16
Additional Tuners – Terrestrial /IP[3]	14	8
Adv. Video Processing[4]	18	12
DVR	60	32
High Definition[5]	35	12
Removable Media Player	12	8
Removable Media Player/Recorder	23	10
Multi-Room[6]	44	25
CableCARD[7]	15	TBD
DOCSIS[8]	20	TBD
Home Network Interface	20	10

Partnership Update

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Service Provider Partners

Partners with Qualified Products	Number of Qualified Products
Cisco Systems	12
DIRECTV	12
General Instrument Corporation (Motorola)	12
Huawei Technologies Co., Ltd.	2
Pace plc	8

Spec Revision Timeline

- December 3, 2009
  - Kickoff conference call
- January 19, 2010
  - Data submissions due to EPA
- January 29, 2010
  - Draft 1 Version 3.0 STB specification distributed to stakeholders
- February 26, 2010
  - Stakeholder comments on Draft 1 due to EPA
- March 15, 2010
  - Final Draft Version 3.0 STB specification
- February – March 2010
  - Develop Version 2.0 Service Provider requirements
- April 1, 2010
  - Publish final Version 3.0 STB specification and final Version 2.0 Service Provider requirements
- January 1, 2011
  - Version 3.0 STB specification effective date
  - Version 2.0 Service Provider requirements effective date

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PG&E: Market Data Needs
Sarah Bresko, PG&E

1. Market Characterization

a) Who are the players, how does product move, who are the key decision makers in hardware and software
b) What does the North America cable provider spread look like, who are the top 5 players and their respective regions (to guide NRDC assessment)
c) Business model (related to STBs) of those top 5 providers (lease, sell)
d) Provider options in a given geographical area (number and description - e.g. Comcast, DISH, DIRECTV, AT&T, etc.)

2. Market Trends

a) Understand natural trends to IPTV, card-ready TV sets, streaming content, AppleTV/MS Mediacenter as opposed to cable provider providing the boxes
b) Set Top Box EUL, refresh rate, standard "lifetime" in the home including service changes driven box changes
c) Better understand FCC regulations their potential goals to eliminate STBs, and industry compliance through Tru2way efforts

PG&E: Market Data Needs
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3. Attribution

a) Quotes and/or depth interviews with cable providers to justify program
b) Gain understanding of cable provider decision making factors (i.e. how to energy efficiency rank on their list of STB purchasing criteria)
c) Find out what is the root of the energy consumption problem in STBs and who is defining the requirements for that item (software, hardware, component)
d) Graph natural market growth and % of boxes that are currently Energy Star (our program success metrics would be increasing that percentage not increasing the number of boxes)

4. Technology Understanding

a) TV or STB has main components: monitor, tuner, storage that can be duplicated or paralleled between TV, STB, and Game Console -- How will this impact STBs
b) Identify potential cross-over with Game Console technology if root is identified as a component

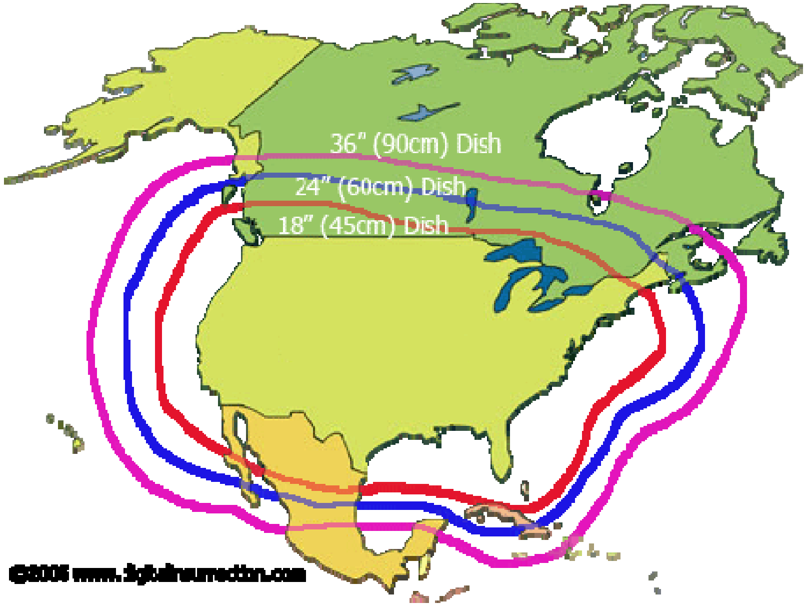
Top US TV Service Providers

Segment	Service Provider	Subscribers
Cable	Comcast	24M
	Time Warner	13M
	Cox	5M
	Charter Communications, Inc.	5M
	Cable Vision	3M
Satellite	DirecTV	18M
	Dish Network	14M
IPTV	AT&T U-verse	1M

Source: NCTA, SBCA, and other public data.

US Landscape

- Service providers
  - US Cable SPs operate nationally or regionally
  - Dish and DirecTV operate in US and some Latin America, but not Canada
- STB manufacturers and their suppliers supply products internationally



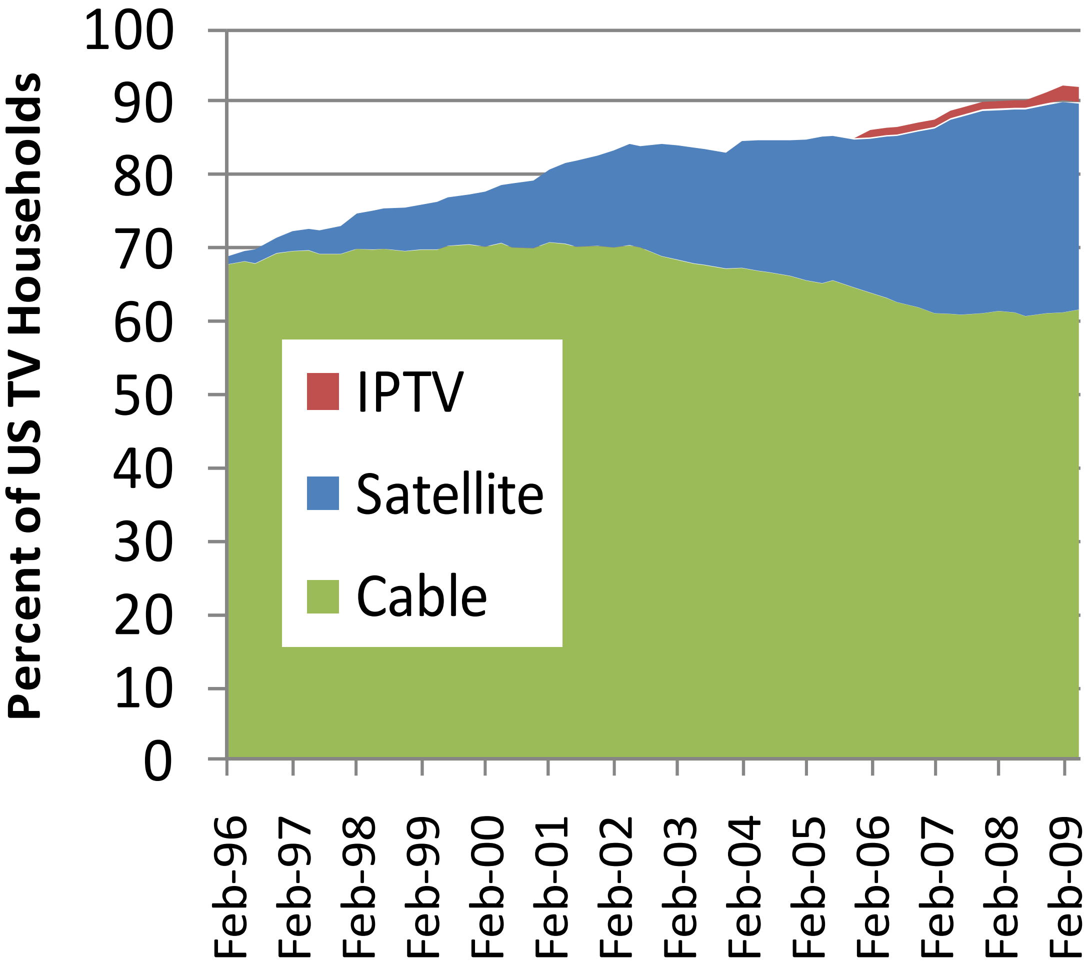
DirecTV Coverage Map
Dish is similar

Service Providers Are Key

- Major service providers (SP)
  - Influence STB, head end and overall system requirements
  - Own deployed STBs and control installation, configuration, software updates, repair, refurbishment, retirement and resale
  - Have limited choice of equipment manufacturers
    - Primarily Motorola and Cisco/Scientific Atlanta for cable, EchoStar for Dish and private labeled boxes for DirecTV
- Minor US and Canadian service providers generally use STBs and systems developed for major US players
- SPs own STB deployment and configuration data
- Typical consumer can choose between 1 cable, 2 satellite and many OTT service providers but not between STBs for a given subscription package
- Primary STB distribution model:

Source: Ecos Consulting interviews with industry stakeholders.

US Service Provider Market Trend



Source: Ecos Consulting analysis of http://www.tvb.org/rcentral/mediatrendstrack/tvbasics/12_ADS-Natl.asp and other publicly available information.

Key Trends

- Verizon fiber to the home is gaining market share vs. other cable operators
- CNET reported at CES that 45% of cable subscribers polled are considering dropping cable for OTT
  - If consumers adopt dedicated IP devices, laptops and other efficient devices for OTT, then total energy consumption could decrease
  - If they use game consoles and high-end PCs, then energy consumption could stay the same or increase
  - Either way, consumer choice would increase
- Convergence around one entertainment platform (e.g. PC or Game Console) is possible but far from certain
- Current projections show HD-DVR market share trending upward but uncertain

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Barriers & Attribution Challenges

- Major service providers, who have no direct financial incentive to reduce energy consumption, select STBs from a limited set of manufacturers
  - service provider makes procurement decisions
  - Hard to determine baseline easily (vs. consumer product sales, e.g. CFLs and TVs)
  - Service providers can shift inefficient STBs between utility service territories or can sell them internationally
- Consumers have limited choice of service providers and no choice of STB within a subscription package
- SPs hold fleet, configuration and forecast data tightly

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ENERGY STAR STB Contacts

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